WATER SAFETY PLAN IMPACT ASSESSMENT
DATA COLLECTION GUIDANCE NOTE

Version: 11 November 2014

DOCUMENT PURPOSE AND SCOPE

The purpose of this guidance note is to assist relevant parties in countries participating in the WHO/DFAT Water Quality Partnership for Health project to collect data to measure the outcomes and impacts of Water Safety Plan (WSP) implementation. The document provides detailed guidance for those responsible for designing and implementing national WSP impact assessment programs in order to ensure quality and consistency in data collection and reporting, from site to site and year to year within a given country and between project countries.

Once pre-WSP (or baseline) data and post-WSP data are collected (by February 2015 and March 2016, respectively), WHO headquarters will engage an expert to analyze the data and report findings. Individual countries will not be expected to analyze the data, although countries will have the opportunity to review and confirm all findings. As such, guidance on data analysis is outside the scope of this document. Rather, the document provides guidance on data collection only.

DOCUMENT CONTENT & STRUCTURE

The indicators presented in this guidance note are based on the general indicator groups outlined in the US Centres for Disease Control and Prevention's *A Conceptual Framework to Evaluate the Impacts of Water Safety Plans*, which divides potential WSP benefits into two groups: outcomes and impacts. Outcomes are defined as the intermediate changes that result from the WSP process, and impacts are the ultimate changes desired as a result of WSP program activities. The various outcomes and impacts indicator groups and subgroups that form the basis of this document are shown in Figure 1.

This introductory portion of this guidance note presents a number of success factors and important considerations to bear in mind during impact assessment program design and implementation, and it offers step-wise suggestions for getting started.

The main body of the document contains the following forms to support data collection, recording and sharing:

- General information form: Form for documenting general information on the water supply system, the WSP and the persons collecting the data
- Indicator finding tables and helpful hints: Form for each of the 13 indicator subgroups shown in Figure 1, detailing relevant indicators and providing helpful hints for the data collector

- Data summary table: Indicator data summary form for easy reference and data sharing

	Indicator groups	No. of indicators in each group
OUTCOMES	**POLICY OUTCOMES**	
	Group P1: Formal regulatory changes	2
	Group P2: Changes in norms of practice	2
	OPERATIONAL OUTCOMES	
	Group O1: Changes in system infrastructure	1
	Group O2: Changes in operation and management procedures	1
	FINANCIAL OUTCOMES	
	Group F1: Cost changes	2
	Group F2: Changes in cost recovery	2
	Group F3: Changes in financial support and investment	2
	INSTITUTIONAL OUTCOMES	
	Group I1: Changes in communication and collaboration among stakeholders	3
	Group I2: Changes in water supplier knowledge and understanding	2
	EQUITY OUTCOMES	
	Group E1: Changes in consideration of equity	1
IMPACTS	**WATER SUPPLY IMPACTS**	
	Group W1: Water service changes	4
	Group W2: Water quality changes	7
	Group W3: Consumer satisfaction changes	4
	HEALTH IMPACTS	
	Group H1: Changes in incidence of water-related illness	3
	Total # of indicators (between the 13 indicator groups) =	**36**

Figure 1: WSP outcomes and impacts indicator groups

SUCCESS FACTORS & IMPORTANT CONSIDERATIONS

- **Not all indicators will apply to all situations.** The set of indicators in this document has been designed to cover a wide range of water supply system types and contexts and as such is quite comprehensive. However, it is understood that not all indicators will apply in all situations and that certain data may not be available. Where data collectors are unable to obtain data on certain indicators (or where the indicators do not apply), those indicators may be skipped. There is value in all data collected, even if the data set is not complete.

- **"Helpful Hints" guidance should be customized to reflect the local situation.** Those responsible for designing and supporting the national WSP impact assessment program (e.g. national-level WSP coordinators) are highly encouraged to review the indicators in detail and customize the "Helpful Hints" sections throughout the document to provide locally-relevant advice to support data collectors. General tips have been provided, but in many cases further detail will be needed to guide data collection and ensure consistency in approach from site to site and from year. Customized guidance will contribute greatly to data quality and consistency. (The indicators themselves should remain unchanged so that findings can be compared across project countries, but details such as data source and inputs/approaches to various calculations should be considered and customized.) A "Custom notes/tips" field has been provided for each indicator.

- **Data collectors should be appropriately skilled and trained.** Collecting WSP impact assessment data is not a simple or straightforward exercise, and data collectors should be thoroughly trained in the content and application of this guidance note. Training prior to any data collection activity is highly recommended. Appropriate training is essential to equipping data collectors with the necessary knowledge and will contribute greatly to the success of the WSP impact assessment program. (WSP coordinators may choose to combine the training with the "Helpful Hints" customization in order to solicit data collector feedback in the customization process.) In addition, data collectors should have a thorough understanding of the WSP process and be fluent in the national language(s).

- **Only sites for which pre-WSP data is available are appropriate for inclusion.** Ideally, this document should be used to collect baseline data before WSP implementation has begun, then again one year following WSP implementation. Where baseline data was not collected prior to WSP implementation, baseline data must be collected retrospectively such that the baseline data reflects conditions at the time of initial WSP development. <u>The accuracy of the WSP impact assessments will be significantly compromised if "baseline"</u>

assessment data reflects conditions after WSP-related changes have begun rather than a true baseline condition. Therefore, the only sites appropriate for inclusion in this impact assessment exercise are those where either a) WSP assessment has not yet begun and is anticipated, or b) data against the indicators in this document can be collected retrospectively to capture pre-WSP conditions. Identifying appropriate impact assessment sites is a critical step in the process and must be given careful consideration from the start.

- **WSP impacts will vary with WSP quality and maturity.** Full WSP implementation takes time and some benefits will take more time than others to be fully realized, which is important to bear in mind when deciding appropriate intervals for follow-up assessment. In addition, higher quality, more fully implemented WSPs are expected to yield more outcomes and impacts than those in the early stages of implementation and/or of lower quality. For this reason, it is important for data collectors to document the level of maturity and quality of WSP implementation during each follow-up assessment round. Therefore, data collection for follow-up assessments should involve a WSP assessment using the *WSP Audit / Assessment Guidance Note*, and the WSP assessment score from this form should be recorded on the General Information Form.

- **Thorough note taking by data collectors is critical.** Data collectors should keep detailed notes in the comments field and on supplementary notes pages as needed. For instance, data sources used and bases of judgments made should be documented. Inputs and approaches to all calculations should also be clearly documented where the "Helpful Hints" section does not prescribe a specific approach or where the data collector must modify the prescribed approach (e.g. due to limited data availability). Keeping detailed notes will greatly simplify the process for all follow-up assessments and will ensure that a consistent approach is followed to allow "apples to apples" comparison between baseline and post-WSP data. Thorough note taking will take time initially, but will ultimately save time and effort as well as strengthen impact assessment quality.

GETTING STARTED

Bearing in mind the success factors and important considerations described above, the following step-wise approach to WSP impact assessment program design and implementation is recommended:

STEP 1: Organize training for data collectors and customize "Helpful Hints". Organize training for the data collectors in the content and application of this guidance note, including a thorough review of all indicators and the general "Helpful Hints" provided. Customize the tips provided to best reflect the local situation (taking care not to change the indicators themselves). "Helpful Hints" can be

further customized during the initial baseline assessment in each country, during which valuable lessons will be learned.

STEP 2: Make a list of participating sites. Bearing in mind the critical constraint that pre-WSP data must be available for all participating sites (in order to accurately describe the baseline condition), make a list of the specific water supply systems to be included in the impact assessment program. The target number and type of sites is provided in a separate Excel document.

STEP 3: Define a schedule for baseline assessment and post-WSP data collection. Develop a schedule for baseline data collection at all sites, assuming one day at each site. All baseline data must be collected and submitted to the regional offices by 28 February 2015. In addition, develop a plan/schedule to carry out follow-up (post-WSP) assessments at each scheme one year after baseline assessments. Note that where baseline data is to be collected retrospectively at sites where the WSP has been in place for one year or more, data collectors may elect to carry out baseline and post-WSP data collection (including WSP quality assessments) during the same visit. In such cases, another post-WSP assessment should be carried out one year after the baseline assessment activity.

STEP 4: Contact suppliers and conduct baseline assessments. Carry out baseline assessments according to the schedule defined in Step 3, making contact with each water supplier in advance and providing a list of personnel and documents that need to be present for the assessment. Advanced planning and communication will be essential to efficient data collection.

STEP 5: Conduct post-WSP assessments. Carry out post-WSP assessments (including WSP quality assessments) according to the schedule defined in Step 3.

***** BEGIN PRINTING HERE FOR FIELD WORK *****

- **Print one copy per country:** pages 6-10; page 35
- **Print one copy per WSP site to be visited:** pages 11-34; pages 36-38

KEY REMINDERS FOR DATA COLLECTORS

1. **Make contact with water suppliers well in advance of assessment visits** and provide a list of personnel and documents that need to be present for the assessment.

2. **When undertaking retrospective data collection, regularly remind interviewees that answers should reflect conditions prior to WSP implementation**. This will be easy for interviewees to forget and regular reminders will be critical. A number of reminders are provided throughout this guidance note.

3. Remember when assigning scores for indicators (e.g. in the I2 and O2 indicator groups) that it is important to closely follow the scoring guidance provided. **Be objective and consistent in scoring.** Being overly generous in assigning scores will do the water supplier a disservice in the end, as improvements made over time will not be accurately captured.

4. **Recording clear and thorough notes in the comments field for all indicators is essential to success.** It is imperative that the same approach, inputs and logic are applied between the pre- and post-WSP assessments, which will only be achieved through detailed note taking.

FORMS FOR COUNTRY-LEVEL INDICATORS

COUNTRY: _____

Policy outcome indicator group
GROUP P1: FORMAL REGULATORY CHANGES

NOTE: The P1 and P2 indicators groups apply to the country-level rather than the particular scheme being assessed and data can therefore be collected prior to site visits (i.e. **one set of findings per country).** As these indicators only need to be collected once (rather than site by site), care should be taken to identify the most appropriate interviewees and to review relevant documentation. Note that "proactive water quality risk management approaches" refer to WSPs or equivalent approaches.

Indicator		Finding	Comments *(e.g. data source, description of revisions to policies/regulations/standards, quoted text from relevant policy and regulatory documents)*
P1a	Y/N: Proactive water quality risk management approaches are included in formal water sector policies or regulations	*(Y or N)*	
P1b	Y/N: Activity to develop or revise national drinking water quality standards has been undertaken within the last 12 months	*(Y or N)*	

HELPFUL HINTS

Indicators P1a

***Data source*:** Interviews with knowledgeable persons from relevant government organizations; policy and regulatory documents

Tips: The data collector should review relevant policy and regulatory documents to determine if a preventive water quality risk management approach (WSPs or equivalent) is explicitly included in water sector policies or regulations. For example, have WSPs become a national regulatory requirement? The relevant documents should be cited in the comments field, and WSP-related text (e.g. text formally requiring WSP implementation) should be quoted wherever possible.

Custom notes/tips:

Indicators P1b

***Data source*:** Interviews with knowledgeable persons from relevant government organizations; review of revisions to national drinking water quality standards

Tips: The data collector should answer "Y" only where there is evidence of stakeholder activity to develop or revise drinking water quality standards (DWQS) within the last 12 months. Activities undertaken and the status of changes to the DWQS should be documented in the comments field.

Custom notes/tips:

Policy outcome indicator group
GROUP P2: CHANGES IN NORMS OF PRACTICE

NOTE: The P1 and P2 indicators groups apply to the country-level rather than the particular scheme being assessed and data can therefore be collected prior to site visits (i.e. **one set of findings per country).** As these indicators only need to be collected once (rather than site by site), care should be taken to identify the most appropriate interviewees and to review relevant documentation. Note that "proactive water quality risk management approaches" refer to WSPs or equivalent approaches.

Indicator		Finding	Comments *(e.g. data source, which stakeholder organizations have adopted WSPs, how many WSPs have been implemented by each organization, whether or not WSPs are included in each organization's guidance documents, quoted text from relevant guidance documents, quoted text from relevant programs, annual WSP-related budgets)*
P2a	Y/N: Proactive water quality risk management approaches have been adopted by other water-sector stakeholders (e.g. NGOs, UNICEF)	*(Y or N)*	
P2b	Y/N: Proactive water quality risk management approaches are promoted in national or sub-national programs	*(Y or N)*	

HELPFUL HINTS

Indicators P2a

***Data source*:** Interviews with knowledgeable persons from relevant government organizations; review of relevant guidance documents

Tips: The data collector should document cases of adoption of a preventive water quality risk management approach (WSPs or equivalent) within the water sector (beyond WHO and the government partners implementing the DFAT project). S/he should record in the comments field which other stakeholder organizations have adopted a water quality risk management approach and whether or not the risk management approach is included in each organization's guidance

documents. Where included in guidance documents, the relevant text should be quoted and the source documents cited wherever possible.

Custom notes/tips:

Indicators P2b

***Data source*:** Interviews with knowledgeable persons from relevant government organizations; review of relevant programs

Tips: The data collector should document cases of integration of a proactive water quality risk management approach (WSP or equivalent) into national and sub-national programs, including associated budget processes (e.g. annual water supplier O&M budget allocations). Note that **this is distinct from formal policy or regulatory change, which is covered by indicator P1a**. Where integrated, the relevant text should be quoted and the program documents cited wherever possible. All information should be recorded in the comments field.

Custom notes/tips:

FORMS FOR SCHEME-LEVEL INDICATORS

WATER SUPPLIER INFORMATION	
COUNTRY	**Ethiopia**
WATER SUPPLIER NAME	**Bishoftu town water supply and sewerage service enterprise**
TOWN(S) OR VILLAGE(S) SERVED	**Bishoftu town**
NUMBER OF CONSUMERS *People served by the water supply*	**181,450**
BRIEF SYSTEM DESCRIPTION *Source name and type and major system components*	*Source of water is from fifteen deep wells. Reservoirs/ Storage, distribution lines, household taps and public water stands are major system components.*
TYPE OF WATER SUPPLIER *1: water utility; 2: community-managed; 3: NGO-managed; 4: other (please describe)*	**1: Water utility**
PRIMARY SUPPLIER CONTACT FOR DATA COLLECTION *Name, contact information and title/role in relation to water supply*	***Mr. Ebsa Deresa: Manager, Bishoftu town water supply and sewerage service enterprise, office No 0114339179, cell phone No +251911926603.***

WSP INFORMATION	
MONTH/YEAR WSP IMPLEMENTATION BEGAN[1]	
WSP MATURITY/QUALITY[2] *Not Applicable (N/A) for baseline assessments, or: Excellent (>95%); very good (>85-95%); good (>75-85%); average (>65-75%); below average (>50-65%); priority attention needed (≤50%)*	

[1] Record the month and year that the supplier began to implement the WSP, i.e. when the WSP began to influence the actions of the supplier (e.g. introduction of changes to management procedures or monitoring practices, implementation of control measures to manage risks, etc.). Note that all baseline data should reflect the situation as close to this month/year as possible.

[2] This rating is to be determined by carrying out a thorough WSP assessment using the WHO/DFAT project "WSP Audit / Assessment Guidance Note". For all baseline assessments, "N/A" should be recorded here.

DATA COLLECTION INFORMATION	
DATE	**04 April 2015**
DATA COLLECTOR NAME & ORGANIZATION	**Eyob Abebe ; Ministry of Water, Irrigation & Energy**
BASELINE OR FOLLOW-UP ASSESSMENT *i.e. pre-WSP or post-WSP condition*	**Pre- WSP**

Operational outcome indicator group
GROUP O1: CHANGES IN SYSTEM INFRASTRUCTURE

NOTE: Only infrastructure improvements made as a direct result of the WSP should be recorded here. Any improvements not directly related to the WSP process should not be recorded.

Indicator		Finding	Comments *(e.g. data source, description and value of improvements, link between improvements and WSP, funding source)*
O1a	Infrastructure has been improved or added **as a direct result of the WSP** *(N/A for baseline assessment)*	*(Y or N)*	

HELPFUL HINTS

Indicator O1a

***Data source*:** Interviews with water supplier staff and review of WSP

Tips: To ensure that the WSP does not receive "false credit" for improvements made that were not in fact a result of WSP efforts (e.g. improvements that were planned and funded prior to WSP implementation or otherwise unrelated to the WSP), for each improvement mentioned by water supplier staff the data collector should **1)** ask appropriate staff (whose name/position should be documented) how the WSP process contributed to the improvement, and **2)** review the WSP to understand if/how the improvements relate to the risks and improvement needs identified in the WSP. **The data collector should only record "Y" where the improvements were clearly influenced by the WSP process,** and s/he should record a description of the relevant improvements and their value (e.g. X km of pipeline replaced for $Y, rapid sand filter replaced for $Y) in the comments field. Funding source and link to WSP should also be recorded.

Baseline assessment note: for the initial or baseline assessment, the finding here should be not applicable (N/A) given that the question is asking specifically for WSP-related improvements.

Custom notes/tips:

Operational outcome indicator group
GROUP O2: CHANGES IN OPERATIONS AND MANAGEMENT PROCEDURES

Indicator		Finding	Comments *(e.g. data source, specific plans and procedures evaluated, individual scores, average scores)*
O2a	Level/strength of operations and management practices evident through documentation and implementation of relevant plans and procedures	*(Total score: 12/40)*	Average score: 1.5/5

HELPFUL HINTS

Indicator O2a

***Data source*:** Relevant water supplier records, including the WSP document for post-WSP assessments

Tips: Consider the extent to which relevant operations and management plans and procedures have been documented, are kept current/relevant and are implemented/practiced.

SCORING GUIDANCE:
Score the below plans/procedures individually on a scale of 1 to 5 (1 indicating that a plan or procedure does not exist and 5 indicating that it is documented, current and fully implemented in practice), and record the total score as the finding. **Remember, a score of 5 means that there is no room for improvement!** Where plans exist but evidence of implementation in practice does not exist, the data collector should assign a lower score.

- Operational monitoring plan (e.g. visual/sanitary inspections, water quality monitoring) (**2** / 5)
- Compliance monitoring plan (water quality monitoring of treated water to confirm compliance with water quality standards/targets) (**2** / 5)
- Consumer satisfaction monitoring (**2** / 5)
- Standard operating procedures (e.g. caretaker or operator instructions) (**1** / 5)
- Emergency response plan (**2** / 5)
- Operator or caretaker training programs (**1** / 5)

- Consumer education/training programs (**1** / 5)
- Equipment maintenance/calibration schedules (**1** / 5)

TOTAL SCORE: 12/40 = 1.5/5

Custom notes/tips:

Financial outcome indicator group
GROUP F1: COST CHANGES

NOTE: When collecting data retrospectively, remind the water supplier to provide data from the 12-month period prior to the start of WSP implementation.

Indicator		Finding	Comments *(e.g. data source, clear description of costs/factors included in calculations for future reference, whether calculation uses # of consumers or # of connections)*
F1a	Operating costs per unit of water produced over past 12 months	*(Annual operating costs / unit of water produced) 2,354,265.14 Birr / 2,595,545 m^3 =0.91Birr*	*Operational cost is mainly for power, maintenance, salary of staff members etc.*
F1b	Operating costs per consumer or per connection over past 12 months	*(Annual operating costs / # of consumers or connections) 2,354,265.14 Birr / 181,450 consumers =12.97 Birr*	*# of consumers used for calculation*

HELPFUL HINTS

Indicator F1a – F1b

***Data source*:** Water supplier accounts, records and reports

Tips: The data collector may need to assist the water supplier with the operating cost calculation. It will be very important to document in the comments field which cost are included in the calculation (e.g. power, treatment chemicals, water quality monitoring) and if the of consumers or number of connections was used for indicator F1a so that the same approach can be taken in the future to allow for a direct comparison. The data collector should also ask to see documentation to support the figures provided. **When collecting baseline data retrospectively, the data collector should remind the water supplier to provide figures for the 12-month period prior to the WSP implementation date.**

Custom notes/tips:

Financial outcome indicator group
GROUP F2: CHANGES IN COST RECOVERY

NOTE: When collecting data retrospectively, remind the water supplier to provide data from the 12-month period prior to the start of WSP implementation.

Indicator		Finding	Comments *(e.g. data source, clear description of costs included in expenditure calculations for future reference, whether calculation uses # of consumers or # of connections)*
F2a	Total revenue collected per consumer or per connection over past 12 months	*(revenue over 12 mos / # of customers or connections) 14,781,620.91 Birr/181,450 =81.46 Birr*	*# of consumers used for calculation*
F2b	Total revenue as a % of total operating costs over past 12 months	*(revenue over 12 mos / operating costs over 12 mos, as %) 14,781,620.91 Birr/ 2,354,265 Birr* = 627.8%	

HELPFUL HINTS

Indicator F2a

***Data source*:** Water supplier accounts, records and reports

Tips: When collecting baseline data retrospectively, the data collector should remind the water supplier to provide figures for the 12-month period prior to the WSP implementation date. S/he should note clearly in the comments field if the number of consumers or number of connections was used for the calculation.

Custom notes/tips:

Indicator F2b

***Data source*:** Water supplier accounts, records and reports

Tips: F2a / F1b (as %)

Custom notes/tips:

Financial outcome indicator group
GROUP F3: CHANGES IN FINANCIAL SUPPORT AND INVESTMENT

NOTE: Only financial support received as a direct result of the WSP should be recorded here. Any financial support not directly related to the WSP process should not be recorded.

Indicator		Finding	Comments *(e.g. data source, description and value of funding received from donors, link between donor funds and WSP, gov't funds provided specifically for WSP-related improvements, any links between WSP and budget request to gov't)*
F3a	Y/N/Uncertain: WSP has **directly** led to financial support from NGOs or donors for water supply system *(N/A for baseline assessment)*	*(Y, N or Uncertain)*	
F3b	Total funds/budget received from government for current year for water supply system operations, maintenance, management and improvements	*(Total funds received from government, including units)* No Budget received from government	

HELPFUL HINTS

Indicator F3a

***Data source*:** Interviews with water supplier staff, project reports/records and review of WSP

Tips: To ensure that the WSP does not receive "false credit" for donor support that is unrelated to the WSP, the data collector should **1)** ask appropriate staff (whose name/position should be documented) how the WSP process attracted donor support and **2)** review the WSP to understand if/how funds received relate to the hazards and improvement needs identified in the WSP. **The data collector should only record "Y" where financial support was clearly linked to the WSP process,** and a brief explanation of the link to the WSP should be recorded in the comments field. The data collector should briefly describe the funding received, including value and name of donor. If the link between financial support and WSPs is uncertain, this should be recorded.

Baseline assessment note: for the initial or baseline assessment, the finding here should be not applicable (N/A).

Custom notes/tips:

Indicator F3b

***Data source*:** Interviews with water supplier staff, accounts, reports and budget documents

Tips: This indicator should capture the total water supplier budget allocation (including units) from government for routine operations, maintenance, management and improvements. The figure recorded should be based on a review of relevant documentation. Any government funds provided specifically for WSP-related projects or priorities should be noted in the comment field. It should also be noted if the WSP was used to support the supplier's annual budget request to government. **Where baseline data is being collected retrospectively, remember that budget figures should be collected from the year of WSP implementation rather than the current year.**

Custom notes/tips:

Institutional outcome indicator group
GROUP I1: CHANGES IN COMMUNICATION AND COLLABORATION AMONG STAKEHOLDERS

Indicator		Finding	Comments *(e.g. data source, relevant sectors present at meetings, # an % of consumers educated)*
I1a	No. of **documented** water safety meetings within water supply organization in past 12 months	Not done *(# meetings)*	
I1b	No. of **documented** water safety meetings between water supply organization and other relevant organizations in past 12 months, e.g. health and environment representatives, development partners	Not done *(# meetings)*	
I1c	No. of consumer[3] water safety training or awareness raising events in past 12 months	Not done *(# of events)*	

HELPFUL HINTS

Indicators I1a – I1b

***Data source*:** Meeting minutes

Tips: To ensure consistency in data collection over time, **only documented meetings should be counted and recorded**. Evidence must be furnished. For I1b, record the relevant organizations present at the water safety meetings.

Custom notes/tips:

[3] Throughout this document, "consumers" refers to the total population served and may be distinct from "customers", which often refers to the entity/unit billed, e.g. HH, apartment building. For instance, a water supplier might provide water to 8 million "consumers" but has only one million "customers" (or billed connections).

Indicator I1c

Data source: Training records

Tips: Record number of events or campaigns designed to increase consumer awareness of water safety issues and/or improve communication between the water supplier and consumers, e.g. training meetings or workshops, educational leaflet development and distribution. In the comments field, describe the nature of the training event and record the approximate number of consumers reached through each event.

Custom notes/tips:

Institutional outcome indicator group
GROUP I2: CHANGES IN WATER SUPPLIER KNOWLEDGE AND UNDERSTANDING

NOTE: Data for this set of indicators cannot be collected retrospectively (i.e. where a WSP is already in place). Data may be collected during the visit, but care will be taken during data analysis and reporting to note that the initial knowledge assessment does not reflect the baseline condition.

Indicator		Finding	Comments *(e.g. data source, name/position of each individual assessed, individual and average assessment scores)*
I2a	Understanding of water supply system	*(Average score: 2/5)*	Manager of Bishoftu town water supply and sewerage service enterprise was assessed.
I2b	Understanding of the hazards and hazardous events that threaten the water supply system	*(Average score: 2/5)*	Manager of Bishoftu town water supply and sewerage service enterprise was assessed.

HELPFUL HINTS

Indicators I2a – I2b

***Data source*:** Knowledge assessment/testing of appropriate persons within the water supplier, including those with responsibility to protect or manage water quality within the catchment, water treatment plant (WTP) and the distribution system. (These individuals will generally be WSP team members once WSP development has begun.)

Tips: The data collector should identify appropriate responsible parties (taking care to document the name and position of the individuals for future reference so that, ideally, the same individuals' knowledge can be evaluated in the future) and ask each individual to do the following (**working independently and physically separated** to ensure no discussion):

1. **(I1a, 15 minutes)** Sketch a schematic of the water supply system, from catchment to consumer, capturing all major system components and as much system information as possible (name and type of source, infrastructure at source such as pumps/dams/reservoirs, WTP components, treatment chemicals used, number and size of storage tanks, material of distribution system pipes, etc.). **Pacing is important due to limited time allowed.**

2. **(I1b, <u>15 minutes</u>)** Once each individual has completed his/her sketch of the system, ask each person to document hazards/hazardous events that pose a threat to water quality at the appropriate location on the system sketch. Each person should be asked to identify at least one hazard/hazardous event at each of the following steps a) catchment, b) WTP (if applicable) and c) distribution system. After one hazard/hazardous event has been listed at each of the 3 steps, each person should use the remaining time to list as many additional hazards/hazardous events as possible (at any step in the water supply system).

The data collector will then need to score each individual's sheet, which will of course require that the data collector knows the correct answers himself/herself! The data collector may obtain some of this information by reviewing available system drawings/schematics before the knowledge assessment, but it is likely that the data collector will need to obtain and confirm some of the information through discussion with those whose knowledge is being assessed (after the sheets have been collected). Indicators I1a – I1b should be scored and recorded for each person, then all **individual scores should be averaged to determine the finding against each indicator.**

<u>SCORING GUIDANCE:</u>
(If any bullet does not apply, e.g. no treatment works, record "not applicable.")

I1a – Understanding of water supply system:
Score the bullets below using a scale of 1 to 5, with 1 indicating missing or inaccurate information and 5 indicating perfectly thorough and accurate information including all pertinent details. **Remember, a score of 5 means that there is no room for improvement!** (Scoring should be strict. If scoring is too relaxed or generous during the baseline assessment, knowledge improvements will not be evident when the post-WSP assessment is undertaken.)

- All sources shown and accurate (**2** / 5)
- All major source infrastructure (e.g. pumps, reservoirs or dams) shown and accurate (**2** / 5)
- All water treatment infrastructure shown and accurate (**2/5**)
- All water storage reservoirs in distribution system shown and accurate (**2** / 5)
- Distribution pipe material(s) shown and accurate (**2** / 5)

TOTAL SCORE: 10/25 = 2/5

I1b – Understanding of the hazards and hazardous events that threaten the water supply system

- At least one valid/reasonable hazard identified within the catchment, Y = 5 points; N = 0 points (2 / 5)
- At least one valid/reasonable hazard identified within the WTP, Y = 5 points; N = 0 points (NA / 5)
- At least one valid/reasonable hazard identified within the distribution system, Y = 5 points; N = 0 points (3 / 5)
- Score 2 bonus points for each unique/valid hazard/hazardous event identified in 10 minutes, excluding the first hazard/hazardous event identified in the catchment, WTP and distribution system (which will have already been assigned 5 points each). For instance, 8 total bonus points would be scored for a sheet showing three hazards/hazardous events in the catchment (4 bonus points), two at the WTP (2 bonus points) and two in the distribution system (2 bonus points).

TOTAL SCORE: 5/10 = 2/5

Custom notes/tips:

Equity outcome indicator group
GROUP E1: CHANGES IN CONSIDERATION OF EQUITY

NOTE: Identifying the right person(s) to interview will be essential. Generally, management staff may be better informed of equity/inclusiveness efforts and programs than operational staff.

Indicator		Finding	Comments *(e.g. data source)*
E1a	Extent to which equity is explicitly considered by the water supplier to provide safe water for all	*(Total score: 10/30)*	*No accurate data or records available that showed the extent to which equity is considered by water supplier.*

HELPFUL HINTS

Indicator E1a

***Data source*:** Interviews with water supplier (particularly management staff rather than operational staff) and review of relevant documents (e.g. WSP)

Tips: Assess the extent to which equity has been explicitly considered by the water supplier to ensure safe water for all. (Note that **equity** refers to the moral imperative to dismantle unjust differences between all groups of people, including women and girls, men and boys, and disadvantaged groups. **Disadvantaged groups** refers to people who are vulnerable, marginalized and/or discriminated against on the basis of ethnicity, religion, caste, income, age, disability, education or other factors.)

Consider whether or not equity has been considered in water supplier practice as outlined below, scoring each bullet on a scale of 1 to 5 (1 indicating that the step was not undertaken and 5 indicating that the step was thoroughly undertaken and is fully documented) and asking to see evidence wherever possible. Record the total score as the finding.

- Meaningful participation by women and disadvantaged groups has been prioritized/encouraged by the water supplier (**2/5**)
- Disadvantaged groups within the community/water service area have been identified and documented (**3/5**)
- Hazards/issues affecting disadvantaged groups have been identified and prioritized (**1/5**)
- Priority has been given to ensuring that water supply system improvements benefit all users equitably and address systemic causes for hazards that disproportionately affect disadvantaged groups (**1/5**)

- Monitoring data (e.g. water quality monitoring or monitoring of consumer satisfaction) is disaggregated by gender or indicators of disadvantage (e.g. income or caste) (**2/5**)
- Emergency response plans and communication/education programs reflect consideration of the special needs of different groups in the community (e.g. considering different languages, literacy levels and physical abilities) (**1/5**)

TOTAL SCORE: **10/ 30**

Custom notes/tips:

Water supply impact indicator group
GROUP W1: WATER SERVICE CHANGES

Indicator		Finding	Comments *(e.g. data source, areas with higher or lower pressure, confidence in the figure for unaccounted for water)*
W1a	Hours per day (and days per week) water is provided to customers	*(No. hours per day and no. days per week in the wettest and the driest months.)* 15 hours per day	15 hours on average in both during wettest driest months.
W1b	Service coverage	*(consumers served by supply / service area population as a %) 138,446/181,450 = 76.3%*	76.3 % of actual water supply coverage
W1c	System pressure provided	*(minimum, maximum and target pressure, including units)*	No accurate data available. However, the have mentioned that appropriate pressure is maintained.
W1d	Unaccounted for water (or % water loss)	*(% unaccounted for water OR "unknown") 19.97%*	A total of 620,134m^3 water lost in the last 12 months out of 2,595,545m^3 water produced. (24% unaccounted for water) .

HELPFUL HINTS

Indicator W1a-W1d

***Data source*:** Water supplier records and interviews with operational staff

Tips: It will be important to interview operational staff with a field-level understanding of actual (rather target) operating conditions.

- For indicator W1a, service periods for the **wettest and driest months** should be recorded due to seasonal variability.
- For indicator W1b, the data collector should record the # of consumers served / the service area population (as a %). If only the # of households is provided (rather than the # of consumers), the data collector should divide this by the total # of households within the service area to get a service coverage %.

- For indicator W1c, the data collector should ask the supplier for information on the pressure being provided in high-pressure areas of the system (e.g. low-lying areas in gravity systems) as well as in low-pressure areas, and compare these figures to the supplier's pressure target or standard.
- For indicator W1d, the data collector should note the degree of confidence in the water loss figure in the comments field, e.g. estimated or confirmed through metering. If the figure is not known, "unknown" should be recorded so that the assessment captures improvements in actively measuring unaccounted for water.

Custom notes/tips:

Water supply impact indicator group
GROUP W2: WATER QUALITY CHANGES

NOTE: The indicators below reference treated water samples (i.e. where national drinking-water quality standards or targets apply). For systems without treatment, e.g. point sources, untreated water quality data will be appropriate. Where baseline data is being collected retrospectively, remember that data should reflect the 12 months before WSP implementation.

Indicator		Finding	Comments *(e.g. data source, sampling locations, water quality targets/standards for each parameter, total number of test results reviewed for each parameter & number meeting standards)*
W2a	No. of treated water samples tested for microbial indicators over past 12 months	*(No. of samples)* *No data Available*	No regular water quality testing & No records available
W2b	% of treated water samples compliant with microbial water quality targets or standards over past 12 months	*(% compliant samples / total samples)* *No data Available*	
W2c	No. of treated water samples tested for turbidity over past 12 months	*(No. of samples)* *No data available*	
W2d	% of treated water samples compliant with turbidity targets or standards over past 12 months	*(% compliant samples / total samples)* *No data available*	
W2e	No. of treated water samples tested for disinfectant residual over past 12 months	*(No. of samples)* *No data available*	
W2f	% of treated water samples compliant with disinfectant residual targets or standards over past 12 months	*(% compliant samples / total samples)* *No data available*	
W2g	OPTIONAL: % of treated water samples compliant with targets or standards for other locally-relevant parameters over past 12 months	*(% compliant samples / total samples)*	

HELPFUL HINTS

Indicators W2a – W2g

***Data source*:** Water quality monitoring records from supplier and/or surveillance authority

Tips: Although the indicators reference treated water samples (i.e. where national drinking-water quality standards or targets apply), untreated water quality data will be appropriate for systems without treatment, e.g. point sources. Data collectors should note in the comments field where samples were collected (e.g. point source, treatment plant or distribution system). **Where baseline data is being collected retrospectively, remember that data should reflect the 12 months before WSP implementation.** In the comments field, the data collector should record the total number of water quality test results collected and reviewed to determine the compliance rate for each parameter listed, as well as data source.

Indicator W2g is an optional indicator designed to capture compliance with parameters other than microbial indicators, turbidity and disinfectant that are particularly relevant to the water supply system (e.g. arsenic, fluoride, iron or hardness). The data collector should ask the supplier if there are any particularly challenging or relevant parameters for their system and address these parameters in W2g as appropriate. Otherwise, N/A can be recorded.

Custom notes/tips:

Water supply impact indicator group
GROUP W3: CONSUMER SATISFACTION CHANGES

NOTE: Where baseline data is being collected retrospectively, remember that data should reflect conditions before WSP implementation.

Indicator		Finding	Comments *(e.g. data source, consumer satisfaction survey date and # of consumers surveyed)*
W3a	Y/N: Supplier conducts regular consumer satisfaction surveys	*(Y or N)* *No*	*But no records available*
W3b	% of consumers indicating that they are satisfied with the service provided OR average level of consumer satisfaction	*(# of satisfied consumers / # of consumers surveyed OR average level of consumer satisfaction)* Not done	
W3c	Y/N: Supplier keeps a formal record of consumer complaints	*(Y or N)* *No*	
W3d	No. of consumer complaints recorded in the past 12 months divided by total no. of consumers	*(No. of complaints / no. of consumers, as a %)* *No data available*	

HELPFUL HINTS

Indicator W3a – 3d

***Data source*:** Water supplier or service regulator records

Tips: For this set of indicators, the data collector should look for evidence of **formal, documented systems** to monitor consumer satisfaction and record consumer complaints. If the water supplier indicates that these systems exist but there is no documentation/evidence, the data collector should record "N" or "N/A" for these indicators, make a note in the comments field, and encourage the supplier to keep records in the future.

- For indicator 3b, the data collector should directly review the results of the most recent consumer satisfaction survey carried out by the supplier or the service regulator **(or a survey conducted before WSP implementation in the case of retrospective baseline data collection).** The survey date and the number of consumers surveyed should be recorded in the comments field. Depending on the particular consumer satisfaction data collected through the survey, the indicator suggested

above (% satisfied consumers) can be modified. For example, if the survey asks consumers to rate their level of satisfaction on a scale of 1-10 (rather than simply indicating whether they are satisfied or dissatisfied), the indicator can be revised to "average level of consumer satisfaction: __/10". If neither the supplier nor the service regulator conduct consumer satisfaction surveys, they should be encouraged to do so in the future.

- For indicator W3d, the data collector should record the number of consumer complaints in the supplier's complaints register from the previous 12 months **(or the 12 months prior to WSP implementation in the case of retrospective baseline data collection).**

Custom notes/tips:

Health impact
GROUP H1: CHANGES IN INCIDENCE OF WATER-RELATED ILLNESS

NOTE: To the extent possible, the health data provided should come from only those areas covered by the WSP. When collecting data retrospectively, remember to collect health data that reflects conditions prior to the start of WSP implementation.

Indicator		Finding	Comments *(e.g. data source, notes on degree of overlap between population served by WSP and health centre catchment area, definition of "outbreak")*
H1a	Diarrheal incidence rate over past 12 months calculated from health centre records	*(Incidence rate)* *No calculated IR data*	*Despite there is no calculated IR data for diarrheal disease, it is indicated that diarrheal disease is the 4th among top 10 diseases reported in Bishoftu town with a total of 7,526 diarrhea cases reported out of 68,110 cases that account about 10.26% of cases in the last 12 months.*
H1b	No. of outbreaks of water-related illness (e.g. typhoid or cholera) over past 12 months based on health centre records	*(No. of outbreaks of locally relevant water-borne disease)* *No outbreak reported*	
H1c	Diarrheal incidence rate calculated from household survey results	*(Incidence rate)* *No specific data available*	

HELPFUL HINTS

Indicator H1a

***Data source*:** Interviews with health centre staff and health centre records

Tips: The data collector should seek to obtain data from the health centres that service the population receiving water from the system covered by the WSP. To the extent possible, the data collector should include health data from only those areas covered by the WSP. If the health centres also serve patients from outside the WSP coverage area, this should be noted in the comments field. **If a significant portion of a health centre's patients comes from outside the area covered by the WSP and data cannot be readily disaggregated by water supply service area, it may not be feasible to use this indicator.**

Ideally, data collectors should aim to record the total number of visits over the past 12 months and total number of diarrhea cases in the past 12 months for

children under 5 as well as for individuals of all ages. If needed, the data collector should seek health centre staff support in converting the number of cases of water-related illness to incidence rate. **When collecting baseline data retrospectively, the data collector should collect data for the 12-month period prior to the WSP implementation date.**

It will be important to consider the challenge of **distinguishing between food- and water-related diarrheal disease/outbreaks.** Wherever data is available on exposure routes, only water-related cases should be recorded.

Custom notes/tips:

Indicator H1b

***Data source*:** Interviews with health centre staff and health centre records

Tips: See notes above regarding appropriate health centre selection and retrospective data collection reminders. **The data collector should take care to record how the health centre defined "outbreak" for each relevant waterborne illness.**

As noted above, it will be important to consider the challenge of distinguishing between food- and water-related diarrheal disease/outbreaks.

Custom notes/tips:

Indicator H1c

***Data source*:** Household survey results from water supplier or health authorities

Tips: This information can be collected by reviewing the results of the most recent household survey carried out by the water supplier or health authorities **(or a survey conducted before WSP implementation in the case of retrospective baseline data collection)** that includes questions on diarrheal illness. The survey date and the number of households surveyed should be recorded in the comments field. If needed, the data collector should seek health centre staff support in converting the number of cases of diarrheal illness reported by householders (generally within a 2-week recall period) to an incidence rate. **Remember that only data from households receiving water from the system covered by the WSP should be captured.** If neither the supplier nor the health authorities conduct household surveys that include health indicators, they should be encouraged to do so in the future if appropriate.

As noted above, it will be important to consider the challenge of distinguishing between food- and water-related diarrheal disease/outbreaks.

Custom notes/tips:	

DATA SUMMARY FORM

COUNTRY-LEVEL INDICATORS (I.E. REPORT ONE SET OF FINDINGS PER COUNTRY)

COUNTRY: _____

INDICATOR		FINDING
POLICY OUTCOMES		
GROUP P1: FORMAL REGULATORY CHANGES		
P1a	Y/N: Proactive water quality risk management approaches are included in formal water sector policies or regulations	
P1b	Y/N: Activity to develop or revise national drinking water quality standards has been undertaken within the last 12 months	
GROUP P2: CHANGES IN NORMS OF PRACTICE		
P2a	Y/N: Proactive water quality risk management approaches have been adopted by other water-sector stakeholders (e.g. NGOs, UNICEF)	
P2b	Y/N: Proactive water quality risk management approaches are promoted in national or sub-national programs	

SCHEME-LEVEL INDICATORS (I.E. REPORT ONE SET OF FINDINGS PER SCHEME)

SCHEME NAME: _____

INDICATOR		FINDING
OPERATIONAL OUTCOMES		
GROUP O1: CHANGES IN SYSTEM INFRASTRUCTURE		
O1a	Infrastructure has been improved or added as a direct result of the WSP	
GROUP O2: CHANGES IN OPERATIONS AND MANAGEMENT PROCEDURES		
O2a	Level/strength of operations and management practices evident through documentation and implementation of relevant plans and procedures	
FINANCIAL OUTCOMES		
GROUP F1: COST SAVINGS		
F1a	Operating costs per unit of water produced over past 12 months	
F1b	Operating costs per consumer or per connection over past 12 months	
GROUP F2: IMPROVED COST RECOVERY		
F2a	Total revenue collected per consumer or per connection over past 12 months	
F2b	Total revenue as a % of total operating costs over past 12 months	
GROUP F3: INCREASED FINANCIAL SUPPORT AND INVESTMENT		
F3a	Y/N/Uncertain: WSP has directly led to financial support from NGOs or donors for water supply system *(N/A for baseline assessment)*	
F3b	Total funds/budget received from government for current year for water supply systems operations, management and improvements	

INSTITUTIONAL OUTCOMES

GROUP I1: INCREASED COMMUNICATION AND COLLABORATION AMONG STAKEHOLDERS

I1a	No. of documented water safety meetings within water supply organization in past 12 months	
I1b	No. of documented water safety meetings between water supply organization and other relevant organizations in past 12 months, e.g. health and environment representatives, development partners	
I1c	No. of consumer water safety training or awareness raising events in past 12 months	

GROUP I2: INCREASED STAKEHOLDER KNOWLEDGE AND UNDERSTANDING

I2a	Understanding of water supply system	
I2b	Understanding of the hazards and hazardous events that threaten the water supply system	

EQUITY OUTCOMES

GROUP E1: CHANGES IN CONSIDERATION OF EQUITY

E1a	Extent to which equity is explicitly considered by the water supplier to provide safe water for all	

WATER SUPPLY IMPACT

GROUP W1: WATER SERVICE CHANGES

W1a	Hours/day (and days/week) water is provided to customers	
W1b	Service coverage	
W1c	System pressure provided	
W1d	Unaccounted for water (or % water loss)	

GROUP W2: WATER QUALITY CHANGES

W2a	No. of treated water samples tested for microbial indicators over past 12 months	
W2b	% of treated water samples compliant with microbial water quality targets or standards over past 12 months	
W2c	No. of treated water samples tested for turbidity over past 12 months	
W2d	% of treated water samples compliant with turbidity targets or standards over past 12 months	
W2e	No. of treated water samples tested for disinfectant residual over past 12 months	
W2f	% of treated water samples compliant with disinfectant residual targets or standards over past 12 months	
W2g	OPTIONAL: % of treated water samples compliant with targets or standards for other locally-relevant parameters over past 12 months	

GROUP W3: CONSUMER SATISFACTION CHANGES

W3a	Y/N: Supplier conducts regular consumer satisfaction surveys	
W3b	% of consumers indicating that they are satisfied with the service provided OR average level of consumer satisfaction	
W3c	Y/N: Supplier keeps a formal record of consumer complaints	
W3d	No. of consumer complaints recorded in the past 12 months divided by total no. of consumers	

HEALTH IMPACT

H1: CHANGES IN INCIDENCE OF WATER-RELATED ILLNESS

H1a	Diarrheal incidence rate over past 12 months calculated from health centre records	
H1b	No. of outbreaks of water-related illness (e.g. typhoid or cholera) over past 12 months based on health centre records	
H1c	Diarrheal incidence rate calculated from household survey results	