FEED THE FUTURE

The U.S. Government's Global Hunger and Food Security Initiative

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Session 7: Verifying Performance Monitoring Data


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Objectives of the Session

1. Understand importance of data quality
2. Review data quality continuum
3. Identify data quality standards
4. Explore when and how to conduct data quality assessments
5. Review common data quality issues

Data Quality

Real World

In the *real world*, activities are implemented in the field. These activities are designed to produce results that are quantifiable.

↔

Data Management

Administrative process by which activities collect, store, protect, and analyze results that are produced.

Data Quality → How well does the data represent the real world?

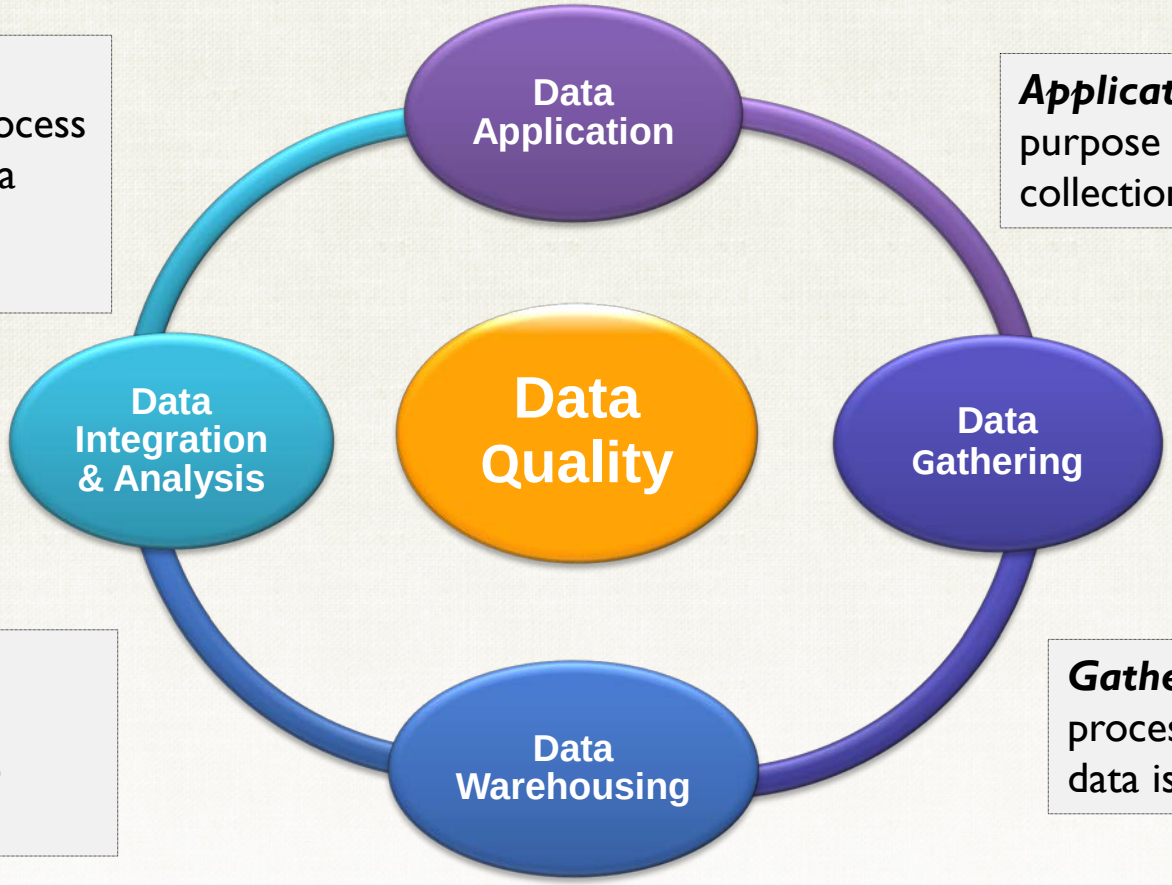
Why do we care about data quality?

1. USAID projects and activities should be **evidence-based**
   - *If we can't trust the quality of the data, what evidence do we have?*
2. Data quality = **data use** for **learning and adapting**
   - *How can we use the data to learn and adapt if we can't trust it?*
3. Data quality is critical for **accountability**
   - *How confident are we in the data we report to Congress?*
4. Data quality problems are **expensive** and **pervasive**
   - *Cost lots of $$, including lost time, and credibility*

Data Quality Continuum

Integration & Analysis: The process of translating data into meaningful information

Application: The purpose for data collection



Warehousing: Processes and systems used to archive data

Gathering: The processes by which data is acquired

Five USAID Data Quality Standards

Standard	Definition
Validity	The data measure what they are intended to measure.
Reliability	The data are measured and collected consistently; definitions and methodologies are the same over time.
Precision	The data have sufficient detail; in this case the "accuracy" of the data refers to the fineness of measurement units
Timeliness	Data are current and information is available on time
Integrity	Data is protected from deliberate bias or manipulation for political or personal reasons.

Dimensions of Validity

Many types of validity, but in USAID context, we focus on <u>three dimensions:</u>

1. **Face Validity**
2. **Attribution**
3. **Measurement Error**

Face Validity

- **Face Validity:** refers to the degree to which data is a true measure of the intended result

- The "land of theory" versus the "land of observation"

- Think about the Theory of Change and Results Framework discussion from Session 2 → *Does the data provide a valid measure of the intended results in your theory of change?*

- **Example:** Does data on Gross Margin provide valid information on improved incomes?

Attribution (& Content Validity)

- **Attribution:** refers to the extent to which a change in the data is related to our interventions
- Attribution is one element of *content validity*, which focuses on the extent to which the data accurately represents all facets of the indicator
- Think about the Defining Beneficiaries discussion from Session 5 → *Does the data measure all facets of what is supposed to measure? Is the data reflective of our interventions?*
- **Example:** Is Incremental Sales data measuring results of direct beneficiaries or indirect beneficiaries? Which one is it supposed to measure?

Measurement Error

- In addition to measuring the right things, it's important we measure data <u>without bias or error</u>
- Unrepresentative sampling is an example of **measurement error;** samples should be large enough and taken for appropriate target groups

- Think about the Basic Sampling discussion from Session 6 → *Is the data representative of the target beneficiary population?*
- **Example:** For # of farmers and others applying improved technologies, was the sample large enough to be representative of the target groups? Has the sample data been extrapolated to the total beneficiary population?

Improving Validity

- Make sure your Theory of Change is clear
- Ensure goals and objectives are clearly defined in your Results Frameworks
- Match your indicators to your Goals and Objectives
- Make sure to refer to standard Performance Indicator Reference Sheets (PIRS)
- Use ***NEW*** direct beneficiary sampling guidance, developed by BFS, to calculate adequate sample sizes for performance monitoring

Reliability

- **Reliability:** refers to the quality of the measurements
- In its everyday sense, reliability is the "consistency" or "repeatability" of your measures

- Think about the Collecting Performance Monitoring Data discussion from session 6 → *Has data been collected using consistent methodologies and procedures?*
- **Example:** If we were to recollect information on # of individuals trained, would we get the same result?

Reliability and Validity

What's the Difference Between Validity and Reliability?

- **Validity** refers to the extent to which a measure actually represents what we intend to measure.
  - *Is this information valid based on what we are trying to achieve? Does the data represent all facets of the indicator?*

- **Reliability** refers to the stability of the measurement process
  - *Assuming there is no real change in the variable being measured, would the same measurement process provide the same result if the process were repeated over and over?*

Improving Reliability

- Develop clear and detailed M&E plans and protocols on how data will be captured consistently over time
- Strictly follow methodologies as outlined in standard Performance Indicator Reference Sheets (PIRS)
- Develop and/or refine custom indicator PIRS to include 'Measurement Notes' section
- Data reliability **depends on how consistently we collect information; methodologies must be DOCUMENTED!**

Precision

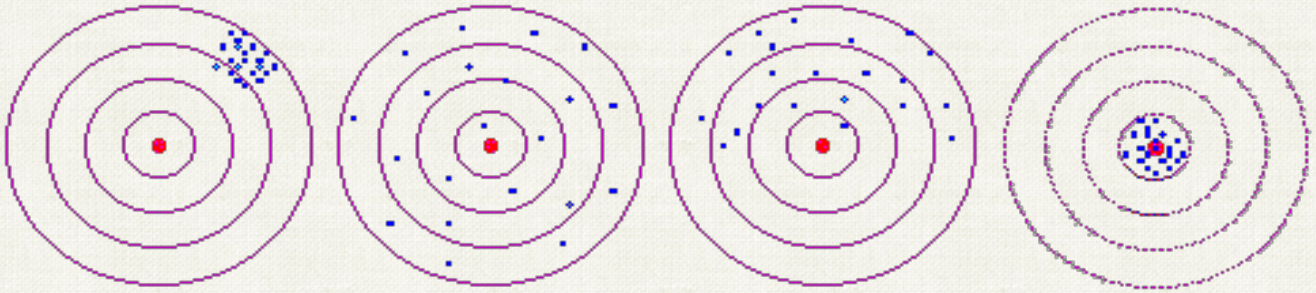
- **Precision:** refers to whether there is sufficient level of detail to present a fair picture of performance
- Two ways to think about precision:
  1. **Precision in terms of measurement**
     - Example: Measuring poverty to the .01 percent
     - *What is an acceptable level of precision?*
  2. **Precision in terms of detail (i.e. disaggregates)**
     - Example: Sex or Technology Type disaggregation
- In performance monitoring, we primarily focus on precision in terms of **detail**

Precision

- Think about the Collecting Performance Monitoring Data discussion from session 6 → *Does the data contain information on all required disaggregates?*

- **Example**: Does the data on # of hectares under improved technologies include information on **sex of farmer** and **technology type?**

Validity and Precision



Precise, but not valid

Valid, but not precise

Neither valid nor precise

Valid and precise

Improving Precision

- Ensure PIRS have information on required disaggregates
- Review measurement tools and ensure disaggregates are captured
- Common required disaggregates for Feed the Future indicators:
  - Sex
  - Technology Type
  - Commodity
  - Type of Individual (producer or other)

Timeliness

- **Timeliness:** refers to the extent that data is available and up to date enough to meet management needs

- Two aspects of timeliness:
  1. **Frequency:** data must be available frequently enough to influence management decision making.
     - Example: Quarterly, Semi-annually, Annually

  2. **Current:** data is sufficiently up to date to be useful in decision-making
     - Example: Calendar year, fiscal year, seasonality

Timeliness

- Most data quality issues under Timeliness dimension for Feed the Future indicators result from ensuring data is "current"
- USAID most often reports on the **fiscal year** (October – September)
- Agriculture activities are dependent on seasons; thus, data reported in the fiscal year must take into account production cycles between October and September
- Some issues do arise in terms of "frequency;" USAID missions must submit fiscal year data no later than November 15th each year for FTFMS review

Timeliness

- Think about the Collecting Performance Monitoring Data discussion from session 6 →*does the data represent the most current information available?*

- **Example**: Does the data on Value of Incremental Sales represent the most current information available?

- Seasonality issues can often affect timeliness of data; you may find data quality suffers from <u>both validity and timeliness</u> concerns

Improving Timeliness

- Ensure M&E plans have clear reporting dates that align with USAID reporting cycle(s)

- Require seasonal calendars in M&E plans to track production cycles for targeted commodities

Integrity

- **Integrity:** refers to improper manipulation of data
- Integrity issues in data are often a result of inadequate data management systems and processes
- Two types of issues that affect data integrity:

1. **Transcription error:** simple data entry errors made when transcribing data from one document (electronic or paper) or database to another.
2. **Intentional Manipulation:** staff and/or others have an incentive to create and/or change data for political or personal reasons

Integrity

- Ensuring integrity requires good data management and protection
  - Data management processes must be documented in M&E plans
  - Need data verification methods (i.e. checks and balances)

- Think about the Collecting Performance Monitoring Data discussion from session 6 → *Are there proper data management controls in place to prevent transcription error and manipulation?*
- **Example:** Is the data storage system password protected? Is there a method for verifying actual participation in trainings? Signatures? Thumbprints?

Improving Integrity

- Ensure data management processes are **documented** and **followed!**
- Password protect data storage platforms (e.g. Excel, etc.)
- Limit the number of people who can access the data
- Create checks and balances – conduct periodic reviews of data collection sheets
- **De-incentivize intentional manipulation!**

Practical Applications

Identify the data quality issue in the following examples:

1. Helping Farmers NGO is measuring Value of Incremental Sales. When drawing a sample, they decide to capture farmers not directly benefitting from the Feed the Future intervention.

    - What data quality issue(s) should you be concerned about?
    - In what circumstances would it be appropriate to sample farmers not directly benefitting from the intervention?

Practical Applications

Identify the data quality issue in the following examples:

1. Helping Farmers NGO is measuring # of farmers and others applying improved technologies, but the data does not provide any information by technology type.
    - What data quality issue(s) should you be concerned about?

Practical Applications

Identify the data quality issue in the following examples:

1. Helping Farmers NGO is working in the chickpea value chain, which has two agricultural seasons in the fiscal year. When collecting information on Gross Margin, they survey farmers asking about one agricultural season.

    - What data quality issue(s) should you be concerned about?

Practical Applications

Identify the data quality issue in the following examples:

1. Helping Farmers NGO conducted trainings in XYZ district and has submitted the training sign-in sheets as verification. When reviewing them, however, you notice that most of the signatures seem too similar.
    - What data quality issue(s) should you be concerned about?

Practical Applications

Identify the data quality issue in the following examples:

1. Helping Farmers NGO hired a third party contractor to collect baseline data for # of hectares under improved technology, and is now preparing to collect annual monitoring data.
    - Assuming that Helping Farmers NGO will no longer collect hectare information with the same third party at baseline, what data quality issue(s) would you be concerned about?

Data Quality Assessments

- ADS Chapter 203: the *purpose* of a data quality assessment (DQA) is to ensure that the USAID Mission/Office are aware of the:

1. Strengths and weaknesses of the data, as determined by applying the five data quality standards
2. Extent to which the data integrity can be trusted to influence management decisions.

Data Quality Assessments

- A DQA focuses on applying the data quality standards and examining the systems and approaches for collecting data to determine whether they are likely to produce high quality data over time.
- If the data quality standards are met and the data collection methodology is well designed, then it is likely that good quality data will result.
- DQAs are done **at the indicator-level** but are dependent on data collected at the activity-level!

When to conduct DQAs?

- ADS Chapter 203 says DQAs must occur for indicators, which are reported externally, at some time within the three years before submission
- PPR guidance says that DQAs must be completed for new indicators within six months before reporting on the indicator to Washington and every three years thereafter
- **Conduct DQAS for new indicators within six months before reporting and every three years thereafter.**

Who can conduct DQAs?

- ADS Chapter 203 prescribes that:
  - Missions should not hire an outside expert to assess the quality of their data
  - Mission staff, usually the technical offices, Monitoring and Evaluation staff should conduct the assessment
  - Project/activity implementers, as part of their award, can also conduct the assessment, provided that mission staff review and verify DQAs conducted by implementing partners

Planning for a DQA

- A practical approach to planning DQAs will include the following steps:

1. Develop and implement an **overall data quality assurance plan** that includes initial data quality assessment reviews
2. Decide **who should be involved** in the data quality assessment
3. Maintain **written policies and procedures** for data collection, maintenance, and processes
4. Maintain an **audit trail**—document the assessment, including data quality problems, and the steps taken to address them.

How to conduct a DQA?

- No prescribed method for conducting DQAs
- DQAs can be done in a variety of ways – from informal to formal
- In our experience, **a combination of informal, on-going and systematic assessments work best**

DQA Options

Informal Option	Semi-formal Option	Formal Option
• Conducted internally by the AO team • Ongoing (driven by emerging and specific issues) • More dependent on the AO team and individual expertise of program • Conducted by the program manager • Product: Documented in memos, notes in the PMP	• Draws on management and M&E expertise • Periodic & systematic • Facilitated and coordinated by the M&E expert, but AO team members are participants • Product: Data Quality Assessment Report	• Driven by broader programmatic needs, as warranted • More dependent on external technical expertise and/or specific types of data expertise • Product: Either a Data Quality Assessment report or addressed as a part of another report

Illustrative DQA Process

Step 1: Identify the DQA team

Step 2: Develop an approach and schedule

Step 3: Identify the indicators to be reviewed

Step 4: Hold working sessions to review indicators and checklists

Step 5: Hold sessions with implementing partners to review indicators

Step 6: Prepare DQA document

Step 7: Follow-up on DQA actions

Common DQA Findings

1. **Validity – most common source of data quality issues**
   - Selected indicators do not measure identified goals and objectives in Theory of Change and Results Frameworks
   - Implementing partners attempt to measure outcomes/outputs of *indirect beneficiaries* alongside direct beneficiaries
   - Sampling methodologies are biased towards a particular group (e.g. only those applying technologies)
   - Seasonality issues cause partners to report data outside of reporting period

Common DQA Findings

2. **Reliability – another common source of data quality issues**

- Data collection methodologies and processes are not documented = inconsistent methods of data collection
- Partners do not have standard or custom PIRS and/or do not follow them
- No standard data collection tools
- Training on data collection non-existent or too infrequent
- Measurement units are inconsistent over time (e.g. kg vs MT)
- Sampling methodologies change

Common DQA Findings

3. Precision

- Data collection tools do not contain information on disaggregates = partners do not collect
- Partners do not have standard or custom PIRS and/or do not follow them

4. Timeliness

- Data collection/reporting not aligned with USAID reporting schedule
- Seasonality issues means information is sometimes not "current"

Common DQA Findings

5. Integrity

- Data management systems are not password protected
- Files are unorganized
- Checks and balances are not enacted
  - Copies of data collection sheets are not shared with head offices
  - Infrequent field visits
  - Not enough training on data transfer, storage, and management

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