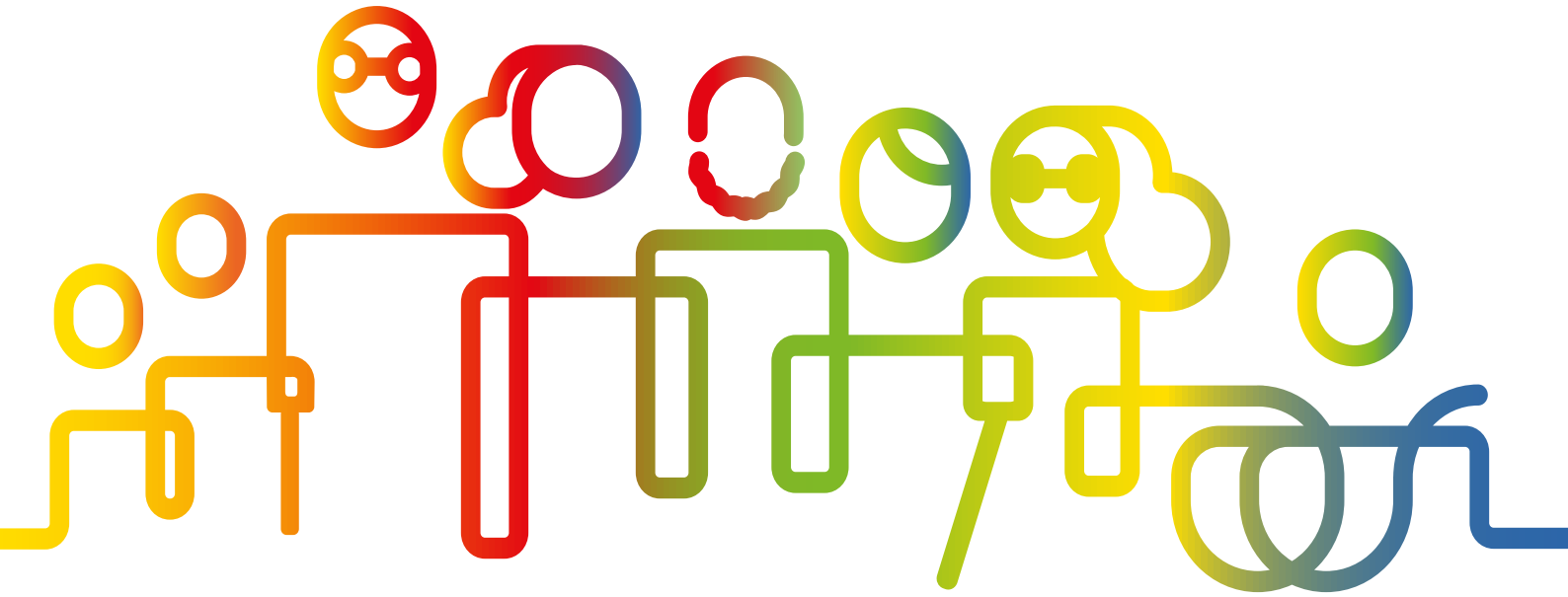
Multi-country rapid Assistive Technology Assessment (rATA) 2019-2021: findings from a consultative review



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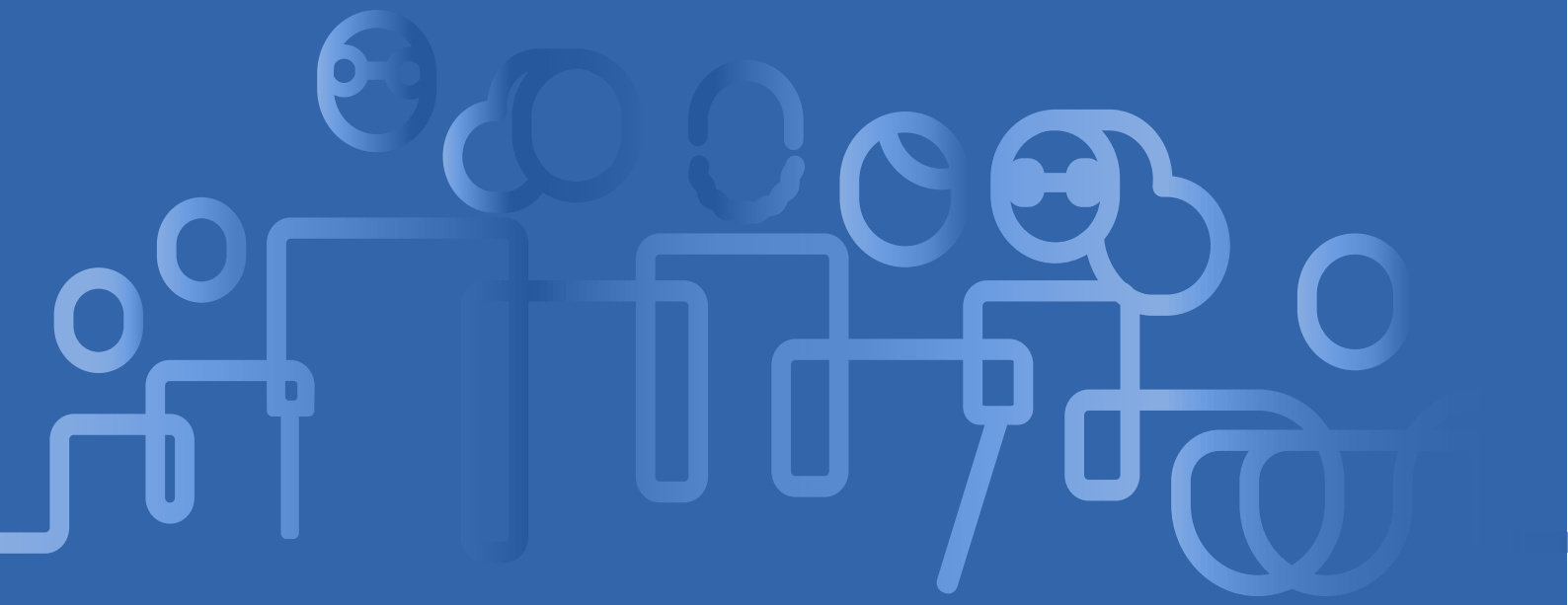

Multi-country rapid Assistive Technology Assessment (rATA) 2019-2021: findings from a consultative review

World Health Organization

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Declaration of Interests

All the experts who contributed in their individual capacity to the development of this document have completed and submitted their duly completed Declaration of Interest (DOI) and Confidentiality Undertaking forms. On review and assessment of the completed DOIs, no experts declared interests that required further consideration and discussion with the Office of Compliance, Risk Management and Ethics.

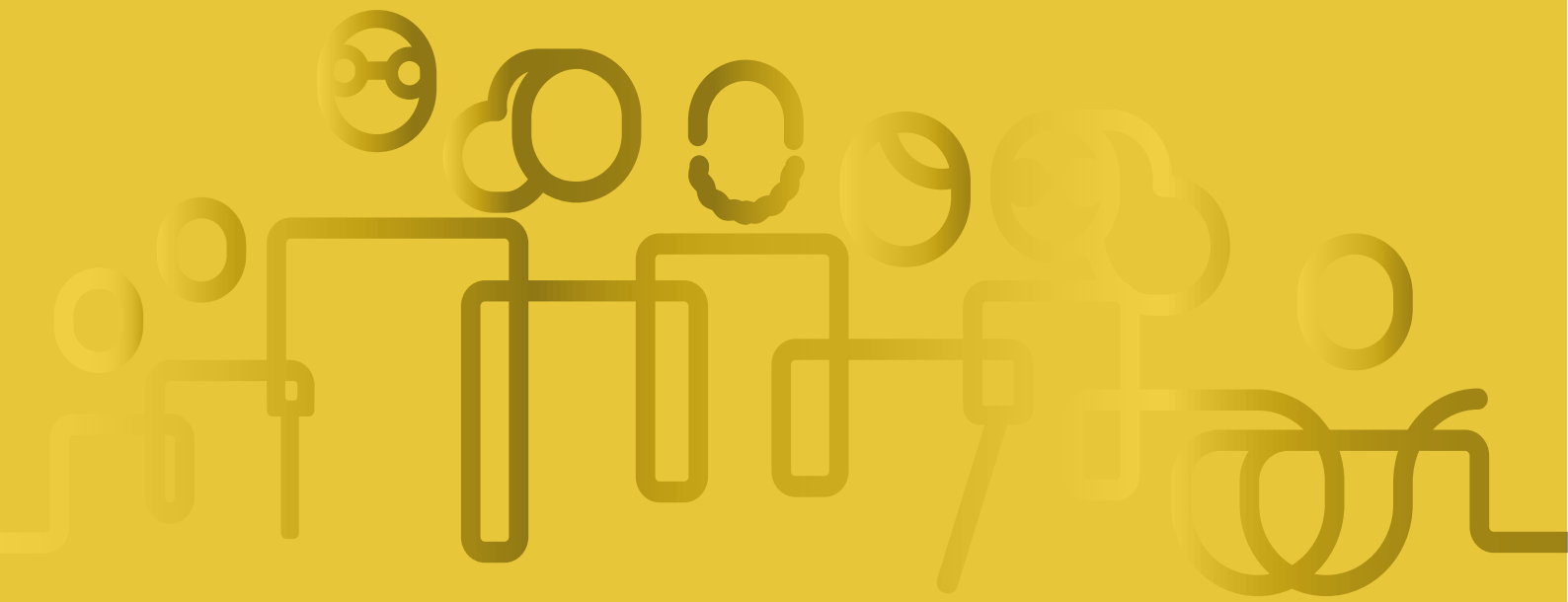
Abbreviations

ATA toolkit	**Assistive Technology Assessment toolkit**
GDC	**Global Data Coordinator**
GHO	**Global Health Observatory**
NDC	**National Data Coordinator**
rATA	**rapid Assistive Technology Assessment**
RDC	**Regional Data Coordinator**

Definitions

The following terms used throughout this report are defined as follows.

Term	Defined as follows for the purposes of this report
rATA questionnaire	**The set of questions used when interviewing rATA survey respondents.** **The questions may be minimally modifiedis allowed for, to contextualize the questionnaire.**
rATA survey	**rATA survey refers to the method of implementing rATA and all data collection, analysis and management tools.**
rATA implementation	**rATA implementation includes all of the steps and processes for involved in carrying out a rATA survey including (and not limited to): identification of lead agencies; stakeholders and survey samples; training of enumerators; data collection and monitoring; data cleaning and analysis; data sharing and dissemination of findings.**
rATA summary of standard indicators	**Excel spreadsheet providing an overview of results by standard indicators, prepared for each country survey. Note:** *in the Global deployment plan and in this document is referred to as a "country factsheet"*.
rATA country fact sheet	**Word and PDF document providing a high level overview of each national rATA survey including: partners, method and findings (by standard indicator and where appropriate additional findings).**



Executive summary

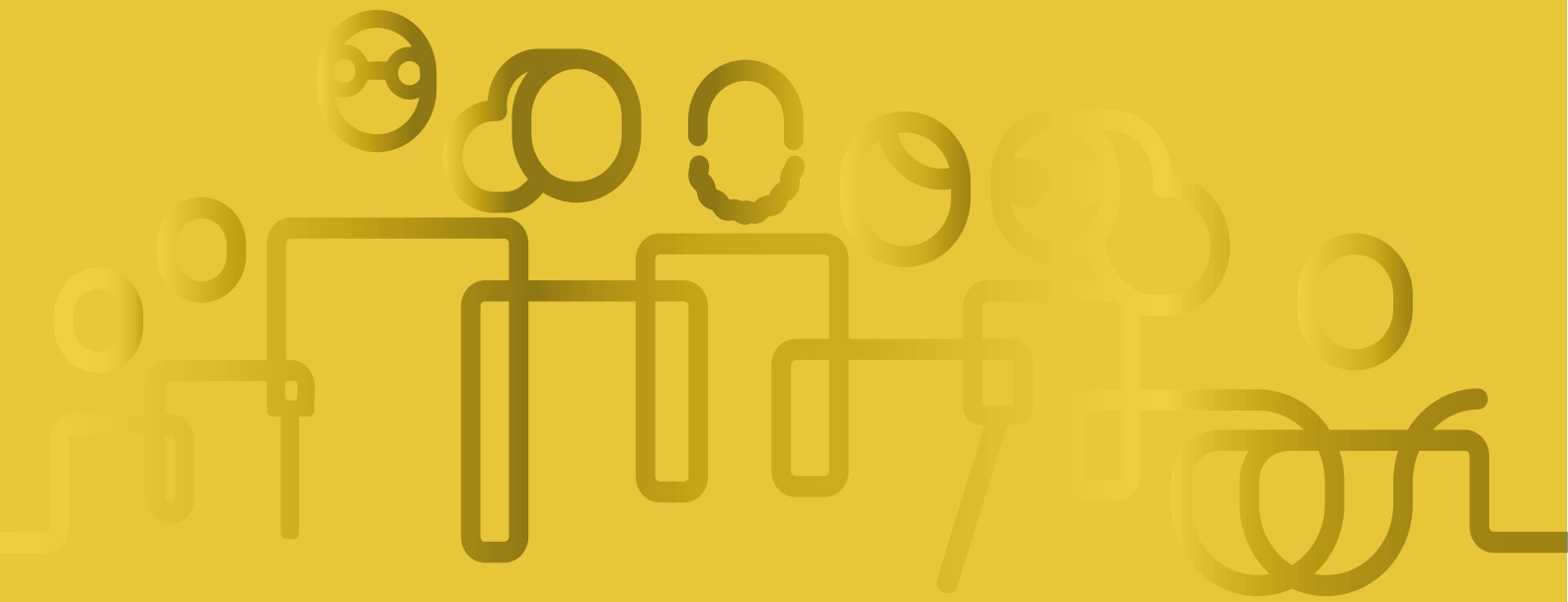
The WHO and UNICEF *Global report on assistive technology* highlights the urgent need for improving access to assistive products, with an estimated 2.5 billion people requiring at least one assistive product. This number is expected to rise to over 3.5 billion by 2050 *(1)*. The Global report was informed by the first comprehensive dataset on population access to assistive technology collected using the WHO rapid Assistive Technology Assessment (rATA) survey in 35 countries from 2019 to 2021.

To enhance access to quality assistive products and services, the *Global report* recommends investing in effective and efficient data collection by Member States *(1)*. The World Health Assembly resolution (WHA71.8) on improving access to assistive technology requests WHO's technical and capacity-building support for Member States and progress reporting to the World Health Assembly in 2026 and 2030 *(2)*. Analysing insights from the 2019-2021 rATA implementation will help support the report's recommendations, to strengthen ongoing assistive technology data collection, and to inform progress reporting against WHA71.8.

The WHO Access to Assistive Technology team conducted a consultative review of the global rATA implementation process to identify successes, areas for improvements, and guide rATA survey refinement for future implementation. The review involved 29 stakeholders from 18 countries, including national, regional, and global rATA survey coordinators, data users, researchers, and users of assistive technology who; came together for in-person consultation to create consensus recommendations for improving the measurement of access to assistive technology.

This report presents recommendations that will build on the initial success of the rATA survey, helping to streamline the tool, making it increasingly accessible and cost-effective to implement. The recommendations address five key areas including: the questionnaire, data collection and tools, data management and analysis, country support for implementation, and communication, dissemination, and use of the findings.

The consultative review was a valuable process, offering insights into feedback, best practices, and opportunities for improving future rATA implementation and further developing the rATA survey as a primary tool for measuring and understanding the need and unmet need for assistive technology. Findings from this review will guide the WHO ATA Team and the *GATE Global network on measuring access to assistive technology* to strengthen the systematic collection, analysis, dissemination, and use of data on access to assistive technology worldwide.



1. Introduction

The WHO and United Nations Children's Fund (UNICEF) *Global report on assistive technology* (2022), estimates that 2.5 billion people need at least one assistive product and that this number will grow to over 3.5 billion by 2050 *(1)*. Further, the report reveals considerable global inequity of access to assistive products, with less than 3% of people in some countries having access, compared to 90% in others *(1)*.

Access to assistive technology is an important component of Universal Health Coverage; and an enabler towards improving the participation, inclusion, and quality of life for many individuals *(3)*. Measuring access to assistive technology is key to ensure no one is left behind as the world strives to achieve the Sustainable Development Goals.

The data that informed the *Global report*, highlighting the scale of need and unmet need for assistive technology, represents the first comprehensive multi-country dataset on access to assistive technology. This data was collected between 2019 and2021, using the WHO rATA survey *(4)*. Through a global collaborative effort, nearly 330 000 people across 35 countries were surveyed in 28 languages, by 1700 enumerators.

This report documents a consultative review of the rATA survey and implementation. The review was carried out to inform the further development and use of the rATA survey, considering the methods used for data collection, country support, data analysis, and dissemination. The findings and recommendations are relevant for all stakeholders with an interest in measuring need and access to assistive technology.

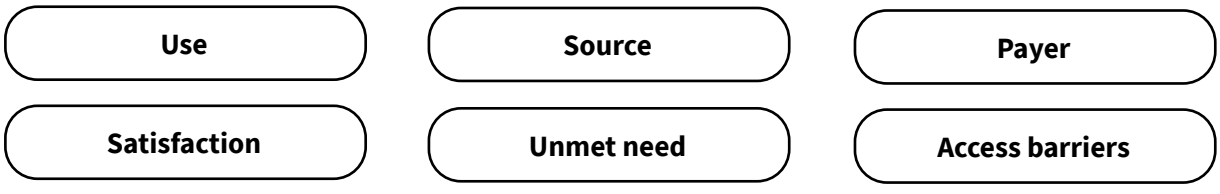
2. rATA survey and implementation

2.1 The rATA survey

rATA is a population-based survey developed by WHO to gather self-reported information from respondents, regarding their access to assistive technology. It was developed as a response to the first World Health Assembly resolution on assistive technology (WHA71.8), which called upon WHO to prepare a global report on the status of assistive technology.

The rATA questionnaire consists of an interviewer administered set of questions that may be used as a standalone questionnaire or integrated into other surveys *(5)*. The full questionnaire gathers quantitative and qualitative data, and covers different areas related to assistive technology: use, source, funding, satisfaction, unmet need, and barriers to access (Figure 1). These areas also incorporate distance to source and suitability of assistive products for the environments in which they are used, as well as self-reported functional difficulties and basic demographic information.

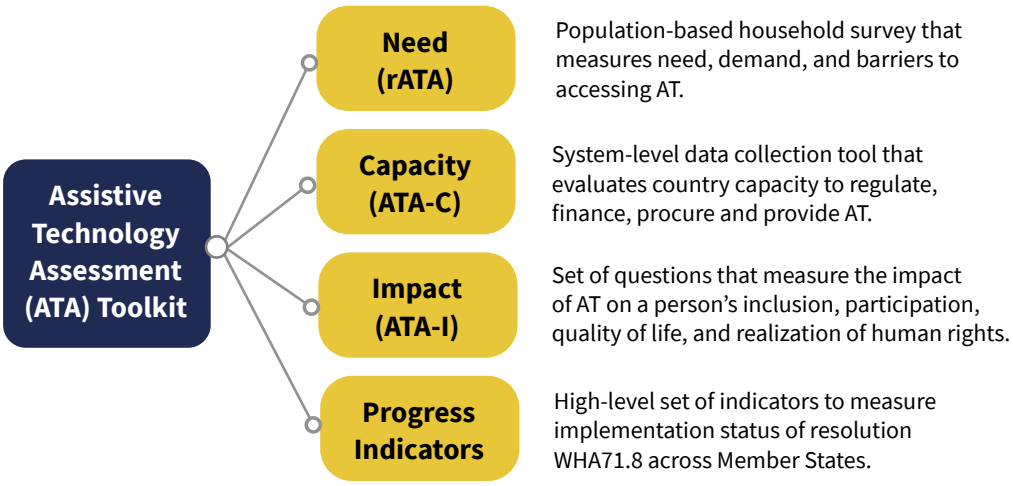
Figure 1. **Areas covered in the rATA questionnaire**



The rATA survey targets the general population of all ages in a country or in specific areas within a country, and all members of sampled households are eligible for inclusion. The survey can be administered by trained interviewers (enumerators), and is currently available in seven languages (Arabic, Chinese, English, French, Portuguese, Russian and Spanish).

rATA is one of a number of assistive technology data collection tools developed by WHO, which together make up the Assistive Technology Assessment (ATA) toolkit (Figure 2). Other components of this toolkit include: the Assistive Technology Capacity Assessment situation analysis *(4)*, the *Assistive Technology Impact Tool* [1] (ATA-I), and the *WHA71.8 Progress Indicators for access to assistive technology (7)*.

Figure 2. The WHO Assistive Technology Assessment (ATA) toolkit



2.2 Implementing the rATA survey for the Global report on assistive technology

Between April 2019 and December 2021, 36 rATA surveys were carried out in 35 countries in a collaborative effort involving WHO, Ministries of Health (MOH), research institutes, and nongovernment organisations (*see Annex 1*). This rATA implementation was intended to inform the first *Global report on assistive technology (1)*, as well as to accelerate action towards strengthening national, regional, and global access to assistive technology.

In each country a lead agency worked with other partners to implement the rATA survey, supported by relevant WHO country offices, regional offices, and headquarters. Each regional office fulfilled a role as Regional Data Coordinators (RDC), and WHO headquarters operated as Global Data Coordinators (GDC).

The role of each national lead rATA agency was critical in managing the process, with technical guidance and support provided by the RDC and GDC across all phases. An appointed National Data Coordinator (NDC) was responsible for coordinating the in-country data collection process and ensuring effective implementation of all aspects of the survey. The NDC worked closely with the RDC and GDC teams and other partners to ensure the survey was conducted according to best practices, resulting in the collection of high-quality data.

Implementation of rATA surveys in each country followed different steps showed in Figure 3 (next page).

1 Publication forthcoming.

Figure 3. Steps to implement rATA survey

To support the process a *Global deployment plan (8)* and a *Survey enumeration manual (9)* were developed, providing guidance for all the steps of rATA implementation. A three-day online master training workshop was held for NDCs, and the country survey teams *(10)* to provide step-by-step guidance on the survey methodology and implementation.

The NDC was responsible for obtaining a sample sufficient for the purpose of the rATA (see Box 1).

Box 1: rATA sampling method

The suggested sampling method for in-person household surveys followed a two-stage random cluster sampling. More details on the sampling method can be found in the multi-country rATA survey protocol *(5)*. The sampling method was adjusted in some countries in consideration of resources, data collection modalities and populations of interest in a specific local context.

The GDC provided a tool to help NDCs estimate the required sample size, which is available in the *Global deployment plan (8)*. Each lead agency was encouraged to seek support from the national statistical office or relevant authority in their country to ensure a representative sample of households.

Data was collected digitally using a mobile data collection tool developed by WHO using the ERSI/ArcGIS software *(11)*. This enabled standardized data input by enumerators, and cloud data storage. Data collected on the mobile app was transferred to a secure server at WHO headquarters. Country survey teams were supported in-app validation (i.e., ensuring the app met the country-level requirements), translation and training of enumerators on the data collection procedures *(9)*. Provided that the standard procedure outlined in the manual and training workshops was followed, NDCs were also able to elect to use alternative data collection tools including other digital survey solutions or paper-based tools.

2 In some countries this step included a national stakeholders meeting.

Following data collection, the country team and the GDCs took responsibility for data cleaning. For most of the surveys, the GDCs undertook data analysis according to the multi-country rATA survey protocol *(5)* for the *Global report on assistive technology*. An output of these analyses of each national data set was a *summary of the standard indicators* presented in Box 2.

Box 2: rATA standard indicators

rATA standard indicators:

- prevalence of use;
- prevalence of need;
- prevalence of met need;
- prevalence of unmet need;
- proportions of different sources for assistive products;
- proportions of different payers for assistive products;
- proportions of different barriers to access;
- proportions of different travel distances to obtain assistive products and services;
- proportions of satisfaction regarding assistive products, assessment and training, and maintenance and repair services;
- proportions of suitability of the assistive products to be used at home and surrounding, to support participation in activities, and to be used in public environment;
- proportion of the assistive product reported in use and prevalence of its use in the population;
- proportion of the assistive product reported with unmet need and prevalence of its unmet need in the population;
- proportion of the assistive product reported with need and prevalence of its need in the population.

This summary was shared with each lead agency, along with the country's clean raw data. Country teams were encouraged to undertake further analysis of their national data, according to their specific interests and context, with the GDCs offering support as needed.

After the launch of the *Global report on assistive technology*, policy dialogues and stakeholder meetings were held in some countries[3] to present and discuss detailed country-level results. Country level data[4] of rATA standard indicators (Box 2) has been uploaded onto the WHO Global Health Observatory (GHO) online data repository *(12)*. This platform is WHO's gateway to health-related statistics for its 194 Member States. It provides access to over 1 000 indicators on priority health topics including assistive technology.

3 Countries where rATA data has been used to inform government policies or actions: Djibouti; Dominican Republic; India; Indonesia; Iran (Islamic Republic of); Iraq; Italy; Liberia; Pakistan; Senegal; Ukraine. Countries where stakeholder's meetings were held to discuss rATA findings: Guatemala; Indonesia; Iran (Islamic Republic of); Italy; Liberia; Pakistan; Senegal.

4 Where permission has been given by the relevant authorities in each country.

3. rATA implementation consultative review: objective and process

3.1 Objective

The objective of this consultative review was to learn from those who participated in rATA implementation between 2019-2021, to collaboratively identify lessons learned and to formulate recommendations for further rATA development and use.

Initial consultations held during a forum co-organized by WHO and the Global Alliance of Assistive Technology Organisations, at the Joint International Conference on Digital Inclusion, Assistive Technology, and Accessibility, Lecco, Italy, in 2022 *(13)* helped identify five focus areas for review. These are summarised in Table 1.

Table 1: Focus areas for review

Focus area	Considerations
1) The questionnaire	Ease of use, flexibility, understanding of the questions and response options, validity, opportunities to improve
2) Data collection and tools	Method of collecting data (such as in-person, telephone surveys; possibility of self-administered online surveys), and data collection tools (such as mobile apps, survey software, online surveys, paper-based).
3) Data management and analysis	Process of data sharing, interpretation and use of the analysis plan and outcomes.
4) Country support for implementation	Technical support, reference information or other tools and actions necessary to facilitate implementation.
5) Communication, dissemination, and using the findings	Dissemination and presentation of findings – opportunities, strategies and resources needed; ways to ensure data utilization.

Additionally, NCDs and country team members, RDCs and GDCs provided feedback on the implementation of rATA in countries throughout project evaluation activities. The insights from this feedback were relevant to challenges, successes, and suggestions for improvement across rATA survey planning and preparation, implementation, data sharing and analysis, and dissemination. The themes that emerged from the project evaluation were used to develop discussion topics for the consultative review.

3.2 The consultative review process

The consultative review served to both inform lessons learned and develop recommendations for next steps in development and implementation of the rATA household survey.

The review was conducted through an in-person consultation, held 27–28 March at WHO headquarters, Geneva, Switzerland *(14)*. Twenty-nine participants from 18 countries included NDCs, RDCs and GDCs, data collectors, data users, and a representative from the International Disability Alliance attended (*see Annex 2* for the full list of participants). The detailed agenda can be found in *Annex 3*.

Designed to be interactive and collaborative, the meeting featured presentations and small group discussions structured around the five focus areas of the review (Table 1). During the first day, plenary discussion focused on reviewing, confirming, and building on the findings from the rATA online feedback survey. On the second day, participants worked in five breakout sessions to discuss solutions to challenges and identify priority actions in the five focus areas. During the final plenary session, participants provided feedback on recommended actions and collectively agreed on next steps.

4. Results: feedback received through the consultative review

4.1 Focus area one: rATA questionnaire

Successes	Challenges
Questions: Most participants found the questions and answer options clear; and the questions appropriate to elicit information for a credible understanding of assistive technology access.	**Questions:** A few participants reported challenges in understanding some question or answer options. Some suggestions were given for ensuring more specific answer options to facilitate a clearer analysis.
Flexibility: The ability to adapt the questionnaire for local context was appreciated. A few countries adapted the product lists to correspond with locally available products. Specifically, these countries divided the standard assistive product list in the questionnaire into subcategories. For analysis and comparisons across countries, these results were included under the standard product listed.	**Additional questions:** Some participants suggested including the possibility of adding additional and/or context-related questions, using the opportunity of the rATA survey to collect further AT data. This included the possibility of adding a question set to capture the impact of assistive technology.
Visual cues: It was identified that using photographs of products (paper and online) as prompts for respondents helped overcome challenges of lack of product familiarity and different terms used in different contexts.	**Awareness of assistive technology need:** Participants reported varying levels of awareness and understanding of assistive technology within the surveyed population as a challenge, impacting accuracy and possible underreporting or misreporting.
	Other limitations: Underreporting or misreporting may also be impacted by language barriers, understanding of specific questions, lack of commonly used or familiarity with assistive product terms, or visual cue pictures of products not matching local variations.
	Impact of the above on both respondents and enumerators: These issues posed challenges not only to rATA survey respondents, but also in some cases, to enumerators. Enumerators with limited prior knowledge about assistive technology were noted to take longer to describe assistive products to respondents, resulting in longer survey times.
	Survey length: The length of the survey was noted as a concern for some respondents who were not willing to answer all questions.

"d.11 response option "lack of support" was often selected, but unclear what type of support respondents meant was lacking: financial, family, supportive primary care, etc. I would revise the response options, so they better help identify barriers, and therefore strategies." [E1]

4.2 Focus area two: rATA Data collection and tools

Successes	Challenges
Data collection method: Flexibility in the data collection method (face-to-face standard method or tele-rATA[5] (telephone interview with or without video, or online survey) was appreciated and seen to facilitate reach to diverse participants across different contexts. Use of remote methods also enabled data collection to continue during COVID. Although face-to-face interviews were the most common method, review discussions confirmed remote methods were also feasible and effective for data collection. **Data collection tools:** countries used the mobile rATA data collection tool built by WHO using Survey123. A few countries opted for paper-based collection tools, and some used alternative digital tools. All mobile data collection tools were found to be effective, benefits included being able to track survey progress through cloud data storage and supporting consistency in data collection. The WHO Survey123 rATA data collection tool had some advantages over others as the GDC team were able to assist country teams with context specific survey modifications (such as adding country administrative divisions, adapting product lists, assisting with translations). Using test cases to test the Survey123 tool before data collection in-country was also helpful.	**Data collection method:** Factors such as COVID, cost and culture were identified as influencing the data collection method selected, rather than which method may support the best results. Remote methods meant visual cues could not be always used. This posed a challenge for some respondents in identifying their need and unmet need for assistive products during interviewing. **Comparability:** Some concerns were raised about comparability of the survey data and outcomes due to using different data collection methods**.** **Data collection tools:** Enumerators faced some challenges using the WHO Survey123 rATA data collection tool on their devices related to compatibility, installing, and memory constraints. **Internet connectivity:** Some countries faced challenges with reliable internet connectivity, resulting in some data duplication. This also increased the time required to complete surveys. **Preparation of enumerators:** Enumerators had varying experience of assistive technology and/or data collection. For some, the user interface and functionality of the data collection tool was challenging, as was joining the master online training due to language barriers.

"We used a telephone survey to collect data due to the COVID-19 pandemic and restrictions. Normally, it would have been better face to face to allow for utilizing pictures of assistive devices in the conversations, and for taking pictures of the respondent's assistive product." [S1]

"No challenges faced during the training of enumerators since most of them were coming from rehabilitation medicines." [A1]

5 Tele-rATA is a version of rATA adapted to telephone interviewing, i.e., Computer-Assisted Telephone Interviewing (CATI). One country also used a mix of CATI and CAWI (Computer Assisted Web Interviewing) [Addendum to Global Deployment Plan] (8).

4.3 Focus area three: rATA Data management and analysis

Successes	Challenges
Data cleaning and analysis plans: Guidance developed for countries on how to carry out the initial data cleaning and calculating standard indicators was found to be helpful, although some recommendations were made to improve this guide for future rATA implementation. **Data analysis:** All countries received a summary of the indicators in Excel, via the *rATA summary of standard indicators,* as well as their cleaned raw data. **Country analysis:** A few countries[6] have conducted further analyses of their respective data, and others have plans to do so in the future. Some countries sought and received support from their WHO regional offices for this work.	**Expertise and financial resources:** Although some countries have conducted further analysis, others have been unable to due to lack of expertise, technical guidance, or funding to procure the necessary support. This has limited some countries to the findings available in the *rATA summary of standard indicators*. **Understanding the results:** Some countries required technical support to better understand the indicators as presented in the *summary of standard indicators* and would have welcomed more resources such as a narrative report and visualization of the data to explain the rATA findings to a lay audience. **Summary of standard indicators:** A few countries have not yet utilized the r*ATA summary of standard indicators* for their dissemination. The selected indicators were reported as limited, and some review participants would have welcomed further analysis related to their specific questions of interest and contexts. A few countries struggled to fully utilize the data due to issues with data readability and interpretation. **Time for analysis:** The data cleaning and analysis process is currently relatively labour-intensive with untapped potential to automate analysis.

"The rATA Data cleaning and analysis plans were helpful in preparing for data analysis but could provide additional guidance on analytical/inferential statistics, in addition to descriptive statistics. Our study analysis relied on the experience of the survey team and the "amount" of data available (to provide meaningful/reliable results for subgroups, for example, since it [our study] was targeted to a specific population)." [P2]

"The factsheet [Summary of standard indicators] needs to be more user friendly, also access rate was not provided despite its importance." [E2]

6 Countries who undertook further in-country analysis: Bhutan; Brazil; China; India; Indonesia; Iran (Islamic Republic of); Nepal; Ukraine.

4.4 Focus area four: Support for rATA survey implementation in country

Successes	Challenges
WHO resources and training to support implementation: The *Global deployment plan (8)*, *Survey enumeration manual (9)* and other supporting documents were well received, as was the master training for NDCs and country teams. The ability to customize the enumerator training materials was valued, enabling countries to, for example, provide additional information on assistive technology. Tools such as templates for contract development were also welcomed, as was the availability of support as needed from the GDC.	**WHO resources and training to support implementation:** Although the online master training workshop was generally well-received, a few review participants expressed a desire for tailored content to meet their context. Some participants would also support longer/more training for coordinators and enumerators. A few recommendations were made to strengthen the resources including to develop competency requirements for enumerators; and increase guidance on remote data collection methods. The *Global deployment plan* was prepared to support government-led surveys. A decision during rATA implementation to include non-government-leads meant that for such leads, the plan was less tailored to their needs.
Refresher data collection training: Refresher training held midway through data collection helped reinforce knowledge and address issues.	**On-line vs face to face training:** Conducting online training for enumerators (due to COVID) was reported as a challenge. It was difficult to evaluate enumerators' familiarity and understanding of assistive products and survey questions. Connectivity issues, low screen resolution and frequent interruptions were also reported.
Partnerships and country sharing: Quality engagement with civil society, user groups, and regional/country authorities from the initial phase of rATA preparation and throughout the process was found to support the success of rATA. Learning between countries enabled implementers to benefit from global problem-solving during implementation. For example, countries using telephone interviews supported each other on questionnaire adaptation.	**In-country expertise and leadership:** Low understanding, awareness and prioritizing of assistive technology among policymakers was identified as a challenge for implementation. In addition, identifying an institution to be responsible and in charge of the survey was found to be hard in some countries. **Financial support:** Some review participants reported budget limitations reduced enumerators' time for both training and data collection.

"Brief and accessible videos or leaflets to describe the experiences of AT users and motivate all citizens to contribute to the survey [would be helpful]." [E3]

4.5 Focus area five: Dissemination, communication and use of rATA findings

Successes	Challenges
Raising awareness and mobilizing stakeholders: rATA implementation stimulated awareness of assistive technology as a priority amongst stakeholders including government. Events to launch national rATA findings have also raised the profile and visibility of assistive technology. Several participants reported sharing of country data with universities, research centres, and government bodies for further analysis. This highlights interest in the data for purposes such as health systems mapping, service planning, academic research, and informing policy. **Dissemination channels** rATA results have been disseminated to wide audiences across multiple channels, including social media, radio, online articles, newspapers, policy briefs, journals, and conference proceedings, national and international conference presentations, as well as through workshops, research forums, meetings, and seminars *(15–23)*. **Using rATA findings for action:** Country level dissemination of results has been a catalyst for government and other organizations action on strengthening access to assistive technology. Examples include creation of an advisory group for dissemination and use of rATA data and creation of a national observatory on assistive technology. The review also reported instances of the data being used to identify gaps, inform the design of action plans, inform policy, and allocate resources.	**Resources for dissemination:** A lack of funding, expertise, and personnel with available time to plan and implement dissemination activities has been a limiter in maximizing rATA data sharing. **Guidance:** Some review participants would welcome more guidance on how to present findings. **Permission for data sharing:** Securing permission to share country data on the WHO GHO portal proved difficult for some countries. Common challenges included lengthy approval times, financial constraints, and political factors. **Government as lead agency:** Dissemination and permissions for data sharing were often easier where a government ministry was the lead agency, rather than a nongovernment organization. Despite progress, a few countries and regions are still in the process of disseminating the findings or have not yet observed an interest in the results by the national authorities. **WHO GHO portal:** Although data from 26 countries is available on the open access WHO GHO portal, participants reported lack of awareness and use of the portal for data dissemination due to poor accessibility. They also reported that, although it is possible, it is cumbersome to retrieve data by individual country.

"The results were shared among stakeholders through emails. It was referenced to develop the National AT Road Map, Disability Inclusion for the UNTC and other documents. The challenge is that the final report has not been developed by the MOH due to lack of funding. For this reason, only key stakeholders have received a copy of the rATA results. There is a need to get some funding so that a comprehensive report can be developed and disseminated to the rest of the stakeholders and partners." [A2]

5. Conclusions and recommendations

The rATA survey, combined with the dedication and effort of global, regional, and country teams, achieved the first comprehensive data set providing an indication of need and unmet need for assistive technology. The data gathered offers insights into the experiences of those accessing assistive technology, which, combined with the need and unmet need statistics, can help to inform and direct policy and system change responses to improve assistive technology products and service delivery. The experience of implementing rATA during 2019-2021 and this consultative review, has provided an important learning opportunity, identifying priority areas for improving country, regional, and global efforts in measuring assistive technology need, unmet need, and barriers to access.

It is also important to note in the context of this review, that rATA survey collects self-reported data, inviting respondents to identify their needs for assistive technology from their perspective, as well as to share their experience of accessing assistive products and services. Self-reporting has limitations, with research suggesting this may lead to under- or over-estimated prevalence of need *(24–26)*. This is likely to be particularly true amongst populations with low awareness of assistive technology, and minimal exposure to different product and service delivery options. While rATA is likely to remain the primary WHO survey for measuring population need and access to assistive technology, additional strategies may also be explored, to understand what differences may be found using different measurement strategies.

The following conclusions and recommendations focus on strengthening the rATA survey and implementation and are structured under the five focus areas of the consultative review. The recommendations were developed iteratively throughout the review and agreed during the in-person meeting. The recommendations set the direction for future rATA development as well as specific actions. These actions will be taken forward by the WHO Access to Assistive technology team with the support of a newly formed WHO-GATE *Global network on measuring access to assistive technology* (see Section 6).

5.1 rATA questionnaire

The rATA questionnaire has been largely well received, with most review participants finding the question and response options easy to understand. Features such as the inclusion of images of assistive products were valued, although it was noted that contextualization of assistive product terms and images is needed for local understanding.

The flexibility in being able to contextualize some questions and add additional questions was highly valued, while recognizing the importance of standardization to pool data at regional and global levels. The review identified opportunities to: review and refine the standard questions in the questionnaire; provide more guidance on question adaptation build additional optional question sets; and integrate elements of the rATA questionnaire into existing data collection systems.

Actions

- Complete a technical review and validation of the rATA questionnaire, with input from sample survey respondents including assistive technology users from diverse settings, including identifying which questions may be modified and how.
- Prepare a short set of rATA questions and/or indicators for inclusion in routine data collection within health and other sectors, to increase data collection opportunities and mainstream assistive technology.
- Explore opportunities to include optional short question sets in the rATA questionnaire, to capture specific focus areas including the impact of assistive technology for individuals.
- To support translation of rATA questionnaires, develop a detailed translation guide with regional and local adaptations guidance, and confirmed translations of key terms, including names of assistive products.

5.2 rATA Data collection and tools

The review identified a major positive in rATA implementation was the ability of country teams to adjust the data collection method to their situation. This flexibility was particularly important given the impact of COVID throughout much of the data collection period. Further analysis of the different data collection methods is needed (i.e. between face-to-face and remote methods) to understand any data variants. There were some questions regarding the difference in results that may occur between face-to-face vs remote data collection methods, particularly when comparing data gathered using these different methods, and this requires further analysis. Challenges related to internet connectivity in some contexts are relevant to both remote and in-person methods and have their greatest impact in the resources (time, funding for data) needed to implement rATA (see 5.3).

The rATA implementation strategy also gave country teams the option of using as their data collection tool the WHO Survey123 platform as their data collection tool, their own digital application, or a paper -based tool. The major benefit of using WHO Survey123 was the ability for country teams to request technical support from the GDC. The range of options was supported by the *Global deployment plan*, although a number of review participants noted they would welcome more detail in specific areas.

Actions

- Review and revise the *Global deployment plan*, to strengthen guidance for implementers on selection of rATA data collection methods and following the standard process of data collection regardless of method.
- Develop (and include in the *Global deployment plan*) a description of the minimum requirements for rATA data collection tools, to support implementers in selecting and preparing data collection tools. Items covered to include: user management; how discrepancies are handled and changes logged; export options; live follow-up; and technical support, privacy and data security.
- Establish a community of practice for rATA data collection methods and tools for collaboration, information sharing, and development of best practices among the users of these tools.

5.3 rATA Data management and analysis

The review identified considerable opportunity to review, consolidate and streamline the process of data cleaning, analysis and presentation of the standard indicators. Further, a number of review participants identified an interest in having more indicators included in the analysis, as well as better access to support and/or training to carry out further analysis. Automation could be used to manage a number of the steps, and further development of the template used to report the *summary of standard indicators* would be valued.

It should also be noted that although the qualitative data collected through the rATA survey was not discussed in any depth during the review, analysis of this data should be considered. Due to language and context issues, it is likely that this may be best analysed at the country level, as part of further analysis.

Actions

- Review and finalize the list of standard indicators and explore the potential of an open access analysis framework to automate extraction of results against these indicators.
- Revise the *summary of standard indicators* template including adding simple data visualization and metadata, to improve ease of use and understanding.
- Explore the potential of further data analysis including qualitative data, in partnership with a select number of countries.
- Research the feasibility of using existing rATA data to model population need and unmet need for assistive technology.

5.4 Support for rATA survey implementation in country

The review identified many positive responses regarding the support that was made available to countries implementing rATA during 2019-2021. The network of support provided through the GDC, RDC, national leads, implementing partners and stakeholders appears to have worked well.

The online master trainer workshops for national leads, followed by their training of enumerators were seen as essential steps in the implementation process, and supporting materials were also valued. At the same time, challenges related to both human and financial resources, and their impact on implementation were highlighted. Given the value of rATA data, and the commitment amongst many stakeholders to continue rATA implementation, streamlining and increasing the efficiency of all processes, including country support and training, is a key area of work moving forward.

Actions

- Review and revise the *Global deployment plan*, the *Enumerator manual* and other training resources and make these documents readily available. The *Global deployment plan* should support the full range of implementation strategies, and provide more information on sampling, data collection and handling. Accompanying documents such as draft national deployment plans, operational manuals for pilot testing and a master ethics protocol will also reduce time required to prepare these documents in each country.
- Create a repository of supporting resources and information, with the support of WHO regional offices, to support in-country rATA implementations and increase shared knowledge on rATA processes.
- Support the development of regional forums or hubs to support in-country rATA implementation, manage and update the resource repository, and facilitate cross-learning between countries.

5.5 Dissemination, communication and use of rATA findings

Although a major focus of the data collection between 2019-2021 was to inform the *Global report on assistive technology*, the exercise of implementing rATA increased awareness and action related to assistive technology in multiple countries and across all regions. The high-level findings generated through analysis of the pooled data against selected indicators have been widely disseminated and are achieving global attention.

Some countries have also utilized the data within their own setting to inform assistive technology actions such as the development of a national priority assistive products list. However, review participants highlighted challenges with accessing the raw data or the data available on the GHO, and a need for better country and regional level rATA data dissemination. Many requested technical support to make best use of the data.

The review highlighted the need to strengthen and streamline the process of utilizing rATA data to: communicate the need for, and experience of accessing assistive technology at all levels (country, regional and global); improve access to and dissemination of rATA data, findings, and reports; and to provide technical support to countries to make use of their country data in different ways

Actions

- Explore the full potential of the WHO GHO portal and implement improvements where possible including accessibility and country profiles with key indicators.
- Build and maintain a repository for rATA country reports and rATA related publications to increase knowledge on rATA use globally.
- Build into the *Global deployment plan* guidance on communicating and disseminating rATA findings for country and regional implementers including templates and examples of tools such as a country report, policy note, country fact sheet and press release.
- Identify, create and host dissemination and learning opportunities to facilitate knowledge-sharing across countries and disseminate rATA survey outcomes at global, regional, and country levels.

6. Next steps: the WHO-GATE Global network for measuring access to assistive technology

At the Joint International Conference on Digital Inclusion, Assistive Technology, and Accessibility held in Lecco, Italy, in July 2022 *(24)*, the WHO Access to Assistive Technology team, based on feedback received from stakeholders during the forum, proposed the formation of a global network to further support future rATA implementations. The GATE Global network for measuring access to assistive technology aims to strengthen the systematic collection, analysis, dissemination, and use of data on access to assistive technology worldwide *(27)*.

A call for expressions of interest in participating in the Network was published in July 2022 and remained open till September 2022. Ninety-two individuals responded. In January 2023, five working groups were formed within the Network, each focusing on a different area related to furthering development of the rATA survey and implementation:

1. developing the rATA questionnaire
2. designing rATA data collection tools and processes
3. developing country support for rATA implementation at the national level
4. analysing rATA data and translating results into evidence
5. disseminating, communicating, and utilizing rATA findings to inform policies and programs.

Each working group comprises 6-10 members and a coordinator. The Network will take forward the recommendations from this consultative review to build on data collection methodology and processes. They will also support further development and use of the rATA questionnaire, raise awareness on the need to measure access to assistive products, and ensure the use of assistive technology data to better inform global and national policy for improving access to assistive technology.

7. In closing

The lessons learned consultative review was a valuable process that provided insights into the opportunities and challenges associated with the rATA implementation. The lessons learned, recommendations and actions will guide the WHO Access to Assistive Technology Team, and the workplan for each working group of the GATE Global network for measuring access to assistive technology. This collective effort to learn and improve the mechanisms for measuring access to assistive technology will help support the realization of the WHO-GATE vision: a world where assistive technology is universally accessible to everyone, everywhere.

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Annex 1. List of rATA countries 2019-2021

List of countries which implemented a rATA survey between 2019 and 2021:

Country	Leading institution	Sample representation	Method	Available on GHO
Azerbaijan	Government-led	National	In-person	yes
Bangladesh	REACH Initiative; CBM Global	specific population	In-person	no
Bhutan	Government-led	National	In-person	no
Brazil	University of Sao Paulo	Specific population	Tele-rATA	no
Burkina Faso	Government-led	National	In-person	yes
China	China Assistive Devices and Technology Center for Persons with Disabilities	Sub-national	In-person	yes
Costa Rica	Caja Costarricense de Seguro Social	Specific population	Tele-rATA	no
Djibouti	Government-led	National	In-person	yes
Dominican Republic	Government-led	National	Tele-rATA	yes
Georgia	Government-led	National	In-person	yes
Guatemala	Stichting Liliane Fonds	Sub-national	In-person	yes
India	All India Institute of Medical Sciences	Sub-national	In-person	no
Indonesia	Government-led	National	In-person	yes
	University College London	Specific population	In-person	no
Iran (Islamic Republic of)	Government-led	National	In-person	yes
Iraq	Government-led	National	In-person	yes
Italy	AIAS Bologna; Istituto Superiore di Sanita'; Fondazione CENSIS; GLIC	National	Tele-rATA	yes
Jordan	Government-led	National	In-person	yes
Kenya	Government-led	National	In-person	yes
Liberia	Government-led	National	In-person	yes
Malawi	University of Malawi	Sub-national	In-person	yes
Maldives	Government-led	National	In-person	yes
Mongolia	Government-led	National	In-person	yes
Myanmar	Government-led	National	In-person	yes
Nepal	Government-led	National	In-person	yes
Pakistan	Government-led	National	In-person	yes

ANNEX 1

Country	Leading institution	Sample representation	Method	Available on GHO
Poland	Government-led	National	In-person and Tele-rATA	yes
Rwanda	Government-led	National	In-person	no
Senegal	Government-led	National	In-person	yes
Sierra Leone	University College London	Specific population	In-person	no
Sweden	Dalarna University	National	Tele-rATA	yes
Tajikistan	Government-led	Sub-national	In-person	yes
Togo	Government-led	National	In-person	yes
Ukraine	Government-led	National	In-person	yes
United Kingdom of Great Britain and Northern Ireland	Staffordshire University; University of Central Lancashire; The Global Alliance of Assistive Technology Organizations	Non-representative	Tele-rATA	no
United Republic of Tanzania	Government-led	Not confirmed	In-person	no

Annex 2. List of participants of the rATA in-person consultation

Name	Affiliation	Country	Region
Abdoulaye Diaw	Ministry of Health and Social Action	Senegal	African Region
Alexandra Rodríguez Rozón	Panamerican Health Organization	Dominican Republic	Region of the Americas
Alradi Abdalla	International Disability Alliance	Sudan	Eastern Mediterranean Region
Anna Hope Landre	Global Disability Innovation Hub	United Kingdom of Great Britain and Northern Ireland	European Region
Arne Eide	SINTEF Digital	Norway	European Region
Barbara Goedde	ATscale, the Global Partnership for Assistive Technology	Switzerland	European Region
Beatriz Coto-Solano	Caja Costarricense de Seguro Social	Costa Rica	Region of the Americas
Diana Taguembou	WHO/Regional Office for Africa	Congo	African Region
Dilisha Patel	Global Disability Innovation Hub	United Kingdom of Great Britain and Northern Ireland	European Region
Dorothy Boggs	London School of Hygiene & Tropical Medicine	United Kingdom of Great Britain and Northern Ireland	European Region
Eka Prastama	National Commission for Disabilities	Indonesia	South-East Asia Region
Irene Calvo	WHO/Access to Assistive Technology team	Switzerland	European Region
Jamie Danemayer	Global Disability Innovation (GDI) Hub	United Kingdom of Great Britain and Northern Ireland	European Region
Johan Borg	WHO/Access to Assistive Technology team consultant; Dalarna University	Sweden	European Region
Jotheeswaran Amuthavalli Thiyagarajan	WHO/Ageing and Health Unit	Switzerland	European Region

ANNEX 2

Name	Affiliation	Country	Region
Konstantinos Antypas	SINTEF Digital	Norway	European Region
Kylie Shae	WHO/Access to Assistive Technology team	Switzerland	Western Pacific Region
Luc de Witte	Global Alliance of Assistive Technology Organisations	Netherlands	European Region
Magdy Eissa	WHO/Regional Office for the Eastern Mediterranean	Egypt	Eastern Mediterranean Region
Martha Bochere Mmasi	Ministry of Health	Kenya	African Region
Maryam Mallick	WHO/Pakistan	Pakistan	Eastern Mediterranean Region
Nachiappan Chockalingam	Staffordshire Universit	United Kingdom of Great Britain and Northern Ireland	European Region
Padmaja Kankipati	WHO/Access to Assistive Technology team ; Global Disability Innovation Hub	India	South-East Asia Region
Ravinder Singh	Indian Council of Medical Research Headquarters	India	South-East Asia Region
Riccardo Magni	Gruppo Di Lavoro Interregionale Centri Ausili Informatici Ed Elettronici Per Disabilità (GLIC)	Italy	European Region
Tulgamaa Damdinsuren	Associazione Italiana Amici di Raoul Follereau (AIFO) Country Coordination Office	Mongolia	Western Pacific Region
Vinicius Ramos	Physical and Rehabilitation Medicine Institute, University of Sao Paulo	Brazil	Region of the Americas
Wei Zhang	WHO/Access to Assistive Technology team	Switzerland	European Region
Wesley Pryor	Nossal Institute for Global Health, University of Melbourne	Australia	Western Pacific Region

Annex 3. In-person meeting agenda

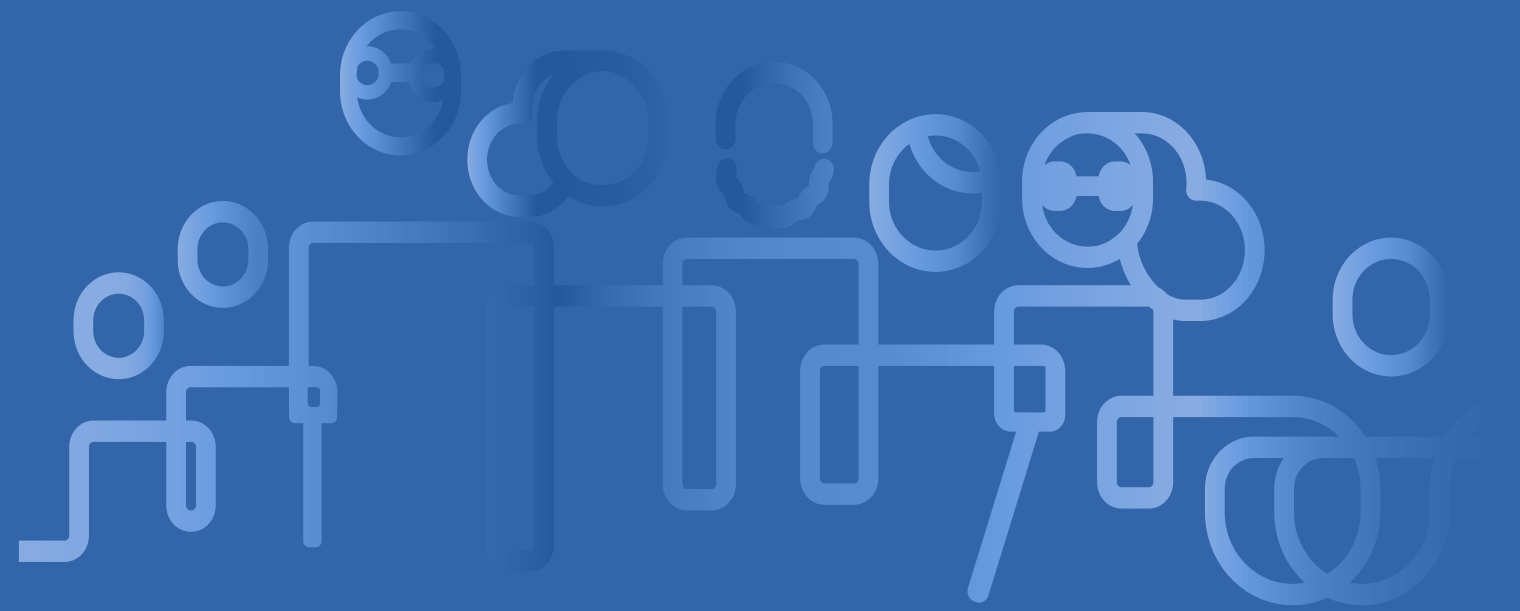
Rapid Assistive Technology Assessment (rATA) review meeting on measuring access to assistive technology

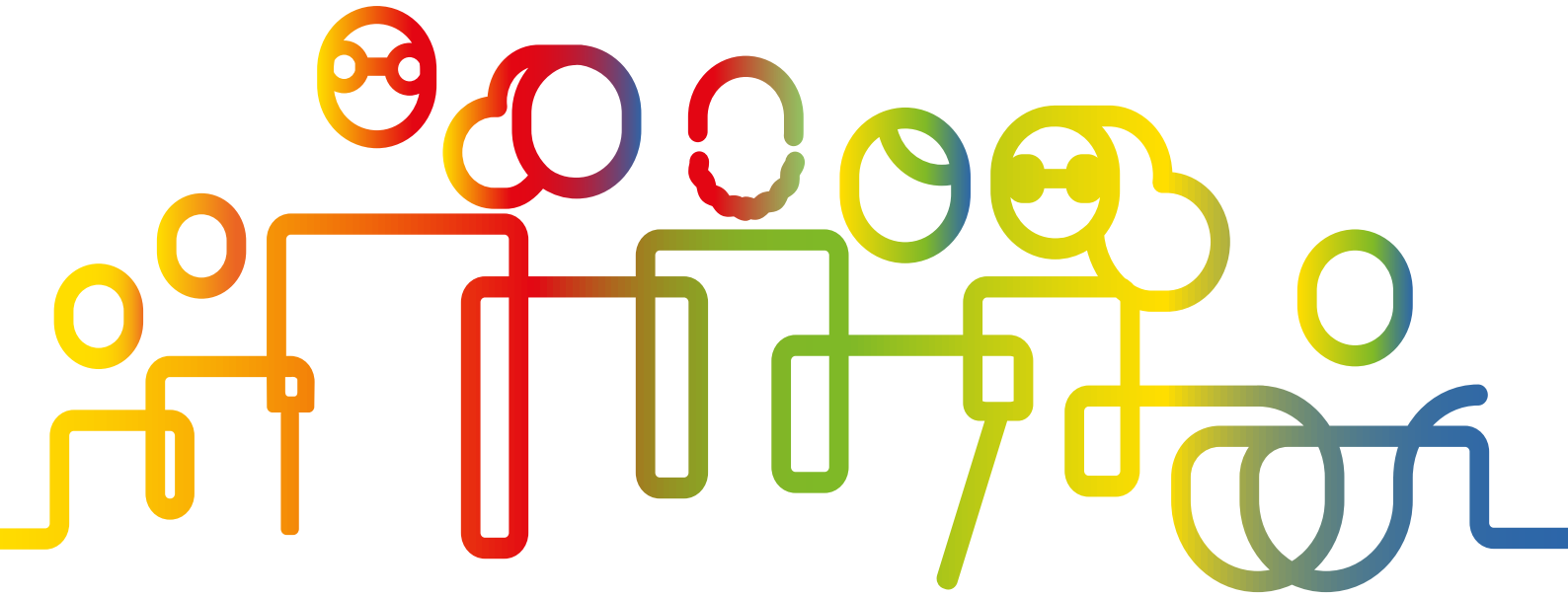
28-29 March 2023 - WHO headquarters

DAY 1 – Tuesday, 28 March			
Time	**Method**	**Topic**	**Moderator**
08:00 – 08:45	Registration		
09:00 – 09:30	Plenary	Welcome from Director, Health Products Policy and Standards, Dr Clive Ondari and introduction of participants	Irene Calvo
09:30 – 09:45	Plenary	Presentation of the meeting objectives and agenda	Wei Zhang
09:45 – 10:00	Plenary	Overview of the rATA lessons learnt (online survey and review meeting)	Padmaja Kankipati
10:00 – 10:45	Plenary	Dissemination, communication and use of rATA findings	Barbara Goedde
10:45 – 11:15	Break		
11:15 – 12:00	Plenary	rATA data management and analysis	Arne Eide
12:00 – 13:00	Group photo and lunch		
13:00 – 13:45	Plenary	Support for rATA survey implementation in country	Padmaja Kankipati
13:45 – 14:30	Plenary	rATA data collection tools	Wesley Pryor
14:30 – 15:00	Break		
15:00 – 15:45	Plenary	rATA questions	Johan Borg
15:45 – 16:30	Plenary	Preparation for breakout group work	Wei Zhang
16:30 – 16:45	Plenary	Closing of day 1	Irene Calvo

ANNEX 3

DAY 2 – Wednesday, 29 March			
Time	**Method**	**Topic**	**Moderator**
08:30 – 09:00	Arrival		
09:00 – 09:30	Plenary	Recap of day 1 and outline for day 2	Irene Calvo
09:30 – 10:30	Breakout	Group work on: 1. Strategies to improve the rATA questionnaire; 2. Strategies to increase the efficiency in developing, maintaining and using the data collection tools; 3. Strategies to better support the country implementation of rATA surveys; 4. Strategies to improve the flexibility and efficiency of data management and analysis; 5. Strategies to broaden awareness of rATA, share survey results, and support policy and program development using findings.	Working group coordinators
10:30 – 11:00	Break		
11:00 – 12:30	Breakout	Continue group work on feedback and recommendations for actions	Working group coordinators
12:30 – 13:30	Lunch		
13:30 – 15:15	Plenary	Group work feedback on recommended actions	Working group coordinators
15:15 – 15:45	Break		
15:45 – 16:15	Plenary	Next steps for implementation of actions	Wei Zhang
16:15 – 16:30	Plenary	Closing remarks by Access to Assistive TechnologyTA Team Lead, Ms Kylie Shae	Irene Calvo





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