UNOPS

Operational excellence for results that matter

UNOPS
Data Quality Assurance Guidelines
March 2010

Table of Contents

Tables and Figures

I. Introduction

Any functional Data Quality Assurance (DQA) system will not only allow program managers and decision makers to verify the quality of the reported data, but also will provide periodic information on the underlying data management and reporting systems for, at a minimum, program-level output indicators. Further, if fully implemented a DQA system will allow stakeholders to develop action plans to remedy discovered data quality issues and, if developed correctly, will only marginally burden on-going program supervision systems. These DQA Guidelines have been specifically developed for the UNOPS/PR of the UNOPS to monitor the data collected by its Sub-Recipients (SRs) in order to improve the project's reported results. If an SR is not already implementing its own DQA systems, these guidelines can serve as a foundation for the development of a DQA system. Indeed, SRs should feel free to adopt and adapt whatever components of these guidelines that may be applicable for their own programs.

Typically, as data flows up through the data management and reporting system from service delivery points, to intermediate aggregation levels, and finally to the central monitoring and evaluation (M&E) unit it should undergo several checks for its quality. At a minimum, a DQA system should provide information on accuracy/validity and reliability.

It is important to recognize at the outset, though, that the methods for assuring data quality, while related to those for program supervision, are different. Program supervision has the objectives of ensuring that program activities follow plans and guidelines and of supporting staff to implement activities. DQA has the objective to minimize common data errors and to maximize validity, accuracy, and reliability of data. Although program supervision and DQA may have different objectives, they both can be carried out by the same person(s) during the same visits used for program monitoring and supervision. Table 1 below provides further examples of the differences between program supervision and data quality checks.

Data quality assessment dimensions
1) **Accuracy/validity**: Does the data measure what it is intended to measure? Are errors (recording, transcription, sampling, biases, etc.) minimized?
2) **Reliability**: Is data measured and collected consistently? Are protocols and procedures in place?
3) **Precision**: Does the data provide sufficient detail (for example, disaggregating by sex)?
4) **Completeness**: Does data include the complete list of participants, eligible persons, etc.?
5) **Timeliness**: Is data available on time?
6) **Integrity**: Is the data protected from biases or purposeful manipulation?
7) **Confidentiality**: Is data stored with an appropriate level of security? Is the identity of participants sufficiently protected?

Table 1: Comparing Program Supervision to Data Quality Checks

Program supervision checks	Data quality checks
• Are the forms completed correctly (without quantification)? Supervisor may respond yes, no, partly, etc.	• Within the register for a given time period, how many missing data in the sex and age categories from the total possible? (E.g., if there are 20 clients and two are missing either age or sex, the response is 2/40 possible data items).
• How many times in the past three months	• Review the higher-level tally sheets and verify that the numbers of cases on the sheets match the number

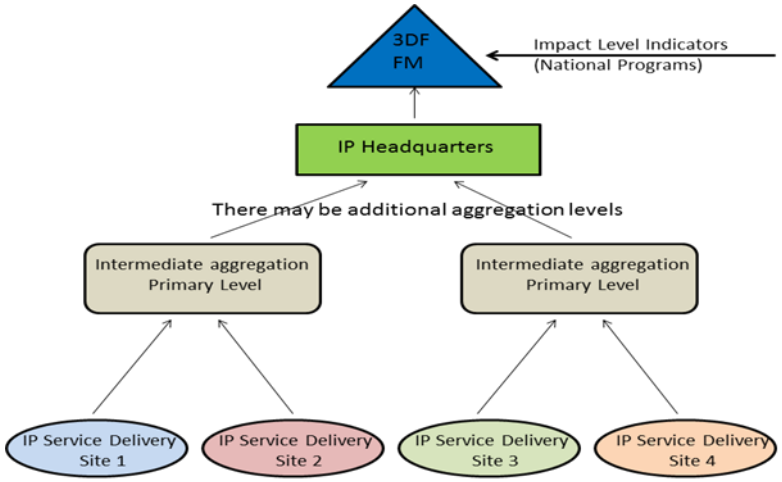
Program supervision checks	Data quality checks
did the (higher-level) supervisor report that they visited the health posts? (validate by interview of health post staff or viewing copies of supervision report)	of cases recorded in the health post registers for the same time period. If not, what is the difference?
• How many cases of (X) were treated last month?	• Do the numbers of cases diagnosed (by sex and age) and treated last month that are recorded in the register match the numbers reported on the monthly report? Do the number of cases being treated correlate with the procurement records?
• Are all registers available and used at the health post level?	• Are the registers accurately completed against the standard case definition?
• Are supervisory checklists completed for field visits?	• Random validation by the central level supervisors of the data quality findings reported in the supervisory checklists/DQA forms used by the intermediate aggregation level.

II. UNOPS Data Flows, UNOPS/PR DQA Team Staffing and Training, and Linkages to the National M&E System

An appropriate DQA system and its methods will be based on a number of basic factors; namely, 1) the flow of data through the reporting system; 2) the availability of staff to implement DQA; and, 3) the staff understanding of DQA, the reporting forms and their correct completion.

As can be seen in Figure 1, there are several flows of information to the UNOPS/PR. However, at its basic level, the UNOPS data flow is typical; namely, that there is an upward flow of data from the service provision level which is aggregated at various intermediate levels and then passed onto the central level of the SRs and then the UNOPS/PR. Likewise, the feedback provided should flow down from the central level to the service provision level. Of particular note in establishing a DQA system, is that there are two different sources of data for the UNOPS; those data which come from its own reporting system and those that come from other stakeholders, including the Ministry of Health.

Figure 1: Example of data flow for UNOPS



UNOPS/PR DQA Team Staffing and Training

Availability of sufficient numbers and appropriately trained staff at various administrative levels is necessary for implementation of M&E and DQA. The UNOPS/PR has a growing M&E unit with a team of trained professionals responsible for monitoring and supervision. Table 2 provides information on the relevant UNOPS/PR positions and their roles and responsibilities in relation to M&E and DQA.

Table 2: UNOPS/PR Personnel and Responsibilities for Data Quality Assessments

UNOPS/PR personnel and responsibilities for DQA		
Level and Staff	**Current Responsibilities**	**Current/Proposed Responsibilities for DQA**
M&E Unit	- cross-checking SR databases for suspected error - contacting SRs regarding report errors	- routine DQA as described within - SR database cross-checks - lead in providing SR feedback and DQA improvement
Program/Public Health Officers	- liaising with M&E unit on database errors	- ad hoc DQA in conjunction with program supervisory visits - provide guidance to M&E unit regarding database errors - participate in SR feedback and DQA improvement meetings with M&E unit

Underlying the health information system and, subsequently, the data quality checks are the reporting forms at both the service delivery sites and intermediate aggregate levels. It is, therefore, critical that all personnel involved in the recording, reviewing, and management of data have

a thorough understanding of how all data collection tools and reports that aggregate these data are to be completed. It is incumbent upon the UNOPS/PR program management team with their SR and technical partners to develop instructions for all reporting forms and ensure that all relevant personnel are trained in the completion of the forms through the dissemination and training on reporting form instructions. Staff at service delivery sites must be trained in the completion of their reporting forms along with having periodic refresher training to understand why the correct completion of reporting forms is critical to DQA. Failure to understand reporting forms can result in, for example, the improper recording of treatment outcomes, the incorrect aggregation of raw data, or stock-outs of crucial medicines.

In addition to the core team, all UNOPS/PR staff who are involved in program M&E should have some fundamental understanding of their respective roles within the DQA system. Yearly refresher trainings should include: 1) reviewing the indicator definitions; 2) reviewing the respective reporting, program supervision and DQA forms and understanding how to complete them correctly; 3) reviewing the various methodologies for data quality checks; 4) reviewing the relevant data back-up and storage policies; and, 5) reviewing the expected norms of SR service providers for accurate and correct completion of primary data sources (e.g. timely completion of registers/reports, double-checking and double-entry of data, transcribing methods, etc.) to minimize routine data errors.

The UNOPS/PR's DQA system must be seen, though, within the framework of the National M&E system and its resources along with the leadership of the Technical Support Groups. Thus, it is imperative that the UNOPS's DQA system be aligned with the national M&E system, the National Strategic Plans and the National Operational Plans. Applied to the UNOPS's DQA system, this requires following the national M&E priorities and aligning with the national health information system and utilizing its data even if the system is nascent.

III. Proposed UNOPS/PR DQA Methodologies

Every program needs to tailor its DQA system to its specific indicators, data sources, and resources. In order to ensure that the DQA system is as effective and efficient as possible within existing constraints, it is important to develop the system taking into account data needs, data sources and the levels where the data can be found, and resources available for implementation.

Overview of Data Quality Assessment System for the UNOPS/PR

After reviewing relevant information on the UNOPS/PR DQA system, including the data information sources, the following DQA system was deemed feasible. Adjustments may be made during the course of implementation to ensure that the system achieves its objectives of supporting the provision of accurate, reliable, and timely data, within resource constraints.

The UNOPS/PR DQA system will consist of five levels of activity:

1. Minimizing routine sources of data errors (mainly done through SR implementation);
2. Field validation of report data against source data;
3. Cross-checking databases using logic to find errors and identify improbable relations between data items;

4. Adequately storing data to prevent loss, ensure availability of information for validating reports and for evaluation, and to limit access to protect confidentiality and integrity of the data; and,
5. Providing feedback on DQA checks.

Step 1. Minimizing routine data errors

Since much of the data used for UNOPS reports comes from aggregated SR reports, the UNOPS/PR will work with the SRs responsible to support their data quality capacities. This may include training SR staff in how to complete data forms, and advising on procedures for checking compilation and minimizing errors resulting from transcription and data entry. In addition, UNOPS will focus on improving the quality of data by providing Lessons Learned forums and facilitating discussions to solve data quality issues raised by SRs during the forums.

Step 2. Routine field validation of data

Routine validation of data cannot practically be carried out if all data are validated. The cost, time, and personnel required for this would require resources beyond those available at the UNOPS/PR (or the SRs, if they are implementing DQA). A limited number of data quality checks, however, where the facility, data items, and time period for which data are checked are randomly selected, can achieve the objectives of: a) having an overall indication of the accuracy of data; and, b) reinforcing good data practices among staff.

The basic principles to be followed are:

- all SRs(or facilities) know that they have a probability of being selected for data validation checks;
- all relevant data items have a probability of being checked; and,
- all SRs will have at least one DQA check performed each year.

***Note**: Routine DQA systems based on random selection do not eliminate the need for selective checking of data where errors or other problems are suspected. Selective or purposeful DQA may involve a full audit.*

<u>Selection of facilities for routine program supervision by the UNOPS/PR</u>

Within the UNOPS/PR, there is staff who conduct routine program supervision. The methodology for selecting these facilities is different than that proposed to be used for DQA; however, it is expected that all SRs will undergo DQA at least once a year. DQA activities related to a few key data items may be added to the routine program supervision checklists and more detailed DQA activities may be carried out on a subset of the facilities routinely supervised. Unique strategies to support data quality may need to be developed for sites where routine supervision is not possible.

It is important that records on planned and actually carried out program supervisory visits by both the SRs and UNOPS/PR are maintained so that UNOPS UNOPS/PR staff know which health facilities are never supervised, or cannot be supervised with any

A method for selecting sites for random DQA

From among the facilities with planned program supervisory visits in the reporting period, choose a subset of facilities for DQA. It should be noted that in order to perform an DQA aggregation check (one type of DQA methodology) for an SR, the UNOPS/PR should either chose at least two facilities from that SR or verify proper aggregation of community health worker records at the facility.

1. List the facilities in the planned supervision schedule, stratifying by specific geographic level (e.g. township, state, etc.) and give each facility a number.
2. Select facilities to be visited using a completely random or a random and stratified methodology:
   - Completely random: Assign each facility a number, write the number on a piece of paper, and then draw the desired number of facilities to be visited from out of a cup
   - Random and stratified (to ensure that the facilities are not next to each other geographically): select the first facility by drawing the number out of a cup. Then take the second facility at a half way point from the first facility.

Example: If 15 facilities are planned for supervision, and the randomly selected first facility number is '3', then select facility #3 on the list for data quality. Then divide the number of planned supervisions by 2 (15/2=7.5 and round up to 8) and select the 8th facility after # 3 (this is facility #11) as the second facility for data quality assessment. It may be necessary to circle the counting around, going to #1 after #15, to reach the correct spacing between selected facilities. For example, if the starting number is "9" then the facility that is 8 past nine is #17. Since there is no #17, the counting would go from 15 to #1 (representing a count of 16) and continue until the count of 17, that is, the 8th facility, or facility #2 is selected.

3. These same methods can be applied for checking community health worker records.

If one of the DQA facilities cannot be visited, either do the DQA on a replacement facility, or randomly select from among facilities remaining in the program supervision list for DQA.

Selection of the time period for data quality checks

At a minimum, one month of data should be checked so that reports can be compared with source data. The month(s) for which data will be checked against reports should be randomly selected from among eligible months, using the methods described previously; but, ideally, should be within the upcoming or most recent reporting period. It is possible to check different time periods for different data items if desired (this will allow some data to be checked for each month).

Selection of data items/indicators for quality checks

Suggestions for selecting which items will be checked include the following:

- Several different indicators can be identified and one randomly selected for use for each different facility, or for use across facilities for the month. This way, although only a small portion of the data is checked, the staff will know that all data items are eligible but will not know which indicators will be checked for validation during a visit.

- Critical data items (those for the most important indicators or those where errors are large-scale or common) can be checked every time.

Checking all data items at the facility level may take more time than possible given the other work of the UNOPS/PR staff (program supervision, problem solving, etc.) and logistic considerations that may affect how long the staff can remain at the facility.

It is better to conduct DQA on fewer items if this means that more facilities can have routine data quality checks.

The basic types of data checks that can be carried out are described in the following box.

Data checks relevant to UNOPS indicators
➢ **Aggregation checks**: • Checking information in tally sheets, client or lab registers against summary report data for differences in numbers; • Checking pictorial tally sheets against monthly reports or data in computer database. ➢ **Cross-checks:** • Example: Checking the drug register for evidence of stock-outs compared with stock-outs reported in monthly or aggregated reports; • Example: Checking procurement records against patient records for treatment. ➢ **Spot checks:** • Example: Checking the drug register to compare today's inventory with physically verified presence of drugs today; • Example: Asking sample beneficiaries within the community if they received insecticide-treated nets, etc.; • Asking staff on training list if they received training.

Preparation for field validation of data: Prior to visiting a site for DQA, UNOPS/PR staff needs to collect all relevant data information for that site. Examples of needed information may include: 1) reports on dates and amounts of items disbursed from the local-level warehouse to the health service facility; 2) copies of monthly reports submitted by heath facilities to SR headquarters for the eligible time period; 3) copies of training lists

including staff from the facility to be visited who received training. These documents can provide the information against which DQA findings are compared. Where there is a discrepancy it is important to discover at which level the error occurred.

Routine facility level DQA activities: The facility in-charge should be assisted by both the relevant SR staff and the UNOPS/PR to establish a routine system for double-checking addition and transcription of daily data for monthly reports. The program supervisor in-charge should also be instructed to periodically ensure that staff are completing registers and forms as required.

Step 3. Cross-checking to find errors

UNOPS/PR staff will routinely conduct crosschecks using SR data and UNOPS databases. The cross-checks will be conducted every six months on SR data corresponding with the reporting period. Where problems are identified, the crosschecks will move to the SR level and ultimately the facility level to identify the level of error and needed corrections.

The recommended strategy for implementing routine cross checks of SR data by the UNOPS/PR is as follows:

1. All program staff of UNOPS should be trained on how to work with and interpret information in the SR database;
2. Data should be analyzed every six months by UNOPS/PR Public Health Officers in cooperation with the M&E Unit.
3. Inconsistencies and potential problems that are identified should be brought to the attention of the UNOPS M&E Officer, or another designated person. One person will compile all feedback and provide this through email to the relevant SRs.
4. Along with the cross-checks it will be important that field checks ensure validation of data. Both are critical to the quality of the reports.

Examples of data cross-checks to be systematically carried out to identify potential data problems include checking the following:

1) Total reported cases of (X) minus total confirmed cases must be greater than or equal to 0.
2) Total slides examined minus total confirmed cases must be greater than or equal to 0.
3) Checking the number of positive cases with pharmaceutical procurement reports.
4) Data from the current year will be compared with the same data from the previous year to identify whether numbers are within a pre-determined expected range. Differences may indicate data errors or notable changes in the epidemic pattern.

Step 4. Systems for storing data (see Annex 7)

Data storage systems are necessary for ensuring that source data are maintained for validation purposes and that data records needed for program monitoring are available with their integrity maintained.

Step 5. UNOPS/PR providing feedback on DQAs to SRs

All errors may not be serious enough to be concerned about. If there is an occasional adding error of a few numbers, this may not be important enough for any action except perhaps verbal feedback at the time the error is discovered on the need for additional caution in preparing data.

Although the data may ultimately be found to be correct, if it is sufficiently beyond a threshold a more in-depth evaluation will be needed. At the time a threshold is reached, the UNOPS/PR will launch a specific investigation to identify the problem and will complete a written report outlining the problem identified and the steps taken to investigate and resolve any problems identified.

UNOPS policy is that a **10% difference** in individual items for quantitative data checks is the level at which formal steps are to be initiated for more in-depth checking and making corrections. UNOPS will follow this policy for the field visits and for the cross-checks. All SRs will receive feedback on the SR DQA Feedback Form which will provide an overall grade (A, B1, B2, and C) for the DQA check along with the same grading for each individual indicator checked. **An A= 10% or less margin of error; B1=10-20% error margin; B2 = 20% or greater error margin; C= no DQA system in place.**

Procedure for handling missing and incomplete data

The UNOPS/PR will focus on supporting the SRs in receiving timely data reports as a routine component of their supervision and DQA activities. ***SRs will be required to report: 1) the percentage of lower level (service delivery or lower aggregation level) sites not able to submit reports on time; and, 2) the percentage of lower level sites that the central level/headquarters staff is not able to access during each six month reporting period***. These reports will be provided to the UNOPS/PR for monitoring. The UNOPS/PR will also help the SRs by addressing missing or incomplete data issues when making routine supervisory and DQA visits to the facilities.

IV. Using Data for Programmatic and M&E Improvement

The key reason for ensuring data quality is the need for accurate information for program monitoring, assessment, and decision making. Implementing a DQA system will improve the accuracy and completeness of data available for analysis and reporting. When stakeholders can trust the quality of data, this strengthens the ability of a program to advocate for support, and to document achievements.

Analyzing Data

Almost all programmatic and M&E staff at the UNOPS/PR will be involved in some way in collecting information that can be used in monitoring and evaluation. This includes:

- the administrator who takes minutes at a meeting or prepares and circulates the attendance register;
- the fieldworker who writes up his/her site visit reports;
- the bookkeeper who records income and expenditures;
- the data entry officer who enters data received from the SRs;
- the head of unit or project who analyzes the data and report;
- the decision maker(s) who make(s) the decision on collected information.

It is a useful principle to look at every activity and ask: What do we need to know about this activity, both process (how it is being done) and product (what it is meant to achieve), and what is the easiest way to find it out and record it as we go along? A common mistake is to collect too much data that can result in too much information with little or no use.

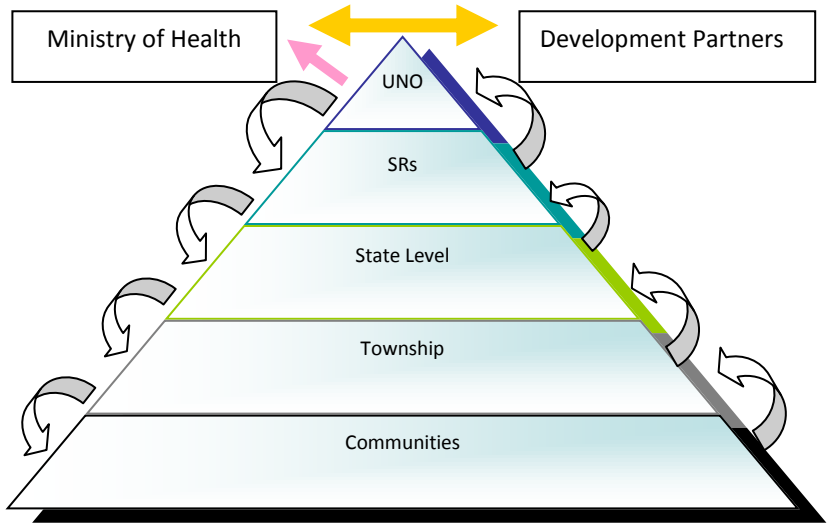
It is important that the data gathered through the DQA system be analyzed to provide evidence of program progress, identify problems including the need to set or reset targets, etc. A common problem with data collection and analysis is a failure to follow-up on findings toward a desired action. If during analysis a problem is identified and the program fails to fix the problem through a suitable and timely remedial action, this might result in failure to achieve goals and targets. Analysis converts detailed information into patterns, trends, and other forms that facilitate understanding and interpretation. The starting point for analysis initially might be unscientific, based rather on an intuitive understanding of the key themes evident during the information collection process. Once the key themes are developed, it becomes easier to work through the information, structuring and organizing it so that it can be written up in a manner that it can be used for reaching conclusions, and making recommendations.

Providing Feedback on Data Findings

It is important that all levels of the system starting from the health facility, to the regional and central level are kept in the loop for both sharing the information and providing feedback (see Figure 2 below). This is important from two aspects

a. all stakeholders need to know that information being gathered is for a purpose and is analyzed to identify key issues and problems; and,
b. once the information is analyzed feedback is important to address the causes and effect system improvement.

Figure 2: Flow of UNOPS information and results



When analyses are based on good quality data that stakeholders can trust, the interpretation, conclusions, and recommendations can be used to support the program. Reports based on data analyses should include interpretations and recommendations that:

- identify problems and what they mean in relation to activities;
- prioritize actions according to nature or urgency of identified problems;
- summarize the actions to be taken in the next semester and focus only on actions that can be done in the available time frame;
- support decisions about how to move forward; and, if necessary,
- deal with resistance to the necessary changes within the organization or project, or even among other stakeholders.

Data findings and analyses will be used to report to different stakeholders in different ways, sometimes in written form, sometimes verbally and, increasingly, making use of tools such as PowerPoint presentations, slides and videos. Below in Table 3 are suggestions for different reporting mechanisms that might be appropriate for various stakeholders.

Table 3: Reporting DQA Results to Stakeholders

Target group	Stage of project cycle	Appropriate format

Target group	Stage of project cycle	Appropriate format
Ministry of Health	Interim, based on monitoring analysis	Written report
	Evaluation	Written report, with an Executive Summary, and verbal presentation from the evaluation team.
Management Team/UNOPS	Interim, based on monitoring analysis	Written report, discussed at management team meeting.
	Evaluation	Written report, presented verbally by the evaluation team.
UNOPS Staff (all levels)	Interim, based on monitoring	Written and verbal presentation at departmental and team levels.
	Evaluation	Written report presented verbally by evaluation team and followed by in-depth discussion of relevant recommendations at departmental and team levels.
Donors	Interim, based on monitoring	Summarized in a written report.
	Evaluation	Full written report with executive summary or a special version, focused on donor concerns and interests.

Using Data to Improve Decision Making

Project managers need the conclusions and recommendations that come out of data to help them make decisions about their work and the way to do it. The success of the process is dependent on the ability of those with management responsibilities to make decisions and take action. The steps involved in the whole process are:

- as a team, understand the implications of what has been learned;
- work out what needs to be done and have clear motivations for why it needs to be done;
- generate options for how to do it;
- look at the options critically in terms of which are likely to be the most effective;
- agree to the decisions as a team;
- get organizational/project consensus agreement;
- get a mandate (usually from a Ministry of Health, but possibly also from donors and beneficiaries) to do it; and,
- Do it!

ANNEX 1: Pre-site visit checklist for DQA

Table 1: SR list (compiled as either part of upcoming program supervisory visit or as a separate DQA check)

Name of Sub-Recipient	Date of Last Program Supervisory Visit	Date of last DQA check
Etc.		

Table 2: Site list (completed after subset of sites for DQA has either been randomly selected or using a different method)

Number	Name of site selected for DQA	Geographic location (township, state)	Method for choosing site (random, random/stratified, purposeful)
1			
2			
3			
Etc.			

Table 3: Indicator list

Indicator selected for DQA check (use indicator dictionary number, e.g. HIV 1, TB 5, Malaria 4, etc.)	Reason for selection	Applicable to which site numbers from Table 2 above	Type of DQA method to be used (aggregation, cross-check, spot-check) – may be more than one method	Facility level (FL) or community health worker (CHW) check
Etc.				

Notes on documents reviewed prior to DQA check

Date checklist completed:

ANNEX 2: Indicator Verification Form (one form per indicator)

Name of Indicator	Name of site and number from pre-site visit checklist	Date checked

Table 1: Aggregation Methods (if applicable, use this method and only apply at those aggregation levels which are relevant – i.e. can do either one of the following or both)

Primary Data Source (health facility records, community health worker registers, etc.)	(A) Reported result to intermediate aggregation level/SR	(B) Verified result from the Primary Data Source	Percentage verified/discrepancy (B/A)	Comments

Intermediate aggregate level	(C) Received result from primary data source	(D) Reported result to central/next administrative level	Percentage verified/discrepancy (D/C)	Comments

Table 2: Cross-checking method (if applicable)

First data source	Number verified (A)	Second data source	Number verified (B)	Discrepancy (A-B)	Comments

Table 3: Spot-checking method (if applicable)

Numbers of beneficiaries interviewed (if applicable) or list documents reviewed	Comments

Rating for this indicator:

ANNEX 3: UNOPS/P eedback Form for SRs

Name of SR:	
Overall DQA Grade: (determined with SR)	

Indicator verified	Site	Method	Grading
Etc:			

Overall DQA comments and reasoning for Overall DQA Grade:	
List of recommended action(s) for correction, if applicable:	
Date(s) for corrective action(s) to be completed, if applicable:	
Describe any actions/feedback provided to on-site staff:	
Name and designation of person completing report:	Date feedback report given to SR:
Contact information (phone number, email):	Signature:
Signature of SR representative receiving the report:	Date:

ANNEX 4: Summary Report for SR DQA Checks (can be an Excel worksheet)

Name of SR	Date of DQA Check	Number of indicators checked	Overall DQA rating	Actions required (Y/N)	Date for completion of actions	Date actions completed (Y/N and verified by SR)
Etc.						

ANNEX 5: Data Quality Assurance Implementation Plan (UNOPS/PR)*

Data Quality Assurance Implementation Plan (UNOPS/PR)																		
	Activity	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Month and Year**	**Person / organization responsible**	**Comments**
1.0	Constitute UNOPS/PR DQA Team																
1.1	Arrange date and venue to train UNOPS/PR DQA Team																
1.2	Provide training to UNOPS/PR DQA Team																
2.0	Internally finalize UNOPS/PR DQA implementation plan																
2.1	Assign roles in UNOPS/PR DQA implementation plan																
2.2	Obtain external buy-in and approval on UNOPS/PR DQA implementation plan																
3.0	Internal assessment of UNOPS/PR data quality[1]																
4.0	Develop evaluation criteria for UNOPS/PR DQA[2]																
4.1	Develop forms for delivery site data verification[3]																
4.2	Develop forms for intermediate level site data verification[3]																
4.3	Develop site selection methodology[4]																
4.4	Develop additional forms for DQA (trip reports, DQA reports, feedback reports, and action plans)																
4.5	Develop Grading System[5]																
5.0	Select sites																
5.1	Select indicators to be verified[6,7]																

5.2	Select reporting period to be verified																	
5.3	Document indicator choices, site selection, and reporting period																	
5.4	Develop schedule for DQA site visits																	
5.5	Notify selected sites of schedule																	
5.6	Start logistics preparations																	
5.7	Conduct service delivery site data verification[8]																	
5.8	Conduct intermediate / aggregate level data verification[9]																	
6.0	Prepare trip report																	
6.1	Input and analyze data																	
6.2	Prepare preliminary findings and recommendations																	
6.3	Finalize DQA report																	
6.4	Disseminate DQA report to selected sites																	
6.5	Initiate feedback meetings																	
6.6	Develop Action Plans																	
6.7	Follow-up on recommendations																	
7.0	Share results with stakeholders																	

* Many of these steps have already been completed for the UNOPS/PR. This DQA Implementation Plan can be adapted for Sub-Recipients as well.

1- Factors to be considered include accuracy, reliability, precision, completeness, timeliness, integrity, and confidentiality.

2- Factors to consider include M&E capabilities, indicator definitions and understanding, data collection forms and tools, data management process, and upstream and downstream linkages.

3- These can be checklists, questionnaires, and surveys.

4- This can purposive, stratified, or random.

5- This is a calculation to determine deviations between reported data and actual verified data and what is acceptable amount of error.

6- Criteria for selecting indicators are based on mandatory requirements (internationally reported), magnitude (funding or number affected), and case-by-case (usually because of programmatic needs).

7- Caution needs to be exercised in not selecting too many indicators given resource constraints.

8- Usually takes a half to full day per site (measures typically include completion of source documentation for product and service delivery, availability and completeness of source documents, trace and verify reported numbers, cross-check numbers between sources, spot-check service delivery).

9- This needs to be done for both data coming from lower levels and data reported to higher levels (usually includes document review for completeness and availability, tracing and verifying data, and assuring that procedures are in place to avoid reporting errors).

ANNEX 6: Minimizing Routine Sources of Data Error

Factors that commonly contribute to data errors include the following:

- Systemic errors in data entry
  - Incorrect entering data into a form (e.g., register or report) because of misunderstanding of definitions of which data are eligible for a section of the form and misunderstandings of how to complete each section of a form.
  - Typing errors entering data into database
  - Wrong data being entered into a form because it is being copied from unofficial scraps of paper, or being entered based on memory—papers get lost, numbers get confused when put onto paper without clear columns, memory is faulty, etc.

- Math and compilation errors in aggregating data
  - Individual entries are added wrong—such as when aggregating a column of daily information to provide monthly statistics.
  - Double counting sometime occurs when data are compiled and aggregated.

- Compiling data by category (e.g., malaria for females < 5) has much scope for error when carried out by hand when each category is not a separate column and the aggregator is required to identify two or more data items from different columns to complete a category.

- Transcribing errors
  - Typing errors or missing/duplicating a data item resulting in subsequent information being entered into the wrong location/variable in the database.
  - Numbers are copied incorrectly from form to form during aggregation or copying to provide a clean form

ANNEX 7: Data Storage

The UNOPS/PR will support the MoH data storage guidelines and will follow a similar strategy for UNOPS specific data. The following will be followed (or updated to conform with MoH guidelines):

Storage of original data:

- Hard copies of data given to the UNOPS/PR will be stored in dry and protected locations, within files or folders and in drawers or closed cabinets, so that multiple papers and registers do not become lost or torn, and so that when DQA is carried out, data can be readily found.
- The data forms and documents will also be stored in a location with limited access (e.g., a senior staff officer or a locked store room) to guard the integrity of the data and the privacy of persons and service site staff.

Management of computerized databases

UNOPS works with two computerized databases; namely, the M&E Coverage Database and the Project Coverage Database. In maintaining these databases, the UNOPS/PR should:

- When possible, double entry of data should be carried out, and a check for differences carried out, with corrections made.
- At the end of each day when the database is changed (addition/corrections) it should be backed up on a flash disk and stored in the in a safe and secure location.
- Crosschecks of the UNOPS data base and of the SR databases when possible will be conducted. At the level where the crosschecks are carried out, UNOPS staff will be responsible for investigating any material discrepancies identified from the cross-checks.
- After investigating cross-check discrepancies, corrections to the SR database will be submitted to the implementer, with a copy of the cover note and submitted corrections maintained in a folder on the computer for at least two years. Cross-check discrepancies for the UNOPS database will be investigated and corrections made at the level where data are entered. A copy of the cross-check findings and the corrections made on the UNOPS database will be maintained in a computer file, for at least two years.
- One person at each site where the data entry takes place will be given responsible for approving any submitted corrections for the SR database, changes to the UNOPS database and for ensuring that the corrected copies are forwarded to the appropriate people. This person will ensure that the original cross-check files and instructions for corrections are maintained in a file, and that back-up copies of these files are made the same day that the correction is finalized.
- When an SR sends a corrected database, the UNOPS M&E Unit will be responsible for ensuring that the corrected database replaces all existing databases for that time-period and that the old database is deleted.
- As feasible, UNOPS will verify that up-to-date Antivirus software is on each computer and is utilized on a computer programmed schedule.