OpenStreetMap (OSM) For The Waste Water Network (WWN)

Terms of Reference

January 2016

unicef

REACH An initiative of IMPACT Initiatives ACTED and UNOSAT

SUMMARY

The construction of the Za'atari Waste Water Network (WWN), funded by UNICEF and implemented by ACTED, JEN, and OXFAM from November 2015 – May 2016, necessitates an effective and streamlined method for visualizing its progress, to allow donors to monitor the progress of construction. As such, REACH has proposed and agreed to a project with UNICEF to provide information management and data visualization support during the construction of the WWN. Requiring basic data collection and mapping / GIS techniques, REACH conducted a GIS training in November 2015 to ensure partners have the capacity to monitor and map the progress of pipe and tank installation, and household connectivity to the network. Moreover the training provided a general overview of basic GIS skills to ensure partners have consistent knowledge of the approach involved in this project. The outcome of this training provided actors with the capacity to accurately collect data to facilitate the mapping of the construction of the WWN, with the results being made available to all partners, donors, and the public through OpenStreetMap (OSM). Meanwhile, partners are drawing the designs of the network in AutoCAD, and thus REACH will ensure that data is interchangeable between all formats to facilitate outputs in multiple formats as required by camp stakeholders.

REACH was heavily involved at the beginning of the project in late 2015 by facilitating the pilot, developing the methodology, and providing the technical training. As of January 2016, REACH is responsible for collating all data regarding WWN construction by liaising directly with partners to ensure consistent data standards, and will produce monthly outputs of WWN construction progress.

STAKEHOLDERS & AUDIENCE

UNICEF and its key WASH partners are the primary stakeholders of this exercise. As ACTED, JEN and Oxfam will be directly involved in the implementation of the WWN data collection, REACH will act as technical support for the duration of the project. The audience will be implementing partners, sector leads, camp managers, and, ultimately, the public since the data will be uploaded to OSM.

OBJECTIVES

Primary Objectives

- Provide accurate and timely updates to partners and donors through the availability of streamlined GIS data and clear maps visualizing progress of overall construction.

Secondary Objectives

- Create and oversee an easily applicable method for partners to record and map progress of the WWN;
- Generate a simple but effective GIS data set on the built design of the WWN;
- Encourage the integration of GIS into future projects through building partner capacity in basic GIS techniques.

METHODOLOGY

Overview of GIS Training

REACH provided a half-day training session in mid-November 2015 to build partner capacity in GIS, which involved a presentation and a practical training session in QGIS. The presentation introduced the key concepts of GIS and different types of spatial data, as well as introducing QGIS. REACH provided data and installation files for QGIS for use in the practical training session. The practical training session covered the following areas:

- Adding and visualising data (1 hour)
- Creating and editing data (1 hour)
- Making maps (30 minutes)
- Syncing to OSM (30 minutes)

Overview of Assessment Methodology

REACH will facilitate the beginning of this exercise by performing a series of tasks, which follow the table below outlining the overall methodology of the project.

- Create base maps using partner data on the design of the WWN;
- Design guidance on tracing and marking maps (produced alongside training materials);
- Advise on and facilitate map outputs to be distributed to partners and donors

Steps	Details	Implementing Partners	Level of Effort (LOE)
Creation of Base Maps	REACH to create detailed base maps at the household cluster level using the recent household boundary data and overlaying the designs for WWN to provide field teams with detailed maps for field activities.	REACH	***2 full days*** Pending data availability and compatibility with GIS
Partner Field Teams Edit and Sketch New Maps	Using the detailed base maps for reference, field teams would be responsible for editing the maps to reflect on-the-ground accuracy of the piping system, accounting for changes in the original design.	ACTED	***1 hour (per week)*** Requires field staff to visit and assess construction and make edits to existing map
Update data for 'as-built' WWN features	ACTED are responsible for updating their AutoCAD plans to reflect 'as-built' features, by referring to field maps. JEN and Oxfam will update plans with data collected by a contracted surveyor.	ACTED, JEN, Oxfam	***1 hour (per week)*** This is a task completed outside of this activity
Data Collation	Updated 'as-built' WWN features are sent to REACH from partners in AutoCAD format (.dwg). These data are then converted into a GIS appropriate format.	ACTED, JEN, Oxfam	***2 hours (per month)*** Requires coordination with partners to ensure timely delivery of data
Partner Dissemination	REACH produces monthly update maps, both static and web maps, allowing working partners and donors to monitor ongoing progress of the WWN implementation.	REACH	**Ad hoc, LOE not determined**

PRODUCTS TYPOLOGY

The outputs of this assessment will be:

- A systematically updated dataset of WWN on OSM, available for all partners, donors, and the public
- Monthly update maps of WWN at the camp level, and by district (12 total), showing project progress at the cluster, block and district level
- A web map updated each month, visualising the data available on OSM
- Training materials for partners to use as reference during the project
- Final outputs will include a complete map of the constructed wastewater network at the camp and district level (static maps), as well as a web map visualising construction progress over time

Documentation and Deliverables

- 1 camp-level map and 12 individual level maps will be disseminated as soft copies each month to all partners and donors, with hard copies available upon request
- A web-map will be produced each month and made available to all partners and donors through a web link
- Workflow documentation for the conversion of CAD data to GIS format
- GIS training materials will be made available for partners and donors

MANAGEMENT ARRANGEMENTS & WORK PLAN

REACH will directly oversee and facilitate the process in the initial months, which started in November 2015. After the training and initial months of WWN implementation and data collection, REACH's role will be to produce monthly update maps.

Workplan

- REACH design and piloting process (November 2015)
- REACH to conduct detailed training session on GIS and proposed methodology for WWN implementing partners (November 2015)
- REACH to coordinate with designated partner focal points to facilitate data dissemination (December 2015)
- REACH to produce both static and web maps on a monthly basis, with outputs released at the end of each month visualizing the construction progress (final Thursday of every month)
- REACH to update OSM each month during the construction of the WWN, facilitating web map production (final Thursday of every month)
- Overview and generalized maps of the construction process (e.g. whole camp) produced after construction has completed (end of the assessment – May 2016)

It is expected that the assessment will be completed in May 2015, to coincide with the completion of the WWN. However, delays to construction will also influence the completion of this assessment.

Mapping of the Za'atari Waste Water Network (ZWWN)																												
Activities / output	November				December				January				February				March				April				May			
Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
REACH design and oversight																												
REACH produces base maps																												
Pilot study																												
Technical training for partners on QGIS																												
WWN construction / data collection by partners																												
Partners disseminate latest 'as-built' data																												
Map production by REACH / OSM updates																												

Expectations of Partners

- Partners will collect data in a timely manner, recording 'as-built' WWN features including PRC septic tanks, pipes and household connections.
- Partner agencies will send REACH data of 'as-built' WWN features on the penultimate Thursday of each month, to allow time for data cleaning and map production.
- The data should come in a CAD .dwg or .dxf format, in Palestine 1923 projection system, to allow easy integration within GIS.
- If deadlines are unable to be met by partners regarding data dissemination, then REACH should be informed as soon as possible to allow for communication with other partners and donors to be made.

Focal Points

Focal points are provided for each agency, with at least one partner responsible for construction data dissemination

ACTED:

- Chris Ringer – chris.ringer@acted.org
- Osama Hamdony – zaatari.wwn1@acted.org

JEN:

- Mona Abd El Baqi – zaatari-eng@jen-npo.org
- Mo'awiya Shakboua – mawuashakbouh@ymail.com

Oxfam

- Amani Qasrawi – AQasrawi@oxfam.org.uk
- Ahmed Masoud – AMasoud@oxfam.org.uk

UNICEF

- Abrassac Kamara – abkamara@unicef.org
- Habib Rehman – hrehman@unicef.org

ASSUMPTIONS

- Partners will participate fully in GIS training, so that basic technical capacity in GIS can be achieved
- The use of GIS in future projects will provide a tangible benefit for partners, allowing basic map production and data visualisation
- Partners will fully endorse the proposed methodology, providing data to REACH at specified deadlines and in appropriate formats, to allow REACH to produce and disseminate outputs to be released on time
- There is no delay to the implementation of the WWN, otherwise this will lead to the extension of this assessment

RISKS

- Despite training and active consultation throughout, if partners do not provide information in the correct format and in a timely manner then all REACH outputs face delays;
- Partners do not follow standardized data collection procedures and thus the data consolidation and analysis process would be cumbersome.