Global report on assistive technology[1]

Section 7
Moving forward

While assistive technology enables the enjoyment of human rights and changes the lives of those with access to it, this report reveals that improving access to assistive technology is long overdue for hundreds of millions of people. However, while knowledge gaps exist, there is sufficient evidence and normative guidance for action to strengthen sustained provision of adequate quantities of safe, effective and affordable assistive products to achieve universal access to assistive technology.

Box 7.1 Regional and global collaborations on the development of recommendations

In September and October 2021, regional consultations were organized by the WHO in African, American, Eastern Mediterranean, European, South-East Asian and Western Pacific[i] regions, followed by a two-day global consultation. Government and other stakeholder representatives from 99 countries[ii] participated in the regional consultations. In total, 291 participants representing users, academia, professionals, providers, international organizations and policy-makers – involved in all aspects of assistive technology – participated in the global consultation. The consultations informed participants about key findings on access to assistive technology at global and country levels from the surveys and research work in the global report development. Thematic group discussions engaged participants to validate, challenge and suggest improvements of the recommendations, especially from regional and country perspectives. The consultations did not only lead to the final recommendations to be presented in the current report but also provided the opportunity for the governments and stakeholders to reflect on their responsibilities, prioritize actions,[iii] and outline the way forward.

[i] The WHO Western Pacific Regional Office deployed an online platform to present a video tutorial on global report key findings and to collect feedback and inputs to the draft recommendations.

The platform was open for two weeks for government representatives in the region to participate in the consultation.

[ii] Participating countries and territories: Afghanistan, Andorra, Armenia, Aruba, Australia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Belarus, Benin, Bermuda, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Botswana, Brazil, Burkina Faso, Burundi, Chad, Chile, Costa Rica, Cuba, Czechia, Democratic Republic of the Congo, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Georgia, Germany, Guatemala, Guyana, Haiti, Hungary, Iceland, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Latvia, Lebanon, Liberia, Libya, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mexico, Morocco, Myanmar, Nepal, New Zealand, Niger, Pakistan, occupied Palestinian territory, Papua New Guinea, Peru, Poland, Portugal, Qatar, Republic of Moldova, Romania, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Slovakia, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, United Republic of Tanzania, Thailand, Tunisia, Turkmenistan, Ukraine, United Arab Emirates, United States of America, Uzbekistan, Venezuela, Viet Nam.

[iii] In the regional consultation in WHO European Region, participating countries consented to priority actions through voting.

Recommendations

Every country has its own context to be considered to plan and develop the best path to improve access to assistive technology. Through the development of the current report, consultations at regional and global levels were organized to create platforms for exchanging knowledge, experience, practices and lessons learned among different countries and stakeholders (Box 7.1). These exchanges identified synergies and fostered collaborative thinking towards co-created meaningful, relevant and actionable recommendations that are owned by countries and stakeholders.

The following ten overarching recommendations are intended to guide countries and other stakeholders progressively in their work to improve access to assistive technology, in accordance with their commitments under the UN *Convention on the Rights of Persons with Disabilities* and to achieve the Sustainable Development Goals (SDGs).

Recommendation 1: Improve access to assistive technology within all key development sectors

A national strategy and plan of action to progressively improve access to assistive technology should ensure that no one is left behind irrespective of age, gender or functional difficulty. An integrated approach to assistive technology provision involves all key development sectors – particularly health, education, labour and social services – ensuring that the needs of all users and potential users are met. Such provision can be included into essential health services (for example, ear and hearing care, rehabilitation, and services for older people and people with communicable and noncommunicable diseases, including neglected tropical diseases) and education at all levels.

A broad range of stakeholders including government ministries, organizations that represent users and their families, professional groups, NGOs and the private sector

should be involved in developing, implementing and monitoring the national assistive technology strategy, which could either stand alone or be integrated into a complementary national strategy. Based on a situational analysis, the strategy should establish priorities with measurable outcomes. The strategy should be operationalized in a planned, phased manner, and specify concrete actions, targets, timelines and responsible agencies. Necessary resource allocations, including availability of trained personnel to support implementation of the national assistive technology strategy, should be ensured. Responsibilities for coordination, decision-making, financing, monitoring and reporting, and control of resources, should be explicit.

Incontinence products are essential for my child's independence, relationships and self-esteem.

George, Democratic Republic of Congo

Recommendation 2: Ensure that assistive products are safe, effective and affordable

Ensuring that assistive products are safe and effective requires that: necessary regulatory systems and standards are in place; designers, manufacturers and providers are competent; and users and their families are trained on use and maintenance. As this often increases the costs for providing assistive products, consideration should be given to: cost- minimizing designs, manufacturing, business models and service delivery; reduced taxes and duties on assistive products and required materials; effective procurement processes; and health and social insurance coverage or other cost-reducing programmes. As affordability also depends on costs for travelling and loss of income for users and their families in accessing the services, adequate measures to reduce such indirect costs should be considered. UN agencies can use their procurement capacity and expertise to ease these barriers via international tendering accessible to governments and other relevant stakeholders to ensure that quality standards are upheld globally and drive best value for money.

Recommendation 3: Enlarge, diversify and improve human resource capacity

Knowledge, skills and attitudes of people working in all related sectors are important for improving access to assistive technology. Similarly, the knowledge and skills of professionals involved in all aspects of assistive technology are critical. Where needed, special efforts should be made to go beyond a focus on traditional assistive technology professionals, and to build the capacity of available human resources at municipal, community and/or primary health care level – this includes nurses and midwives, pharmacists, health workers, community-based rehabilitation workers, other allied workforces, and expert users and family members. Human resource capacity at all levels may be re-assessed periodically and can be enlarged and improved through education,

training, recruitment, staff retention and task-shifting. Training on provision of assistive technology in humanitarian crises should be included where appropriate. The WHO Training on Assistive Products (TAP) and other similar materials can be used for training of the workforce.

Recommendation 4: Actively involve users of assistive technology and their families

Users should be seen as partners in assistive technology service provision, not passive service recipients. Users of assistive technology and their families often have unique insights about particular needs and their situation. Hence, they should be consulted and actively involved in every aspect at all levels of assistive technology. Sometimes users and their families or caregivers are good resources for minor repair, adjustments and maintenance of assistive products. Users and their families or caregivers can also spread the word about the benefits of assistive technology provision, and can provide regular feedback that is useful for upgrading and updating the products used.

Recommendation 5: Increase public awareness, garner political support and combat stigma surrounding assistive technology use

Ensure policy-makers are aware of the need for – and benefit of – assistive technology, including its return on investment. Awareness about assistive technology and its uses and benefits should be raised to increase public understanding and political support, and to reduce stigma. Governments, users' organizations, professional associations, media, social and cultural associations (especially in sports) are examples of actors that can run campaigns to change negative attitudes towards the use of assistive products. Successful users, including para-athletes, are good role models for mitigating stigma and improving access.

Recommendation 6: Invest in data and evidence-based policy

Knowledge is essential to raise public and political awareness about assistive technology and to allocate adequate funding to improve access to it. Every country should have data on need, and on the demand and supply of assistive technology to understand the gaps and trends. To this end, the WHO assistive technology assessment tools can be used to get real data on the national assistive technology situation and context. To develop evidence-based legislation and strategies, and to plan, monitor and evaluate comprehensive programmes, it is necessary to invest in, collect and analyse relevant population-based data. Important, broad areas for study include: outcomes in terms of human rights and quality of life for users, their families and the community or country at large; affordability and availability of assistive technology; service delivery models; financing models; cost-benefits and cost-effectiveness of assistive technology from the perspectives of users, programmes and countries; enabling environments; and assistive technology in humanitarian crises. Establishing a mechanism for sharing experiences, information and evidence can support policy decision-making across sectors and countries.

Recommendation 7: Invest in research, innovation and an enabling ecosystem

The assistive technology sector is changing rapidly due to technological advances and evolving needs. Advanced materials science, artificial intelligence, digital technologies and new service-provision models are creating new opportunities for the assistive technology sector to become more effective in reaching everyone, everywhere. New start-ups to support research and innovation in terms of products, services and solutions are opening doors for the assistive technology sector, and while this attracts investment, an enabling ecosystem is required to ensure that new assistive products reach the market and benefit users. It is essential to link users, researchers, innovators, universities and industries within and between countries, providing mutual learning, research and innovation opportunities. All research, innovation, and enabling ecosystem policies and programmes should be people-centred.

Recommendation 8: Develop and invest in enabling environments

The outcomes of assistive technology depend largely on the existence of enabling environments. Such environments are critical for everyone's independence, comfort and participation. Assistive technology and enabling environments complement each other, and access to one of them is often a prerequisite for using the other. Enabling environments are not only about accessible and inclusive physical and virtual environments, but also services and systems, support, relationships and attitudes. Stakeholders in all relevant sectors need to develop and invest in the environments they are responsible for to ensure that they are enabling for all people. Investment in enabling environments is a key prerequisite to optimize the purpose of assistive technology provision – to enable people to live independently and safely with dignity, participating fully in all aspects of life. It is important that users are actively engaged in developing enabling environment policy and programmes.

Recommendation 9: Include assistive technology in humanitarian responses

Ensuring access to assistive technology during humanitarian crises is a challenging task, but efforts must be made to ensure that users in crisis settings are not further disadvantaged and that new potential users can access the assistive technology they need. Assistive technology has the potential to mitigate the consequences of fragility, conflict and violence. In the context of humanitarian crises, access to assistive technology improves the quality of life, safety and protection of people with newly inflicted or pre-existing functional difficulties. Evidence suggests that the provision of assistive technology during conflict – and inclusive humanitarian responses – will increase community ownership, stability, and support peace-building processes in post-conflict situations. All stakeholders responsible for humanitarian responses, including governments, aid agencies, development organizations and civil society, should therefore include assistive technology provision in humanitarian plans and responses within and outside their countries. Active engagement of users must be sought from the planning phase.

Recommendation 10: Provide technical and economic assistance through international cooperation to support national efforts

International cooperation to support efforts to improve access to assistive technology is essential to reducing inequality and progressively achieving universal access to assistive technology, and is mandated in the UN *Convention on the Rights of Persons with Disabilities* (Article 32). Access to assistive technology should therefore be an integral part of international cooperation. It must involve governments, international or regional organizations, the private sector and civil society, and especially organizations representing users and potential users. Measures of cooperation should include technical or economic assistance in areas such as research, policies, regulations, fair pricing, market shaping, product development, technology transfer, manufacturing, procurement, supply, service provision and human resources.

Actors

The implementation of the overarching recommendations and the following actions require the involvement of different sectors and determined action from a range of stakeholders. While national governments have the most significant role, a non-exhaustive list of other stakeholders includes: users and their families or caregivers; organizations representing people with disabilities or older people, or people living with chronic conditions; service providers, professionals and their associations; designers and engineers; manufacturers; suppliers; academic institutions; communities; local authorities; public services; the private sector (including information, communication and technology companies); donors, funding agencies and investors; media organizations; NGOs and faith-based organizations; and UN agencies and development organizations.

UN agencies and development organizations must include assistive technology and enabling environments in their programmes; exchange information and coordinate actions; provide technical and financial assistance to build capacity and strengthen policies, systems and services for assistive technology and enabling environments; and collect and publish related data.

Actions

Recommendations can be operationalized by the following actions, ensuring that they are adapted to specific situations and contexts, and undertaken in feasible ways to progressively achieve universal access to assistive technology. Actions that are limited by human, technical or financial resources can be included in international cooperation (see Recommendation 10).

People

All stakeholders can work to:

- Engage users and their families in developing and evaluating actions in all areas of the assistive technology system and enabling environments.
- Educate the public and raise awareness about assistive technology, its uses and benefits, and the right to access assistive technology; support early identification of needs; improve access; increase acceptability; and reduce stigma and exclusion.
- Empower, develop the capacity of and engage users and their families in development and implementation of awareness raising; policies and provision; design and testing of assistive products; workforce training; and planning and undertaking research.
- Empower and develop the capacity of potential users and their families to identify assistive technology needs; to find and access services; to be involved in the service and product selection process; to use and maintain assistive products; and to follow-up and evaluate them to determine realized benefits and need for changes.
- Empower, develop the capacity of and engage users and their families in designing and evaluating enabling environments.

Products

Designers, engineers, manufacturers, academic institutions, governments, users and their families, professional associations, service providers and investors can all act to:

- Develop an essential assistive products list based on the model WHO *Priority assistive products list*.
- Analyse manufacturing capacity to determine what assistive products can be manufactured in-country or imported. Invest in manufacturing where possible.
- Establish and regularly review standards that ensure assistive products are safe, secure and effective, including functional and technical specifications.
- Leverage resources and empower existing systems to increase innovation, design, manufacturing and repair capacity in relation to safe, effective, affordable and contextually appropriate assistive products.
- Consider aesthetics, gender and preference of different age groups in the design of assistive products to increase acceptability and reduce stigma and exclusion.
- Ensure secure connectivity and compatibility between digital assistive products and surrounding digital environments.
- Promote quality assurance mechanisms for assistive products, such as supporting the role of standards in design and manufacturing.
- Develop and invest in innovative and emerging manufacturing and delivery strategies, such as mass production of components supplemented by additive or local parts, or customization.
- Aggregate demand by considering pooled procurement mechanisms to source safe and effective materials, parts and assistive products at optimal prices and to stabilize supply.

Provision

Provision varies across countries and involves different stakeholders, but overall it should aim to:

- Develop and strengthen coordination and referral networks and mechanisms across sectors (e.g. health, social, education, employment, etc.).
- Develop, adopt and promote quality standards or guidelines for services and procurement.
- Develop or strengthen effective national, regional or global procurement mechanisms to improve supply, quality, availability and affordability of assistive products.
- Ensure that contextually appropriate assistive technology is accessible and affordable in all geographic areas and available at all levels, especially at the primary/community level, including establishing or integrating provision facilities at appropriate locations and considering a one-stop-shop approach with services that can meet the complex user needs.
- Establish or integrate alternative service delivery models (such as, mobile, tele-based or online services, and online distribution) to improve access and affordability.
- Develop and invest in effective emerging technologies, including secure digital technology, for affordable service provision.
- Ensure availability of safe, effective and affordable assistive products (including spare parts) at the point of provision and with sufficient quantity and range to meet demand.
- Ensure that facilities and services are accessible and inclusive for all users, regardless of type of functional difficulty, age, gender or any other social or personal characteristics.
- Ensure that services include assessment, fitting, user training, and follow-up; repairs and maintenance; and feedback from service users throughout the provision process.
- Engage peer-users in coaching and training users.
- Refurbish assistive products that can be reused to reduce costs and improve sustainability.
- Establish an information system to coordinate services and facilitate follow up for users, and to support maintenance of assistive products.
- Monitor and evaluate programmes for assistive technology provision.

Personnel

As appropriate, all stakeholders can work to:

- Identify required competencies, skills and number of personnel at different levels to adequately undertake tasks related to assistive technology.

- Develop and adopt a strategy and plan of action for enlarging and improving their human resource capacity, including education, training, recruitment, staff retention and task-shifting.
- Develop, adopt and promote standards for training programmes.
- Develop and conduct continuous capacity building, including face-to-face, online and hybrid training and education, mentoring, peer support, and job- shadowing, on all aspects of assistive technology for people in different roles.
- Expand the assistive technology workforce at all levels, especially in primary health care and/or at community level, to cadres such as nurses, pharmacists, community-based rehabilitation workers, community health workers and teachers.
- Consider task-shifting where appropriate, from highly specialized to less specialized personnel to broaden access to assistive technology for users, while providing training and strengthening supportive infrastructure to maintain the quality of services.
- Train the assistive technology workforce at all levels to be flexible and agile, and able and capable of adapting to new assistive products and models of provision that include remote services.

Policy

Policy actions are the responsibility of the whole of government, even if one or more ministries or agencies has a coordinating role and other stakeholders are actively involved. Key actions are to:

- Establish or assign one or more ministries or agencies to lead and coordinate the work to improve access to assistive technology in the country.
- Collect data in regular intervals using WHO rapid Assistive Technology Assessment (rATA) tool to understand the needs, as well as the demand and supply situation.
- Conduct a situational analysis to map the current assistive technology gaps, provision capacity, and to develop a national assistive technology roadmap.
- Recognize assistive technology as comprising essential health products and services, and as an integral component of universal health coverage.
- Develop and adopt a national assistive technology strategy and plan of action, together with all relevant stakeholders (including users) to progressively achieve universal access to assistive technology.
- Develop, strengthen, enforce and implement legislation, policies, regulations on assistive technology and enabling environments, including universal and barrier-free design.
- Adopt and regularly review a national essential or priority assistive products list based on population needs.
- Establish a regulatory system that ensures production, procurement and provision of effective, safe and affordable assistive products, including a surveillance system.
- Establish a regulatory system that ensures environments are enabling.
- Invest in provision of assistive technology and enabling environments, taking into consideration human rights and long-term benefits, and ensuring adequate funding

to sustainably meet collective and individual needs for assistive technology and enabling environments.
- Implement effective and sustainable financing mechanisms for assistive technology, considering loans, instalments, rebates, vouchers and subsidies to increase affordability.
- Reduce or eliminate tariffs and taxes on internationally and locally produced and procured assistive products to increase affordability.
- Strengthen data collection and information management systems to ensure accurate estimation of population need, met need, and outcomes and impact, while monitoring assistive technology provision.
- Stimulate regional and international collaboration in research, innovation and learning.

Enabling environments

Although governments are responsible for ensuring that environments are enabling, all stakeholders can take important actions to:
- Develop and implement an action plan to create enabling environments, including products and equipment; the built environment; the virtual environment; the natural environment and human-made changes to the environment; services and systems; as well as support, relationships and attitudes.
- Establish standards, guidelines, regulations or bylaws that ensure that environments are truly enabling, welcoming and can be used by all people, to the greatest extent possible, without the need for adaptation or specialized designs.
- Regularly review standards and guidelines to ensure that they match ongoing technical developments, especially in the areas of digital and emerging technologies.
- Analyse environments and the extent to which they enable functioning and prevent functional difficulties or injuries.
- Create enabling environments to ensure that people with functional difficulties have access to the physical environment, health care, education, transport, information and communications (including information and communication technologies and systems) and to other facilities and services open or provided to the public, regardless of where they live.

Humanitarian crises

In addition to previous actions, humanitarian stakeholders can undertake to:
- Establish or assign a multi-stakeholder taskforce to address assistive technology in humanitarian crises.
- Develop and conduct training to raise awareness of humanitarian crises among assistive technology professionals, and to help humanitarian actors understand assistive technology.
- Develop a global assistive technology-inclusive humanitarian response action plan.

- Develop and integrate an assistive technology provision and coordination framework for humanitarian crises across all concerned sectors.
- Include provision of assistive technology within national humanitarian action plans, or emergency preparedness and response plans.
- Ensure funding is adequate to implement humanitarian action plans, emergency preparedness and response plans, including ring- fencing humanitarian and development funding for provision of assistive technology in humanitarian crises.
- Include need for and access to assistive technology in needs assessments for humanitarian crises.
- Develop an essential assistive products list for humanitarian settings.
- Expand supply catalogues for humanitarian crises to include safe, effective and affordable assistive products.
- Develop assistive products and service delivery methods intended to meet assistive technology needs in humanitarian crises.
- Establish coordination systems to facilitate information, referral, procurement and delivery of assistive products in humanitarian crises.
- Link provision of assistive technology in humanitarian crises to national systems to ensure long-term sustainability and equity between affected populations and others.
- Strengthen national assistive technology systems so they are responsive to the needs of all people who may be affected by humanitarian crises, including displaced people.
- Ensure that all aspects of the environment are enabling.
- Include indicators on access to, and use and outcomes of, assistive technology in monitoring frameworks for humanitarian response.
- Undertake research in humanitarian crises to identify key gaps in, and specific actions to improve, access to assistive technology.

My child is able to learn and send messages on her smartphone and do other activities.

Pramod (51), India