



PERFORMANCE MONITORING & EVALUATION

TIPS

CONDUCTING DATA QUALITY ASSESSMENTS

ABOUT TIPS

These TIPS provide practical advice and suggestions to USAID managers on issues related to performance monitoring and evaluation. This publication is a supplemental reference to the Automated Directive System (ADS) Chapter 203.

THE PURPOSE OF THE DATA QUALITY ASSESSMENT

Data quality assessments (DQAs) help managers to understand how confident they should be in the data used to manage a program and report on its success. USAID's ADS notes that the purpose of the Data Quality Assessment is to:

“...ensure that the USAID Mission/Office and Assistance Objective (AO) Team are aware of the strengths and weaknesses of the data, as determined by applying the five data quality standards ...and are aware of the extent to which the data integrity can be trusted to influence management decisions.” (ADS 203.3.5.2)

This purpose is important to keep in mind when considering how to do a data quality assessment. A data quality assessment is of little use unless front line managers comprehend key data quality issues and are able to improve the performance management system.

THE DATA QUALITY STANDARDS

Five key data quality standards are used to assess quality. These are:

- Validity
- Reliability
- Precision
- Integrity
- Timeliness

A more detailed discussion of each standard is included in TIPS 12: Data Quality Standards.

WHAT IS REQUIRED?

USAID POLICY

While managers are required to understand data quality on an ongoing basis, a data quality assessment must also be conducted at least once every three years for those data reported to Washington. As a matter of good management, program managers may decide to conduct DQAs more frequently or for a broader range of data where potential issues emerge.

The ADS does not prescribe a specific way to conduct a DQA. A variety of approaches can be used. Documentation may be as simple

as a memo to the files, or it could take the form of a formal report. The most appropriate approach will reflect a number of considerations, such as management need, the type of data collected, the data source, the importance of the data, or suspected data quality issues. The key is to document the findings, whether formal or informal.

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. In other words, 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.

This “systematic approach” is valuable because it assesses a broader set of issues that are likely to ensure data quality over time (as opposed to whether one specific number is accurate or not). For example, it is possible to report a number correctly, but that number may not be valid¹ as the following example demonstrates.

Example: A program works across a range of municipalities (both urban and rural). It is reported that local governments have increased revenues by 5%. These data may be correct. However, if only major urban areas have been included, these data are not valid. That is, they do not measure the intended result.

¹ Refer to [TIPS 12: Data Quality Standards](#) for a full discussion of all the data quality standards.

VERIFICATION OF DATA

Verification of data means that the reviewer follows a specific datum to its source, confirming that it has supporting documentation and is accurate—as is often done in audits. The DQA may not necessarily *verify* that all individual numbers reported are accurate.

The ADS notes that when assessing data from partners, the DQA should focus on “the apparent accuracy and consistency of the data.” As an example, Missions often report data on the number of individuals trained. Rather than verifying each number reported, the DQA might examine each project’s *system* for collecting and maintaining those data. If there is a good system in place, we know that it is highly likely that the data produced will be of high quality.

“...data used for management purposes have different standards than data used for research.”

Having said this, it is certainly advisable to periodically verify actual data as part of the larger performance management system. Project managers may:

Choose a few indicators to verify periodically throughout the course of the year.

Occasionally spot check data (for example, when visiting the field).

HOW GOOD DO DATA HAVE TO BE?

In development, there are rarely perfect data. Moreover, data used for management purposes have different standards than data used

for research. There is often a direct trade-off between cost and quality. Each manager is responsible for ensuring the highest quality data possible given the resources and the management context. In some cases, simpler, lower-cost approaches may be most appropriate. In other cases, where indicators measure progress in major areas of investment, higher data quality is expected.

OPTIONS AND APPROACHES FOR CONDUCTING DQAS

A data quality assessment is both a process for reviewing data to understand strengths and weaknesses as well as documentation. A DQA can be done in a variety of ways ranging from the more informal to the formal (see Figure 1). In our experience, a combination of informal, on-going and systematic assessments work best, in most cases, to ensure good data quality.

INFORMAL OPTIONS

Informal approaches can be on-going or driven by specific issues as they emerge. These approaches depend more on the front line manager’s in-depth knowledge of the program. Findings are documented by the manager in memos or notes in the Performance Management Plan (PMP).

Example: An implementer reports that civil society organizations (CSOs) have initiated 50 advocacy campaigns. This number seems unusually high. The project manager calls the Implementer to understand why the number is so high in

FIGURE I. OPTIONS FOR CONDUCTING DATA QUALITY ASSESSMENTS- THE CONTINUUM



Informal Options	Semi-Formal Partnership	Formal Options
<ul style="list-style-type: none"> • Conducted internally by the AO team • Ongoing (driven by emerging and specific issues) • More dependent on the AO team and individual manager’s expertise & knowledge of the program • Conducted by the program manager • Product: Documented in memos, notes in the PMP 	<ul style="list-style-type: none"> • Draws on both management expertise and M&E expertise • Periodic & systematic • Facilitated and coordinated by the M&E expert, but AO team members are active participants • Product: Data Quality Assessment Report 	<ul style="list-style-type: none"> • 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

comparison to previously reported numbers and explores whether a consistent methodology for collecting the data has been used (i.e., whether the standard of reliability has been met). The project manager documents his or her findings in a memo and maintains that information in the files.

Informal approaches should be incorporated into Mission systems as a normal part of performance management. The advantages and disadvantages of this approach are as follows:

Advantages

- Managers incorporate data quality as a part of on-going work processes.
- Issues can be addressed and corrected quickly.
- Managers establish a principle that data quality is important.

Disadvantages

- It is not systematic and may not be complete. That is, because informal assessments are normally driven by more

immediate management concerns, the manager may miss larger issues that are not readily apparent (for example, whether the data are attributable to USAID programs).

- There is no comprehensive document that addresses the DQA requirement.
- Managers may not have enough expertise to identify more complicated data quality issues, audit vulnerabilities, and formulate solutions.

SEMI-FORMAL / PARTNERSHIP OPTIONS

Semi-formal or partnership options are characterized by a more periodic and systematic review of data quality. These DQAs should ideally be led and conducted by USAID staff. One approach is to partner a monitoring and evaluation (M&E) expert with the Mission’s AO team to conduct the assessment jointly. The M&E expert can organize the process, develop standard approaches, facilitate sessions, assist in identifying potential data quality issues and solutions, and may

document the outcomes of the assessment. This option draws on the experience of AO team members as well as the broader knowledge and skills of the M&E expert. Engaging front line managers in the DQA process has the additional advantage of making them more aware of the strengths and weaknesses of the data—one of the stated purposes of the DQA. The advantages and disadvantages of this approach are summarized below:

Advantages

- Produces a systematic and comprehensive report with specific recommendations for improvement.
- Engages AO team members in the data quality assessment.
- Draws on the complementary skills of front line managers and M&E experts.
- Assessing data quality is a matter of understanding trade-offs and context in terms of deciding what data is “good enough” for a program. An M&E expert can be useful in guiding AO team members through this process in

order to ensure that audit vulnerabilities are adequately addressed.

- Does not require a large external team.

Disadvantages

- The Mission may use an internal M&E expert or hire someone from the outside. However, hiring an outside expert will require additional resources, and external contracting requires some time.
- Because of the additional time and planning required, this approach is less useful for addressing immediate problems.

FORMAL OPTIONS

At the other end of the continuum, there may be a few select situations where Missions need a more rigorous and formal data quality assessment.

Example: A Mission invests substantial funding into a high-profile program that is designed to increase the efficiency of water use. Critical performance data comes from the Ministry of Water, and is used both for performance management and reporting to key stakeholders, including the Congress. The Mission is unsure as to the quality of those data. Given the high level interest and level of resources invested in the program, a data quality assessment is conducted by a team including technical experts to review data and identify specific recommendations for improvement. Recommendations will be incorporated into the technical assistance provided to the Ministry to improve their own capacity to track these data over time.

These types of data quality assessments require a high degree of rigor and specific, in-depth technical expertise. Advantages and disadvantages are as follow:

Advantages

- Produces a systematic and comprehensive assessment, with specific recommendations.
- Examines data quality issues with rigor and based on specific, in-depth technical expertise.
- Fulfills two important purposes, in that it can be designed to improve data collection systems both within USAID and for the beneficiary.

Disadvantages

- Often conducted by an external team of experts, entailing more time and cost than other options.
- Generally less direct involvement by front line managers.
- Often examines data through a very technical lens. It is important to ensure that broader management issues are adequately addressed.

THE PROCESS

For purposes of this TIPS, we will outline a set of illustrative steps for the middle (or semi-formal/partnership) option. In reality, these steps are often iterative.

STEP 1. IDENTIFY THE DQA TEAM

Identify one person to lead the DQA process for the Mission. This person is often the Program Officer or an M&E expert. The leader is responsible for setting up the overall process and coordinating with the AO teams.

The Mission will also have to determine whether outside assistance is required. Some Missions have internal M&E staff with the appropriate skills to facilitate this process. Other Missions may wish to hire an outside M&E expert(s) with experience in conducting DQAs. AO team members should also be part of the team.

DATA SOURCES

Primary Data: Collected directly by USAID.

Secondary Data: Collected from and other sources, such as implementing partners, host country governments, other donors, etc.

STEP 2. DEVELOP AN OVERALL APPROACH AND SCHEDULE

The team leader must convey the objectives, process, and schedule for conducting the DQA to team members. This option is premised on the idea that the M&E expert(s) work closely in partnership with AO team members and implementing partners to jointly assess data quality. This requires active participation and encourages managers to fully explore and understand the strengths and weaknesses of the data.

STEP 3. IDENTIFY THE INDICATORS TO BE INCLUDED IN THE REVIEW

It is helpful to compile a list of all indicators that will be included in the DQA. This normally includes:

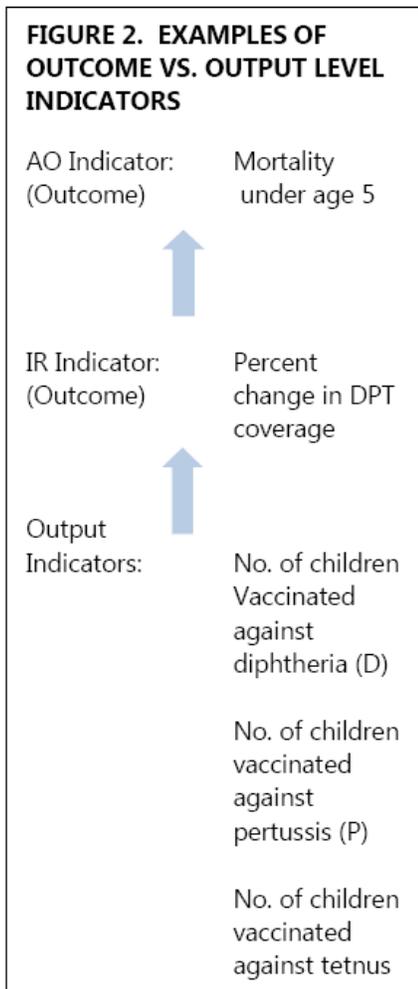
- All indicators reported to USAID/Washington (required).
- Any indicators with suspected data quality issues.

- Indicators for program areas that are of high importance.

This list can also function as a *central guide* as to how each indicator is assessed and to summarize where follow-on action is needed.

STEP 4. CATEGORIZE INDICATORS

With the introduction of standard indicators, the number of indicators that Missions report to USAID/Washington has increased substantially. This means that it is important to develop practical and streamlined approaches for conducting DQAs. One way to do this is to separate indicators into two categories, as follows:



Outcome Level Indicators

Outcome level indicators measure AOs or Intermediate Results (IRs). Figure 2 provides examples of indicators at each level. The standards for good data quality are applied to results level data in order to assess data quality. The data quality assessment worksheet (see Table 1) has been developed as a tool to assess each indicator against each of these standards.

Output Indicators

Many of the data quality standards are not applicable to output indicators in the same way as outcome level indicators. For example, the number of individuals trained by a project is an output indicator. Whether data are valid, timely, or precise is almost never an issue for this type of an indicator. However, it is important to ensure that there are good data collection and data maintenance systems in place. Hence, a simpler and more streamlined approach can be used to focus on the most relevant issues. Table 2 outlines a sample matrix for assessing output indicators. This matrix:

- Identifies the indicator.
- Clearly outlines the data collection method.
- Identifies key data quality issues.
- Notes whether further action is necessary.
- Provides specific information on who was consulted and when.

STEP 5. HOLD WORKING SESSIONS TO REVIEW INDICATORS

Hold working sessions with AO team members. Implementing partners may be included at this

point as well. In order to use time efficiently, the team may decide to focus these sessions on results-level indicators. These working sessions can be used to:

- Explain the purpose and process for conducting the DQA.
- Review data quality standards for each results-level indicator, including the data collection systems and processes.
- Identify issues or concerns that require further review.

STEP 6. HOLD SESSIONS WITH IMPLEMENTING PARTNERS TO REVIEW INDICATORS

If the implementing partner was included in the previous working session, results-level indicators will already have been discussed. This session may then focus on reviewing the remaining output-level indicators with implementers who often maintain the systems to collect the data for these types of indicators. Focus on reviewing the systems and processes to collect and maintain data. This session provides a good opportunity to identify solutions or recommendations for improvement.

STEP 7. PREPARE THE DQA DOCUMENT

As information is gathered, the team should record findings on the worksheets provided. It is particularly important to include recommendations for action at the conclusion of each worksheet. Once this is completed, it is often useful to include an introduction to:

- Outline the overall approach and methodology used.

- Highlight key data quality issues that are important for senior management.
- Summarize recommendations for improving performance management systems.

AO team members and participating implementers should have an opportunity to review the first draft. Any comments or issues can then be incorporated and the DQA finalized.

STEP 8. FOLLOW UP ON ACTIONS

Finally, it is important to ensure that there is a process to follow-up on recommendations. Some recommendations may be addressed internally by the team handling management needs or audit vulnerabilities. For example, the AO team may need to work with a Ministry to ensure that data can be disaggregated in a way that correlates precisely to the target group. Other issues may need to be addressed during the Mission’s portfolio reviews.

CONSIDER THE SOURCE – PRIMARY VS. SECONDARY DATA

PRIMARY DATA

USAID is able to exercise a higher degree of control over primary data that it collects itself than over secondary data collected by others. As a result, specific standards should be incorporated into the data collection process. Primary data collection requires that:

- Written procedures are in place for data collection.
- Data are collected from year to year using a consistent collection process.
- Data are collected using methods to address and minimize sampling and non-sampling errors.
- Data are collected by qualified personnel and these personnel are properly supervised.
- Duplicate data are detected.
- Safeguards are in place to prevent unauthorized changes to the data.
- Source documents are maintained and readily available.
- If the data collection process is contracted out, these requirements should be incorporated directly into the statement of work.

SECONDARY DATA

Secondary data are collected from other sources, such as host country governments, implementing partners, or from other organizations. The range of control that USAID has over secondary data varies. For example, if USAID uses data from a survey commissioned by another donor, then there is little control over the data collection methodology. On the other hand, USAID does have more influence over data derived from implementing partners. In some cases, specific data quality requirements may be included in the contract. In addition, project performance management plans

(PMPs) are often reviewed or approved by USAID. Some ways in which to address data quality are summarized below.

Data from Implementing Partners

- Spot check data.
- Incorporate specific data quality requirements as part of the SOW, RFP, or RFA.
- Review data quality collection and maintenance procedures.

Data from Other Secondary Sources

Data from other secondary sources includes data from host countries, government, and other donors.

- Understand the methodology. Documentation often includes a description of the methodology used to collect data. It is important to understand this section so that limitations (and what the data can and cannot say) are clearly understood by decision makers.
- Request a briefing on the methodology, including data collection and analysis procedures, potential limitations of the data, and plans for improvement (if possible).
- If data are derived from host country organizations, then it may be appropriate to discuss how assistance can be provided to strengthen the quality of the data. For example, projects may include technical assistance to improve management and/or M&E systems.

TABLE I. THE DQA WORKSHEET FOR OUTCOME LEVEL INDICATORS

Directions: Use the following worksheet to complete an assessment of data for outcome level indicators against the five data quality standards outlined in the ADS. A comprehensive discussion of each criterion is included in TIPS 12 Data Quality Standards.

Data Quality Assessment Worksheet			
Assistance Objective (AO) or Intermediate Result (IR):			
Indicator:			
Reviewer(s):			
Date Reviewed:			
Data Source:			
Is the Indicator Reported to USAID/W?			
Criterion	Definition	Yes or No	Explanation
1. Validity	Do the data clearly and adequately represent the intended result? Some issues to consider are: Face Validity. Would an outsider or an expert in the field agree that the indicator is a valid and logical measure for the stated result? Attribution. Does the indicator measure the contribution of the project? Measurement Error. Are there any measurement errors that could affect the data? Both sampling and non-sampling error should be reviewed.		
2. Integrity	Do the data collected, analyzed and reported have established mechanisms in place to reduce manipulation or simple errors in transcription?		<i>Note: This criterion requires the reviewer to understand what mechanisms are in place to reduce the possibility of manipulation or transcription error.</i>
3. Precision	Are data sufficiently precise to present a fair picture of performance and enable management decision-making at the appropriate levels?		
4. Reliability	Do data reflect stable and consistent data collection processes and analysis methods over time?		<i>Note: This criterion requires the reviewer to ensure that the indicator definition is operationally precise (i.e. it clearly defines the exact data to be collected) and to verify that the data is, in fact, collected according to that standard definition consistently over time.</i>
5. Timeliness	Are data timely enough to influence management decision-making (i.e., in terms of frequency and currency)?		

A Summary of Key Issues and Recommendations:

Table 2. SAMPLE DQA FOR OUTPUT INDICATORS: THE MATRIX APPROACH

	Document Source	Data Source	Data Collection Method/ Key Data Quality Issue	Further Action	Additional Comments/ Notes
AO or IR					
Indicators					
1. Number of investment measures made consistent with international investment agreements as a result of USG assistance	Quarterly Report	Project A	A consultant works directly with the committee in charge of simplifying procedures and updates the number of measures regularly on the website (www.mdspdres.com). The implementer has stated that data submitted includes projections for the upcoming fiscal year rather than actual results.	Yes. Ensure that only actual results within specified timeframes are used for reporting.	Meeting with COTR 6/20/10 and 7/6/10.
2. Number of public and private sector standards-setting bodies that have adopted internationally accepted guidelines for standards setting as a result of USG assistance	Semi-Annual Report	Project A	No issues. Project works only with one body (the Industrial Standards-Setting Service) and maintains supporting documentation.	No.	Meeting with COTR and COP on 6/20/10.
3. Number of legal, regulatory, or institutional actions taken to improve implementation or compliance with international trade and investment agreements due to support from USG-assisted organizations	Quarterly Report	Project A	Project has reported “number of Regional Investment Centers”. This is not the same as counting “actions”, so this must be corrected.	Yes. Ensure that the correct definition is applied.	Meeting with COTR, COP, and Finance Manager and M&E specialist on 6/20/10. The indicator was clarified and the data collection process will be adjusted accordingly.
4. Number of Trade and Investment Environment diagnostics conducted	Quarterly Report	Projects A and B	No issues. A study on the investment promotion policy was carried out by the project. When the report is presented and validated the project considers it “conducted”.	No.	Meeting with CTO and COPs on 6/25/10.

For more information:

TIPS publications are available online at [insert website].

Acknowledgements:

Our thanks to those whose experience and insights helped shape this publication including Gerry Britan and Subhi Mehdi of USAID's Office of Management Policy, Budget and Performance (MPBP). This publication was written by Michelle Adams-Matson, of Management Systems International.

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Contracted under RAN-M-00-04-00049-A-FY0S-84

Integrated Managing for Results II