

Measuring children's development at population-level

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Kigali, Rwanda

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Session 1.

Rationale and overview of available population-level measures of ECD

ECD data to inform policy design

Are policies and programs for children working?

Are children prepared to start primary school?



Are different subgroups of children showing similar developmental trends?

In what areas do ECE teachers need more support?

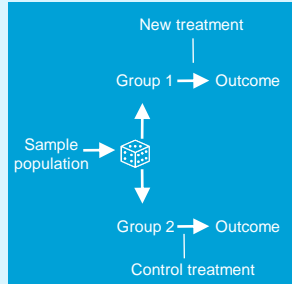
ECD measurement for different purposes



Monitoring

Detect general trends and monitoring of indicators.

Identification of areas of need.



Impact Evaluation

Demonstrate the impact of a program or public policy with measures aligned with its objectives.



Research

Studies on how children develop and what factors influence their development



Formative Assessment

Determine student development status and opportunities for support in the classroom or at home.



Screening

Identify children who could potentially have developmental delays or disabilities.

Motivation for monitoring ECD at population level



ECD population monitoring aims to ensure that all children have the opportunity to reach their full developmental potential, informs policy and program decisions, and contributes to the overall well-being and development of societies

- **Data gaps on ECD globally:** Monitoring ECD outcomes helps ensure that children are developing optimally in their early years.
- **System-level information for policymakers:** The data generated helps to determine if resources are being allocated efficiently and whether interventions are achieving their intended outcomes.
- **SDG commitments:** ECD monitoring is essential for tracking progress toward SDG goals.

Challenges measuring ECD Outcomes at the population level

- In the past, approaches to measuring ECD were largely based on individual-level screening assessments and/or diagnostic tests that usually depend on highly trained professionals and substantial administration time to generate valid information, making them **inadequate for large-scale population monitoring**
- The multi-dimensional nature of ECD further complicates the task of generating accurate data at population level through household surveys which require **specifically designed and validated instruments** that can be implemented in a **standardized way** as to generate robust and comparable data
- Additional constraints of population level measurement in the context of multi-topic household surveys imply that **instruments need to be short and that general enumerators can effectively be trained** in its administration

ECD as part of the Sustainable Development Goals



- **By 2030**, all children will have equitable access to quality early childhood development and learning opportunities
- **SDG indicator 4.2.1** was chosen to specifically monitor the impact of government action towards this target, and UNICEF was appointed as custodian agency and tasked to lead the development of a measure to track progress

SDG Indicator 4.2.1





Proportion of children **24 to 59 months** who are developmentally on track in health, learning and psychosocial well-being, by sex

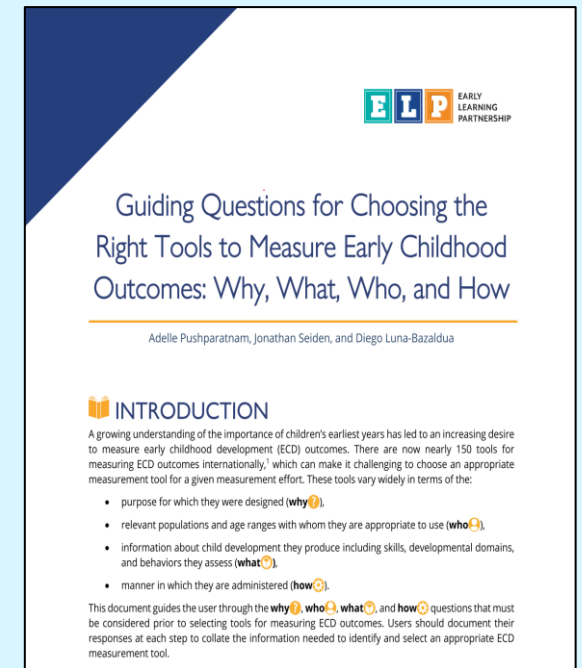
Requirements for global monitoring and SDG reporting

47th Statistical Commission Decision 1 (I):

- “compilation of global indicators will be based to the greatest extent possible on **comparable and standardized national official statistics**, [...]and that when other sources and methodologies are used, these will be **reviewed and agreed by national statistical authorities**”

Guiding questions for choosing an ECD tool

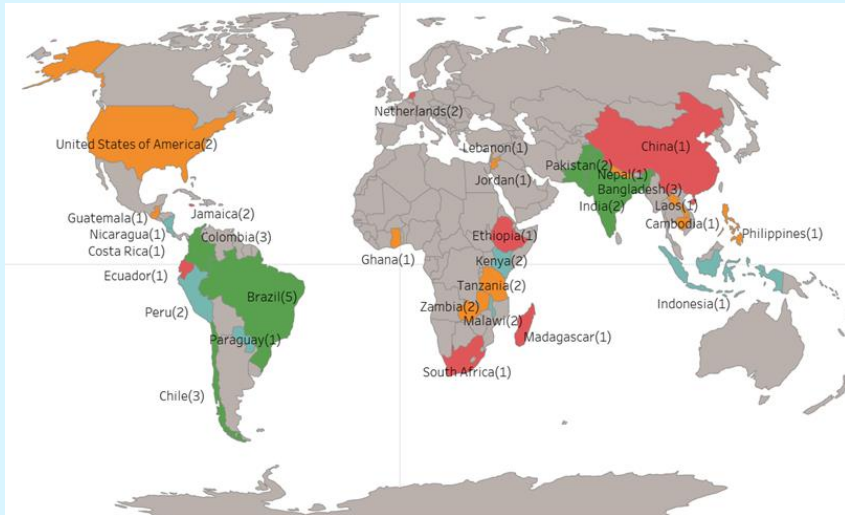
-  **1. Why?** The purpose for which they were designed.
-  **2. Who?** The relevant populations and age ranges with whom they are appropriate to use.
-  **3. What?** The information about child development they produce, including developmental domains, behaviors, skills, or other constructs that they assess.
-  **4. How?** The manner in which they are administered to respondents.



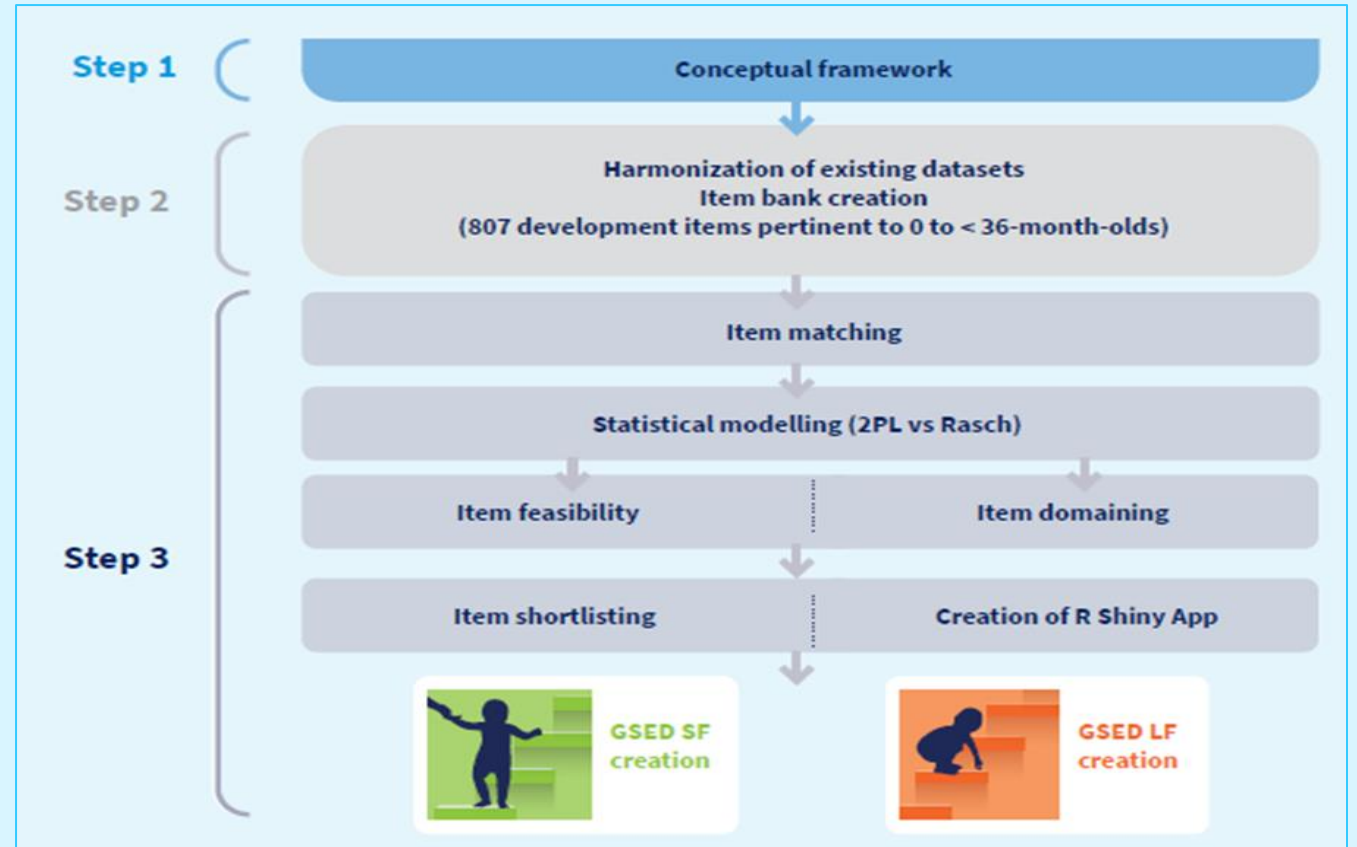
	GSED	ECDI2030	AIM-ECD
Intended use	Global monitoring, program evaluation, household surveys	Global monitoring of SDG 4.2.1, household surveys	Global monitoring, household surveys
Age range	Children ages 0-3 years (0-35 months; 0-23 months for household form)	Children ages 2-4 years (24-59 months)	Children ages 4-6 years (48-83 months)
Domains covered	Health (motor), learning (language and cognitive), psychosocial (socio-emotional and life skills)	<ul style="list-style-type: none"> • Health (gross & fine motor, self-care) • Learning (expressive language, literacy, numeracy, pre-writing, executive functioning) • Psychosocial well-being (emotional & social skills, internalizing & externalizing behaviour) 	Early literacy, early numeracy, executive functioning, and socio-emotional skills
Length	Short Form: 40 items avg, 15 mins (5 min adaptive) Long Form: 50 items avg, 40 min (15 min adaptive) Household Form: 55 items, avg, 5 mins	20 questions; administration time is 3-5 mins	20 questions; administration time is approx. 5 mins
Respondent	Short and Household Form - Primary caregiver; Long Form - Directly administered to child	Mother or primary caregiver	Mother or primary caregiver

Development and validation of the GSED

Global Scales for Early Development



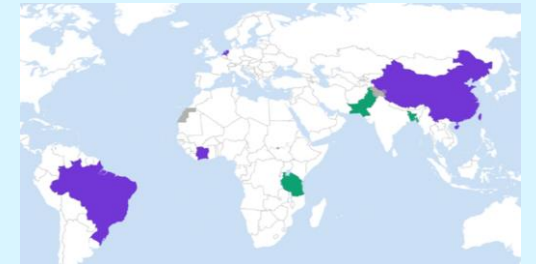
Unique children: 73,222 – ages 0 to <48 month
Visits: (unique child/age combinations): 109,079
Items: 2,275
Countries: 31



Step 4 Validation

N total = 8736 children
7 countries

Step 5 Uptake and implementation



Development and validation of the ECDI2030



ECDI2030

Early Childhood Development Index

Work process behind the ECDI2030

Comprehensive review and expert rating on 500+ items from 20+ instruments

DRAFT SET OF QUESTIONS

Evaluating items in terms of comprehension, interpretation and cultural adequacy through cognitive testing in Bulgaria, Mexico, Uganda and the United States

REVISED DRAFT SET OF QUESTIONS

Testing the administration of items in population-based surveys in Belize, Mexico and the State of Palestine

Harmonizing a global dataset with data from the field tests and an additional 30 countries

Identifying the best items using discrimination and difficulty properties

Undertaking further analyses to identify the minimum set of items fulfilling content and age coverage criteria

FINAL SET OF QUESTIONS

Defining cut-scores through a standard-setting exercise

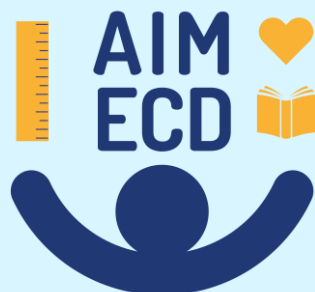
CONSTRUCTION OF THE INDEX

Translating the module into other languages

Developing manuals, training material, syntaxes for data analysis, tabulation plans and templates for reporting

COUNTRY UPTAKE & IMPLEMENTATION

Development and validation of the AIM-ECD



Steps	
ECD data identification and organization.	Data from 12 countries was identified as being amenable for harmonization. Mapping of common items from different ECD measurement tools
Data harmonization	Development of harmonization and coding template. Development of harmonization guidelines.
Psychometric analyses	Use of CTT, IRT, and CFA frameworks to analyze items and tasks
Identification of core items	Identification of core items with consistent and satisfactory psychometric properties by domain.
Development of supporting materials	Development of materials for tool adaptation to local contexts, enumerator training, data collection and analysis, and reporting of results.
Translation of tools materials	Tools publicly available in multiple languages for scale up.

GSED, ECDI2030 and AIM-ECD

Objective

To promote and support ECD measurement continuity among children under age 7 years

Tools

Age in months		Age in years	GSED	ECDI2030	AIM-ECD
Initial month	End month				
0	11	0			
12	23	1			
24	35	2			
36	47	3			
48	59	4			
60	71	5			
72	83	6			

Any questions?

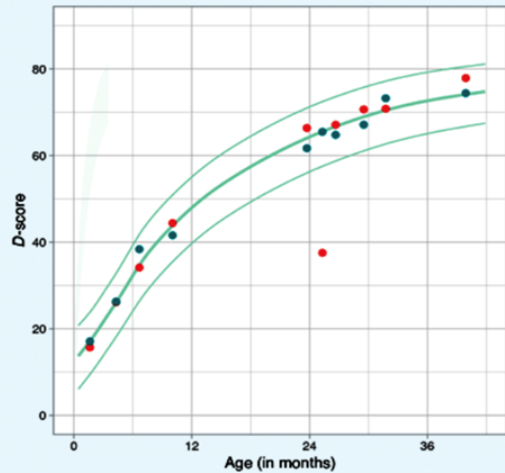




Session 2.

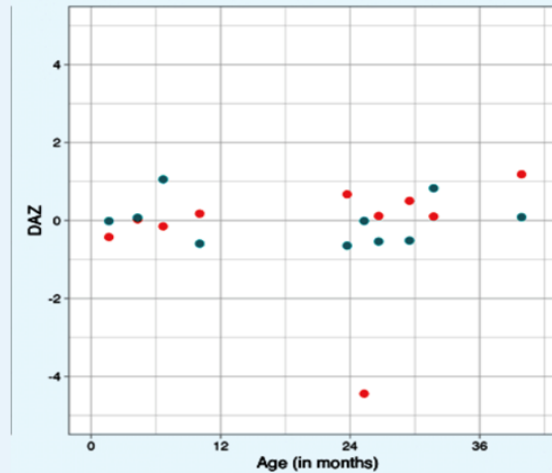
Uptake, use and harmonization of population-level measures of ECD

Universal Metrics for Development: Developmental Score (D-score)



D-score:

- Interval scale (such as centimeters)
- Based on increasing functions, not age



Age-standardized D-score (DAZ):

- Used for comparisons by age, such as HAZ for height-for-age.

Uptake of GSED

29 Countries Globally: Through validation, research, and programmatic evaluation projects







African	Eastern Mediterranean	European	South- East Asian	Western Pacific	Americas
<ol style="list-style-type: none">1. Dar es Salam Tanzania2. Ethiopia3. Ghana4. Ivory Coast5. Kenya6. Malawi7. Mozambique8. Nigeria9. Rwanda10. South Africa11. Uganda12. Zambia13. Zanzibar Tanzania14. Zimbabwe	<ol style="list-style-type: none">1. Lebanon2. Pakistan	<ol style="list-style-type: none">1. Italy2. Netherlands3. Serbia	<ol style="list-style-type: none">1. Bangladesh2. Bhutan3. India	<ol style="list-style-type: none">1. Australia2. China	<ol style="list-style-type: none">1. Brazil2. Canada3. Chile4. Peru5. United States of America

Languages: Arabic, Bangla, Baoule, Bemba, Chinese- Mandarin, Dholuo, Djoula, Dutch, Dzongkha, English, French, Hausa, Hindi, Isizulu, Kiswahili, Luganda, Macua, Nyanja, Portuguese, Shona, Sindhi, Spanish, Tamil, Twi, Urdu, Xhosa, XiTsonga

GSED Implementation innovations

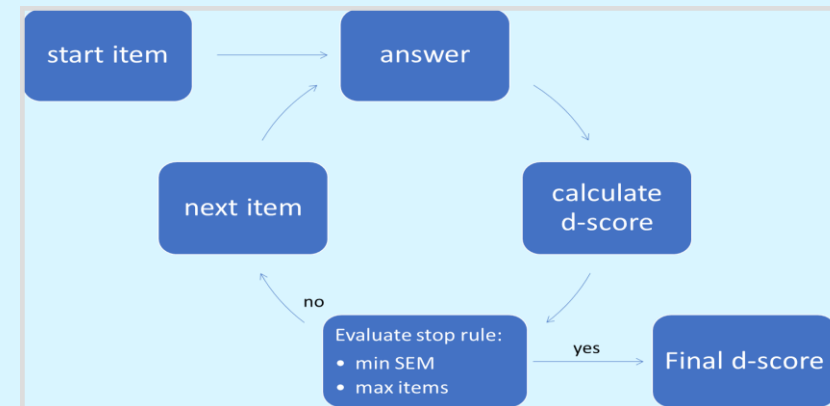
GSED App: ODK, minimal system requirements, tablet based

- Can be used without wifi/data
- Visual and Audio aids
- Auto calculated START and STOP rules- Reduced error
- Allows for study window periods to be built in
- Flags unanswered questions

				Responses (please check appropriate box):		
				Yes	No	Don't know
▼ Start for children 0 < 3 m						
SF001		 SHOW PICTURE	Does your child smile?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SF002		 PLAY VIDEO	When lying on his/her back, does your child move his/her arms and legs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SF003		 SHOW PICTURE	Does your child look at your face when you speak to him/her?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

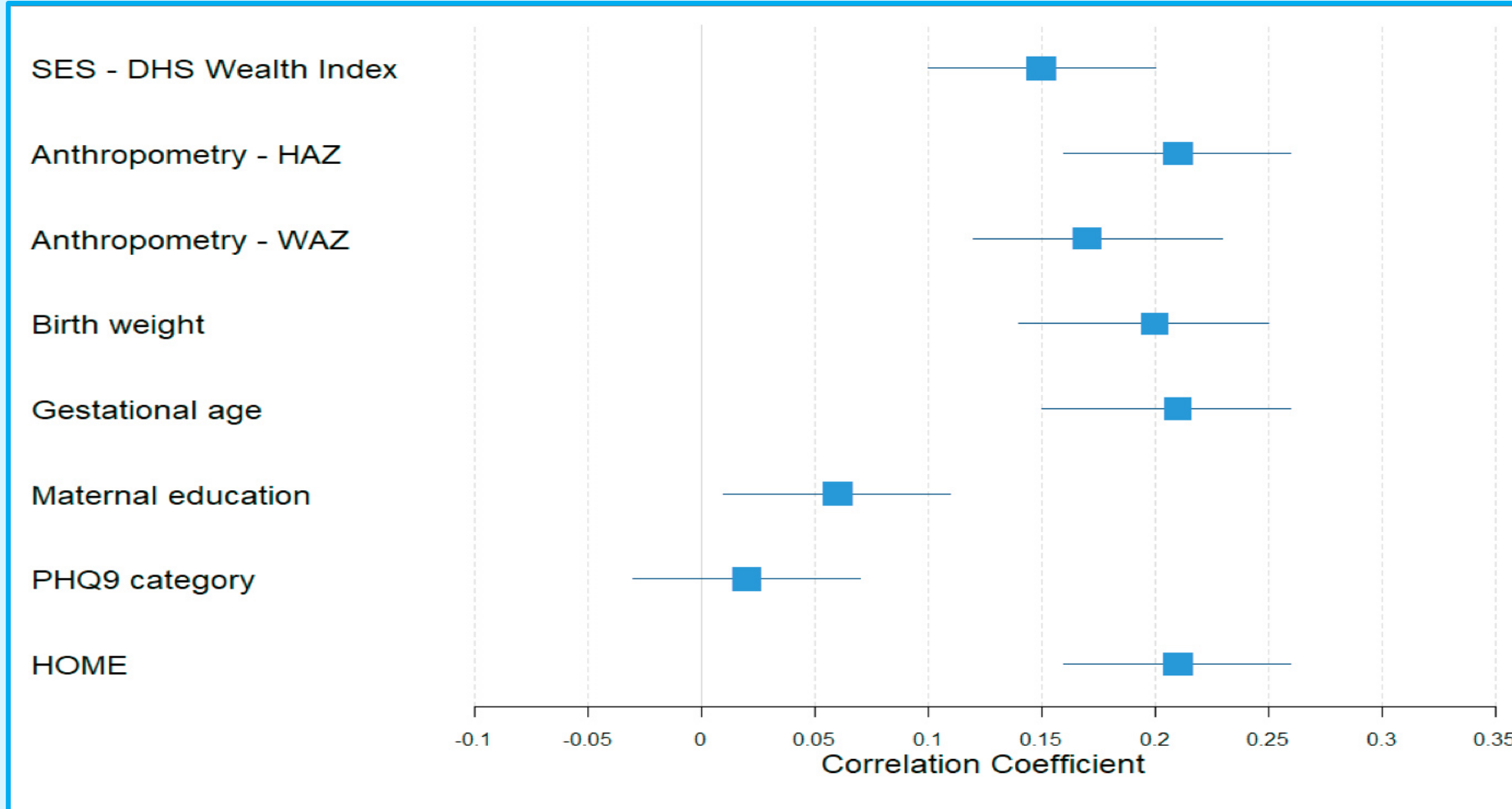
GSED Adaptive Testing:

- Simulation exercise on pilot & validation data
- Field testing in 3 countries
 - 1512 children 2 weeks to 36 months
- Adaptive vs. non-adaptive versions of SF and LF: unbiased and close (high equivalence)
- Reduced administration time: 3 to 5 minutes for SF and 10 to 14 minutes for LF

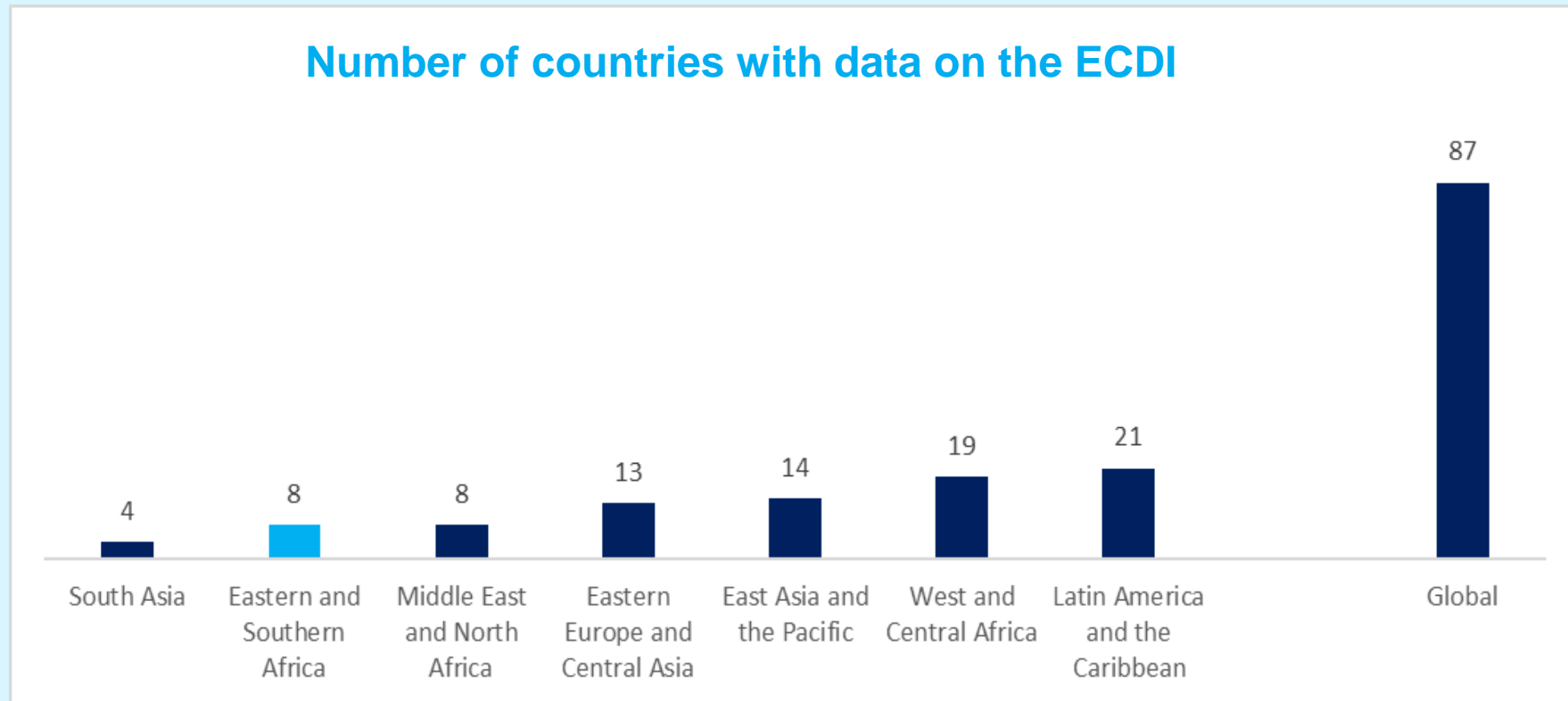


GSED Country example (Tanzania)

Convergent validity with GSED DAZ



Global uptake of the ECDI



Global uptake of the ECDI2030

Multiple Indicator Cluster Surveys (MICS)

Afghanistan MICS 2022-23

Benin MICS 2021

Comoros MICS 2022

Eswatini MICS 2021-22

Fiji MICS 2021

Jamaica MICS 2022

Nigeria MICS 2021

Somalia MICS 2023

Thailand MICS 2022

Uzbekistan MICS 2021-22

Vietnam MICS 2020-21

+ all countries participating in MICS7 (17 confirmed to date + 30 additional countries expected)

Demographic and Health Surveys (DHS)

Angola DHS 2023

Cote d'Ivoire DHS 2021

Kenya DHS 2022

Lesotho DHS 2023

Malawi DHS 2023

Mozambique DHS 2022-23

Philippines DHS 2022

Tanzania DHS 2022

Other national surveys & data collection efforts

Indonesia (pilot in 2 districts)

Mexico ENSANUT 2021

Nepal (phone-based administration of the ECDI2030 in 2021)

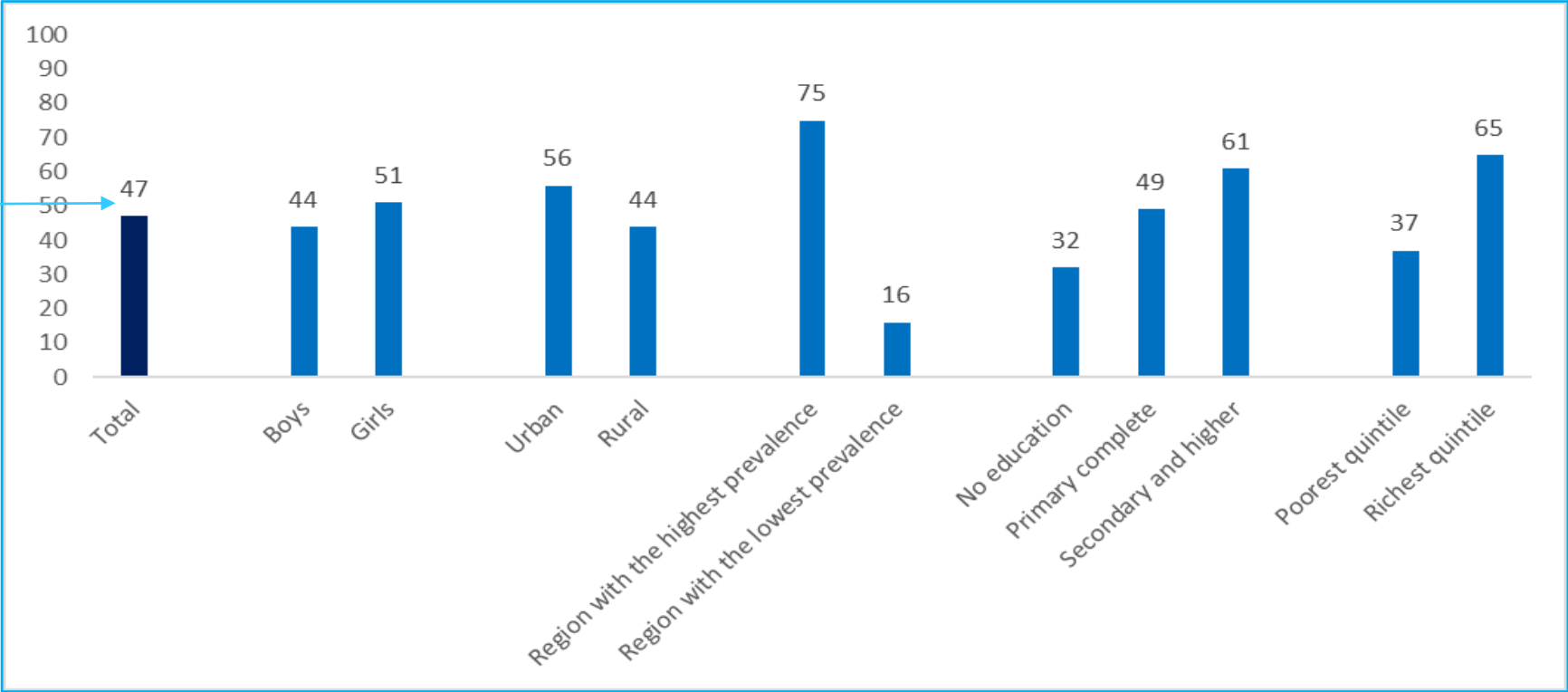
Sri Lanka Baseline Survey in 2021

Strategies for supporting uptake of ECDI2030

- **UNICEF framework of technical assistance**
 - Facilitate/deliver remote training on administration at no added cost
- **Virtual capacity-building workshop on collecting data on ECD in household surveys**
 - Includes dedicated module on the ECDI2030
 - Toolkit
- **Use in MICS vs. DHS**
 - Well-suited to both survey programmes
 - Women's questionnaire in DHS vs. Children under 5 questionnaire in MICS
 - MICS include additional topics and indicators relevant to ECD outcomes such as exposure to violent discipline and early stimulation by caregivers which offer opportunities for further analysis to explore associations between child development and other key indicators of health and well-being

Applying the ECDI2030 to uncover disparities in children's developmental outcomes

Percentage of children aged 24 to 59 months developmentally on track in health, learning and psychosocial well-being, Tanzania DHS 2022

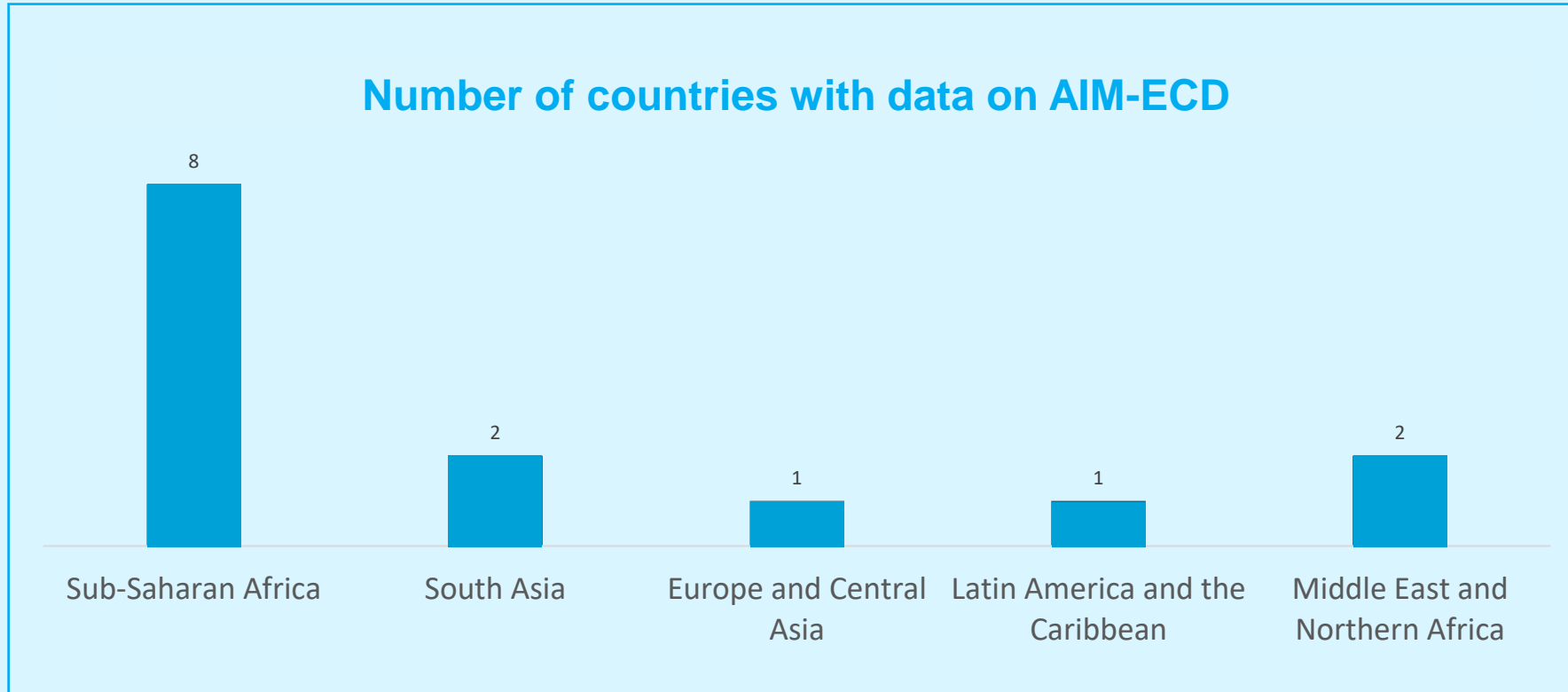


SDG 4.2.1

In Tanzania, children in rural areas, those with mothers who have no education and those living in households in the poorest quintile are less likely to be developmentally on track

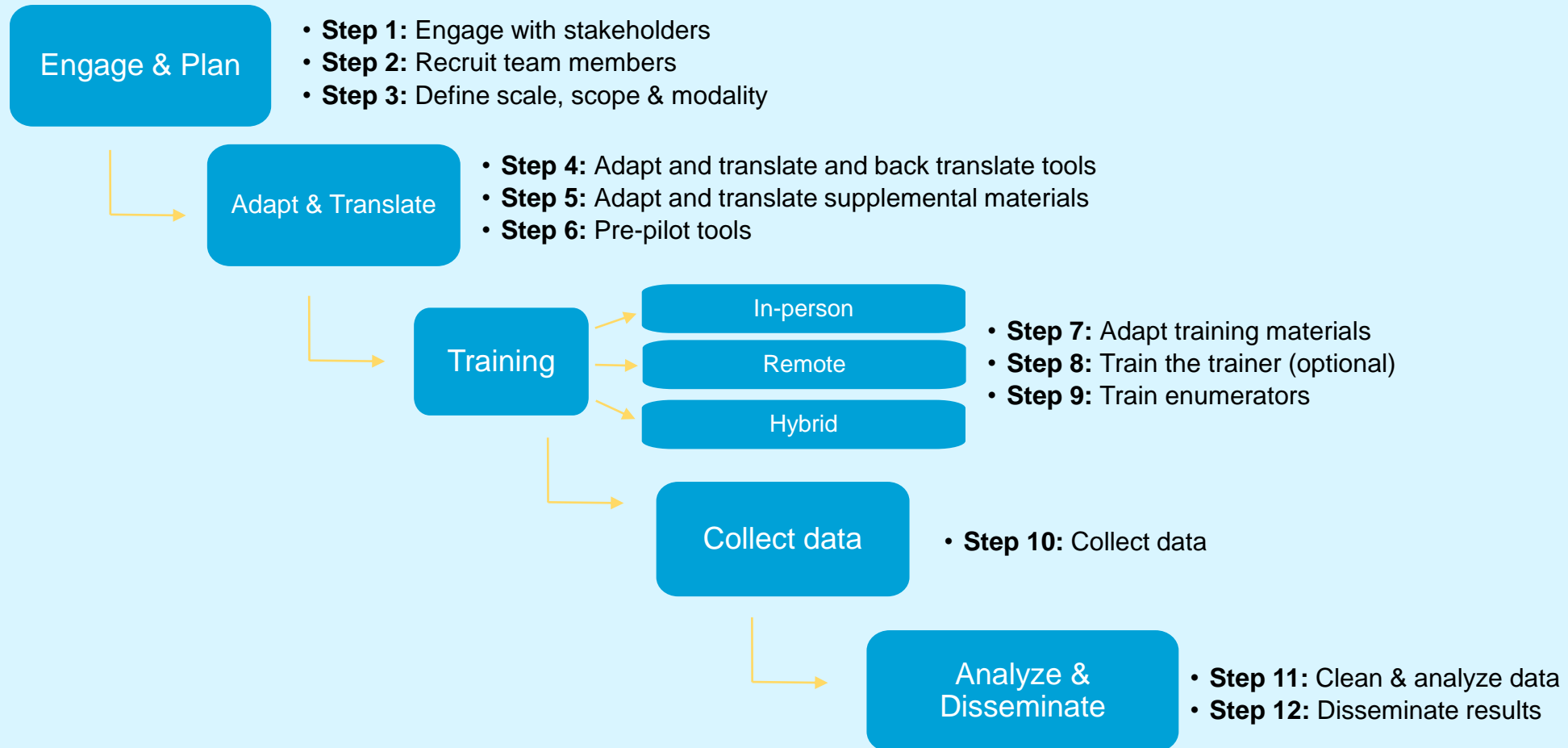
Note: Data on education refer to the education of the mother.

Uptake of AIM-ECD

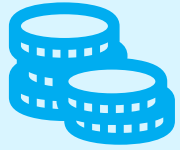


In addition, data from 12 countries was used for the validation and selection of the AIM-ECD items and tasks

Implementation of AIM-ECD



Implementation considerations: Cost



- All open access
- Costs are minimal and associated primarily with additional cost/resources needed for translation, training, fieldwork
- Needs to be considered within context, country of implementation and use of the measure

Implementation considerations: Adaptation & translation



- Best practices for translation should be adhered to:
 - Translation > Backtranslation > Resolve discrepancies
- Customized/adapted and translated versions should be pre-tested
- To preserve validity of the measures and maintain comparability, no questions should be added, removed or revised (with the exception of specific customizations for which there is standard guidance)

Implementation considerations: Training



- All require dedicated training to ensure standardized interviewing techniques are followed and tools are administered in a consistent manner
- Careful review of each question and dedicated time for practice sessions and mock interviews
- Training on paper questionnaires versus CAPI

Implementation considerations: Resources

- Translated questionnaires
- Interviewer guidelines
- Customization & translation guidelines
- Data syntaxes
- Tabulation plan
- Training materials

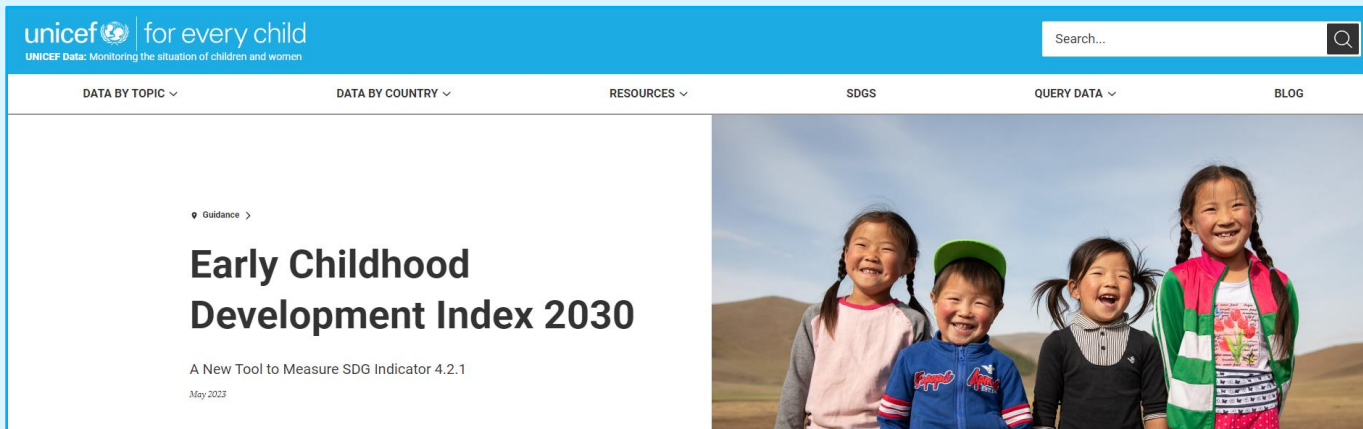


The screenshot shows the WHO website page for the Global Scales for Early Development (GSED) v1.0. The page includes a navigation bar with links for Home, Health Topics, Countries, Newsroom, Emergencies, and Data. The main content area features a title, a brief description of the package, and an overview section. The overview section includes a technical report icon and a download button for the 9.6 MB report.

Global Scales for Early Development (GSED) v1.0
Package for measurement of child development under 36 months at population level
27 February 2023 | Technical document

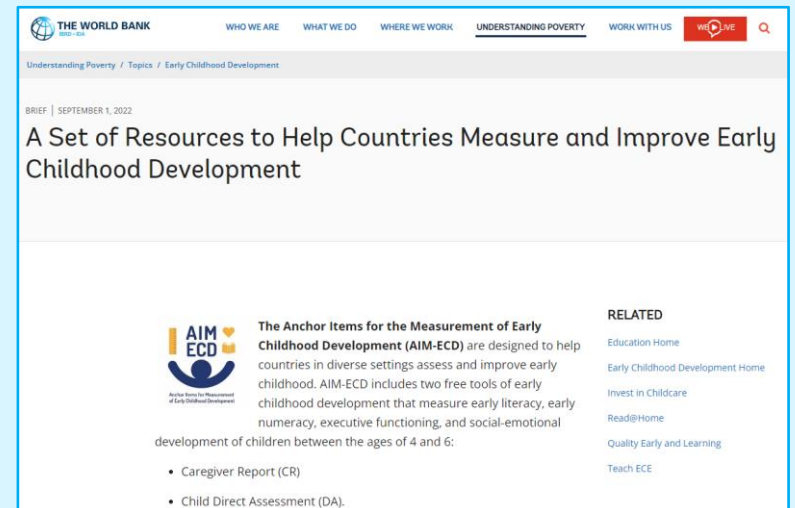
Overview
The Global Scales for Early Development (GSED) is an open-access package specifically designed to provide a standardized method for measuring development of children up to 36 months of age at population and programmatic level globally. The GSED measures (Short Form and Long Form) capture child development holistically through a common unit, the Developmental score (D-score). Within the package, they are accompanied by comprehensive materials to support their implementation and a technical report that summarize the creation process of the GSED, their validation methodology and psychometric properties. Specifically, the GSED Package v1.0 includes the following materials:

- Global Scales for Early Development v1.0: Technical report
<https://apps.who.int/iris/bitstream/handle/10665/366268/WHO-MSD-GSEDPackage-v1.0-2023.1-eng.pdf>
- Global Scales for Early Development v1.0: Short form (caregiver-reported)
<https://apps.who.int/iris/bitstream/handle/10665/366265/WHO-MSD-GSEDPackage-v1.0-2023.2-eng.pdf>
- Global Scales for Early Development v1.0: Short form (caregiver-reported): Item guide
<https://apps.who.int/iris/bitstream/handle/10665/366266/WHO-MSD-GSEDPackage-v1.0-2023.3-eng.pdf>



The screenshot shows the UNICEF Data website page for the Early Childhood Development Index 2030. The page features a navigation bar with links for DATA BY TOPIC, DATA BY COUNTRY, RESOURCES, SDGS, QUERY DATA, and BLOG. The main content area includes a search bar, a guidance link, and a large image of four children smiling. The title and subtitle are prominently displayed.

Early Childhood Development Index 2030
A New Tool to Measure SDG Indicator 4.2.1
May 2023



The screenshot shows the World Bank website page for a set of resources to help countries measure and improve early childhood development. The page includes a navigation bar with links for WHO WE ARE, WHAT WE DO, WHERE WE WORK, UNDERSTANDING POVERTY, and WORK WITH US. The main content area features a title, a brief description, and a list of related resources.

A Set of Resources to Help Countries Measure and Improve Early Childhood Development

The Anchor Items for the Measurement of Early Childhood Development (AIM-ECD) are designed to help countries in diverse settings assess and improve early childhood. AIM-ECD includes two free tools of early childhood development that measure early literacy, early numeracy, executive functioning, and social-emotional development of children between the ages of 4 and 6:

- Caregiver Report (CR)
- Child Direct Assessment (DA).

RELATED

- Education Home
- Early Childhood Development Home
- Invest in Childcare
- Read@Home
- Quality Early and Learning
- Teach ECE

GSED, ECDI2030 and AIM-ECD

Objective

To promote and support ECD measurement continuity among children under age 7 years

Tools

Age in months		Age in years			
Initial month	End month		GSED	ECDI2030	AIM-ECD
0	11	0			
12	23	1			
24	35	2			
36	47	3			
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72	83	6			

Vision

Explore linkages across measurement tools, increase quality of existing measurement efforts, provide guidance to countries on joint implementation of the tools, and facilitate scale up of ECD measurement globally

Roadmap: Collaboration among agencies to date

- Harmonization of conceptual approaches to understanding early child development (through meetings and consultations)
- Technical consultation in 2022
 - Resulted in creation of GSED Household Form with precision comparable to ECDI2030
 - 5 age-bands with 20 items per form (total of 55 items)
- **Case Study 1:** GSED and ECDI2030 in 3 countries
- **Case Study 2:** GSED, ECDI2030 and AIM-ECD in Senegal

GSED and ECDI2030 Testing

- **Purpose:** To explore how scores from the two measures link together and relate to one another
- **Data:** 628 children aged 24 – 41 months in Bangladesh, Pakistan and Tanzania
- **Results:**
 - Favorable evidence for the potential to link/equate scores on the two measures
 - Identify a set of candidate anchor items for extending the D-score



Roadmap: Collaboration among agencies in the future

Future plans

- Joint academic article on methods for linking and equating measures
- Active effort to identify opportunities for further joint testing and use of the tools in multitopic household surveys
- Upon completion of methodological and validation work:
 - Joint guidance note to countries on collecting the tools together in the same data collection effort
 - Joint agency commentary on the theme of coming together to address ECD data needs and measurement
 - Global webinar on harmonization efforts

National Study on Early Childhood Development Senegal



WORLD BANK GROUP

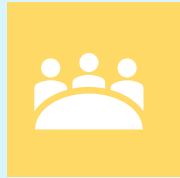
Ibrahima Samba,

**Education
Specialist**

Senegal: National context



Monitoring of national and international agendas on ECD (PSE, SDGs, AU Agenda 2063).



Need to provide up-to-date ECD data to decision-makers, development partners, and researchers.



The National Statistical System (NSS) struggles to adequately fund its monitoring activities.



Political Commitment to implement continuous survey program such as Demographic and Health and Survey (DHS)

Senegal: National context



Measure

Measure cognitive, language, socio-emotional, executive and self-regulatory skills of young children;



Assess

Assess the quality of early childhood development services, including classroom processes and infrastructure;



Establish

Establish a system for the continuous monitoring of early childhood indicators.

Survey design

The ECD Survey is integrated to the DHS that covers 8800 households across the country

DHS covers over 200 indicators on health, population, child protection, etc.

The target is children aged 0-6 years old and their caregivers.

Study 1: Household level with caregiver reports (**GSED, ECDI2030 and AIM-ECD**)

The ECD survey includes two complementary studies:

Study 2: Preschool level with classroom observation (Teach ECE) & child direct assessment



Survey design: Sample size

	Household DHS
Number of caregivers of children interviewed (Study 1)	11,181
Number of children assessed directly (Study 2)	4,020
Number of ECE classroom observations conducted (Study 2)	390



Implementation steps: Preparation stage

- Survey planning and design
- Tool identification
- Adaptation & customization
- Tool validation by the DHS steering committee
- Tool translation into local languages
- Enumerator hiring
- Communication campaign (tv, radio, and social media)
- HHDs mapping



Implementation steps: Training and piloting



Training (45 days)

Partnering with UNICEF and WHO for the ECDI 2030 and GSED training sessions

- Survey pilot
- Adapting software applications and programs.
- Additional training for back up enumerators

Implementation steps: Data collection and quality control

- 20 field teams to cover 8800 HHD across 14 regions
- Duration: 5 months including pauses due to political tensions and instability
- Quality control during data collection



Challenges Encountered

- Translation of tools into local languages can be challenging, particularly with concepts partially lost in translation.
- Training of enumerators on multiple tools, each with specific guidelines for its administration.
- GSED relied on the use of media to administer some questions. This added complexity in training and administration of this tool.
- Delays in the availability of funds to start training and data collection as initially planned.
- Overlapping of activities of the national census schedule with the DHS and ECD survey.
- Impact of the political instability.

Key Takeaways

1

Ensure to start the activities once the resource mobilization process is effective.

2

Have a single master trainer conduct enumerator training in all tools.
Have a single framework on ECD and a glossary of terms to ensure consistency during the engagement with stakeholders and training of enumerators.

3

Because this is the first time the three tools have been administered together, produce an experience capitalization report with lessons learned documented for future iterations of similar measurement efforts in other countries.

Any questions?

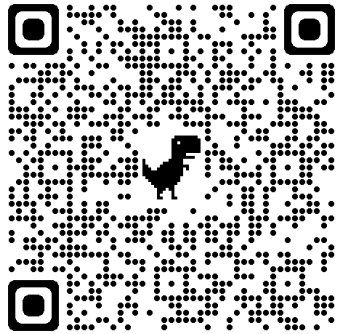




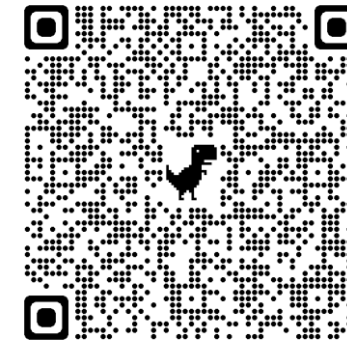
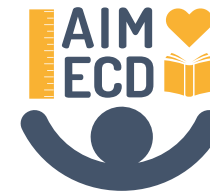
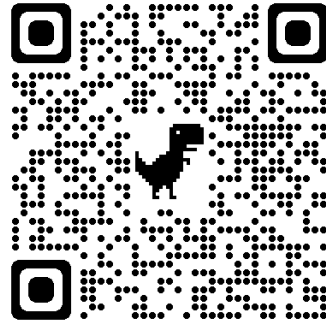
Session 3.

Working together to improve the availability and use of population-level data on ECD

 Global Scales for
Early Development



ECDI2030
Early Childhood Development Index



Thank you



Republic of Rwanda
National Child
Development Agency

 **unicef**
for every child

 **World Health
Organization**
African Region



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