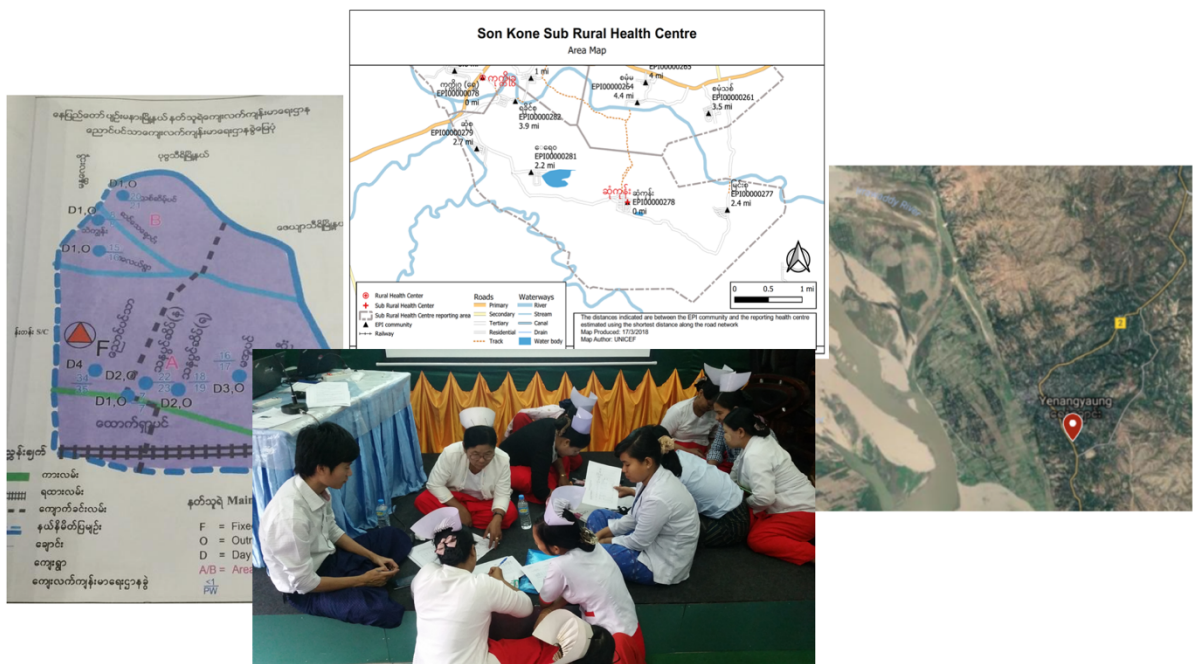


# The Use of Geospatial Data and Technologies in Support of Immunization Microplanning in Myanmar

## Implementation Report (2017 - 2018)



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All reasonable precautions have been taken by UNICEF to verify the information contained in this publication.

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## Background

Immunization is a core primary health care intervention critical to assuring the health of children and communities. Significant achievements of the past decades include the eradication of smallpox, the near eradication of polio and the reduction of global mortality due to measles by 74% between 2000 and 2007.

During 2015, about 86% (116 million) of infants worldwide received 3 doses of diphtheriatetanus-pertussis (DTP3) vaccine. However, despite improvements in vaccination coverage in individual countries and a strong global rate of new vaccine introduction, global average immunization coverage has increased by only 1% since 2010<sup>a</sup>. In 2015, 68 countries fell short of the target to achieve at least 90% national coverage with the third dose of DTP3 vaccine, 26 countries reported no change in DTP3 coverage levels and 25 countries reported a net decrease in coverage since 2010<sup>1</sup>. Further, only 52 Member States (27%) out of 88 with valid district-level data have achieved equity targets of national level coverage of  $\geq 90\%$  and coverage of  $\geq 80\%$  in every district<sup>1</sup>.

Measuring progress towards and achieving equity targets is hindered by: (i) difficulties in estimating and locating the target population to be reached (especially at local and community level, where population data from official sources may either be inaccurate, outdated, or non-existent), (ii) poor local planning and monitoring associated not only with uncertainty in local target populations, but also with lack of information on service delivery catchment areas, geographic accessibility and barriers to immunization services, and reliance on hand-drawn maps, (iii) and insufficient high quality and timely data to quantify subnational or sub-district geographic disparities in immunization coverage; among other things.

More and better data and analytical techniques are needed to accelerate progress towards equitable vaccine coverage and to identify and account for children and communities that are lagging behind in access to immunization services due to geographic location, age, gender, disability, educational, socioeconomic or religious background; and other barriers/sources of inequity. In addition to the availability of better data and tools, it is crucial to build the capacity of countries to acquire, manage, maintain and use such new sources of information through local capacity building and strengthening of Health Information Systems (HIS) so as to achieve a sustainable improvement in health outcomes.

To achieve measurable improvements in the availability, quality, use and transparency of data and enable countries to use data to improve immunisation coverage and equity, Gavi, the Vaccine Alliance is supporting, through the Data Strategic Focus Area (SFA), investments in better population data and coverage estimates at all levels from global to sub-national – including sub-district where relevant–, and scaling up innovative methods to identify, enumerate and map target populations through geospatial mapping techniques.

UNICEF HQ<sup>b</sup>, with support of Gavi 2017 Data SFA, and in close collaboration with UNICEF Regional Offices and in-country stakeholders, is therefore supporting countries in the use of geospatial data and technologies to improve planning and monitoring for equitable provision of immunization services.

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<sup>a</sup> SAGE. *2016 Midterm Review of the Global Vaccine Action Plan.*; 2016.

<sup>b</sup> Health Section Knowledge Management and Implementation Research(KMIR) and Immunization units and Data & Analytics

This document reports on the capacity building activities concerning the use of geospatial data and technologies for immunization microplanning conducted by UNICEF with support of Gavi Data SFA and in collaboration with the Myanmar Ministry of Health and Sports (MOHS) of Myanmar, the national EPI program (cEPI) in particular, and the Health GeoLab Collaborative (HLGC).

The proposed methodology was articulated as follows:

- (i) Implement a pilot project to illustrate the benefits of using geospatial data and technologies to support the microplanning as well as monitoring and evaluation process in Myanmar
- (ii) Build technical capacity when it comes to the management and use of geospatial data and technologies to support one of the immunization focus areas of priority to the EPI
- (iii) Documenting the impact of the use of geospatial data and technologies on planning and monitoring for immunization delivery
- (iv) Synthesize the learnings from the all process into the present report to support roll out of the approach in other regions/countries

This work follows up on findings and recommendations from previous UNICEF activities under the Gavi Data SFA 2016, in particular the Global workshop “Improving Immunization Coverage and Reducing Inequities: Use of GIS in Immunization Programs”<sup>c</sup>, conducted in New York in October 2016, and the “Guidance on the Use of Geospatial Data and Technologies in Immunization Programs: Overview and Managerial Considerations for In-Country Strengthening”<sup>d</sup>.

## Immunization Microplanning in Myanmar

The Myanmar Central Expanded Programme of Immunization (cEPI) is using WHO's Reaching Every Community Strategy to vaccinate every child in the country. In this strategy, the development of microplans based on the population information in the catchment areas of the health workers is an important tool to ensure effective coverage.

Microplanning is implemented at the Rural and Urban Health Centres (RHC/UHC) Level, where supervisors are responsible for several midwives operating in each RHC/UHC. Each midwife is in turn responsible for one Sub-Rural Health Centre (SubRHC, or ward in the case of UHC) reporting area. Each SubRHC comprises of several villages which are visited by midwives on a monthly schedule based on session plans. Currently, the microplanning decision-making process is based on approximate hand-drawn maps of the RHC/UHC and SubRHC/ward reporting areas. These are largely based on midwives local knowledge and display approximate layout of the location of health centres, villages and basic infrastructure and natural geographic features (see Figure 1).

The EPI review conducted in 2016 highlighted an important number of missed children, most of them being from “special populations” (e.g., migrants, displaced, peri-urban slum dwellers, monks, orphans, etc.). These

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<sup>c</sup> Final report:

<https://unicef.sharepoint.com/teams/EXT/BDWC/Meeting%20overview/3.%20Final%20Report%20February%202017.pdf?slid=f34d699e-60c7-5000-bd4c-a18b43181d0d>

<sup>d</sup> <https://drive.google.com/open?id=0B0iJNe5CNLsHaVFsTTYyTmlaX3M>

populations are not always reflected in the official figures from the General Administration Department or targeted by health workers during immunization campaigns leading to underreporting as well as planning and monitoring challenges. This situation is particular exacerbated in big cities like Yangon where increased urban population and unregistered settlements are observed.

cEPI is planning the rollout of an electronic logistics and service delivery MIS, planned for 2018 onward, whereby each midwives will be provided with a tablet device to support service delivery and reporting.

The proper management and use of geospatial data and technologies (Global Navigation Satellite Systems (GNSS), Geographic Information System (GIS) and Remote Sensing (RS)) can help filling this gap through the collection, management, visualization and use of geo-located data and information on vaccination service, population distribution as well as the establishment, maintenance and sharing of master lists<sup>e</sup> for the geographic objects core to immunization (health facilities, communities, ...). This help identifying inequities in vaccination coverage and health outcomes, addressing existing gaps in service delivery by optimally deploying available resources with minimum waste, and effectively monitoring progresses toward national and global development targets.

Significant efforts are already undergoing towards strengthening the use of geospatial data and technologies in Myanmar, in the context of the geo-enablement of the HIS led by the Department of Public Health (DOPH) implemented by the HGLC thanks to ADB's support<sup>f</sup>. The geo-enablement of the HIS aims at realizing the long-term benefits of geography, geospatial data and technologies for the health sector by developing sustainable capacity around the 9 elements of the HIS geo-enabling framework developed and implemented by the Health GeoLab Collaborative<sup>g</sup>(former AeHIN GIS Lab). This framework covers all the common assets that ensure for geography and time to be properly integrated in the Health Information System (HIS), this includes but is not limited to technical capacity, master lists and a common geo-registry as well as the enabling environment (policy, vision, governance and resources).

The project was articulated in 4 main steps

- Inception, stakeholders engagement and development of project workplan (November-December 2017):

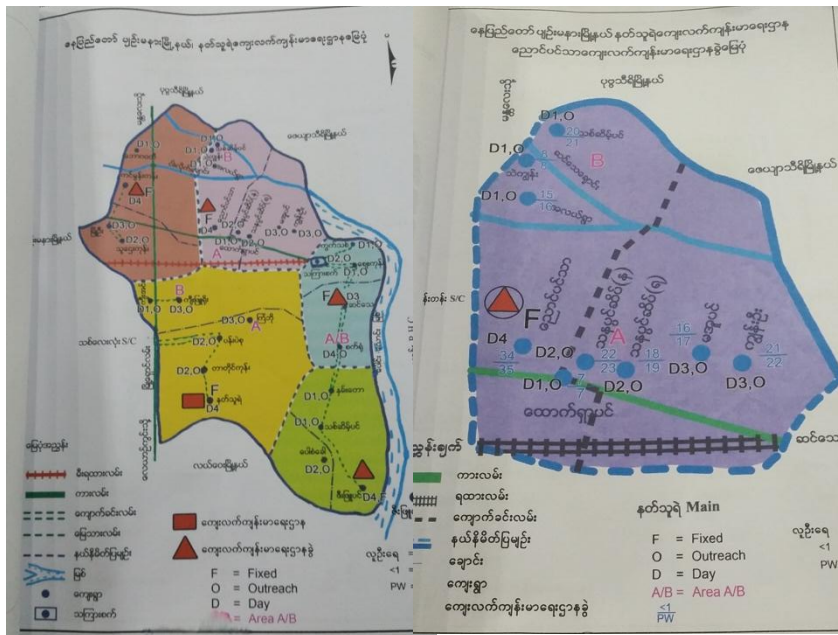


Figure 1. Rural Health Centre (RHC – left) and Sub-Rural Health Centre(right) hand-drawn maps currently used for microplanning by cEPI staff

<sup>e</sup> Authoritative, complete, up-to-date and uniquely coded list of all the active records for a given geographic object

<sup>f</sup> Healthgeolab.net

<sup>g</sup> <https://www.adb.org/publications/building-capacity-geo-enabling-health-information-systems> [Accessed, May 2018]



- Pilot project to demonstrate how the use of geospatial data and technologies can support the microplanning as well as monitoring and evaluation process in Myanmar (December 2017-March 2018)
- Technical capacity strengthening (March 2018)
- Documentation of the project (March-May 2018)

## Inception, Stakeholders Engagement and Development of the Project Workplan

An exploratory meeting was held by UNICEF and national EPI managers in Nay Pyi Taw in December 2017, with the objectives to define a capacity building plan that addressed strategic priorities, gaps and needs identified by the EPI program and initiate engagement with local immunization stakeholders.

During this phase, the cEPI focal points with support from UNICEF identified the following specific areas of potential improvement to the microplanning process through the use of geospatial data and technologies:

- Provide RHC/UHC supervisors and midwives with more geographically accurate visual information of RHC/UHC and SubRHC and ward areas (including locations of local health centre, villages, roads, geographic features). This will have the two-fold objective of (i) supporting evidence-based planning of vaccination sessions by midwives and (ii) facilitate supervision and accountability of midwives' session planning and area/population coverage by RHC/UHC supervisors who, contrarily to midwives, do not have intimate knowledge of the geographic layout of all the SubRHC/wards they are responsible for as midwives do
- Provide more accurate estimates of the distances and travel times between SubRHC/wards and villages to (i) support better session planning by midwives and facilitate review of session plans by RHC/UHC supervisors, (ii) support budgeting for travel costs by CEPI (Midwives don't get travel allowance for any village below 5km distance from local SubRHC), and (iii) reduce wastage of vaccines
- Support identification of areas characterized by accessibility issues such as remoteness, rugged terrain, seasonal accessibility issues that can pose an obstacle to delivery of services, in order to improve efficient

After review of cEPI strategic priorities and needs, it was agreed to:

- Conduct the pilot project in a focus township to explore the use of geospatial data and technologies in support of the microplanning as well as monitoring and evaluation process in Myanmar and demonstrate the benefits of using them with the long term objectives to stimulate the compilation of core geospatial data at national level;
- Align the pilot project with the ongoing HIS geo-enabling process started at the DOPH level thanks to Asian Development Bank (ADB)'s support, with the objective of aligning concepts and practices between the DOPH and cEPI ;
- Build technical capacity around the pilot project both at (i) the central and Regions/States level when it comes to the management and use of geospatial data and technologies and (ii) the township level MOHS staff on interpretation and use of the GIS maps that have been created.

The township of Taungdwingyi in the Magway region was identified for the implementation of the pilot project after consultation with cEPI and DOPH and also because the Magway Region was the area covered by the pilot HIS geo-enabling project led by DOPH<sup>h</sup>. As such, the master list of health facilities was up-to-date for this region, and other geospatial datasets like as terrain elevation, road network, hydrography (lakes, rivers, swamps) and land cover had already been compiled and improved when applicable. Moreover, the township of Taungdwingyi was identified by the Myanmar Information Management Unit (MIMU) as currently having the highest quality of village level locations datasets across the Magway Region.



*Figure 2. Inception meeting and consultation with delegation of midwives and RHC supervisors*

UNICEF undertook a planning session with central and local microplanning personnel during the in-country consultation to ensure for the relevance of the training curriculum for the operational needs of RHC/UHC supervisors and midwives. This session included a central level MoH microplanning expert, two EPI microplanning supervisors from Rural and Urban Health Centres (RHC, UHC, the microplanning level) and 5 midwives from Sub-Rural Health centres (the service delivery layer). During this session the practical steps of implementing the microplanning process at the RHC and UHC level were reviewed, perceived information gaps in the current microplanning mechanisms were identified, and best approaches to fill these gaps through the use of geospatial data and technologies were discussed with the local workforce. Special attention was dedicated to ensure for the proposed geospatial approaches to be easily absorbed and integrated into the existing microplanning procedures, and consistent with the existing decision-making processes and modus operandi of RHC/UHC supervisors and midwives.

## **Pilot Project over the Taungdwingyi Township**

The pilot project was conducted in collaboration with the HGLC and WHO over the Taungdwingyi Township (Magway Region) between December 2017 and March 2018, with the objective to demonstrate how the use of geospatial data and technologies can support the microplanning as well as monitoring and evaluation process in Myanmar.

Two type of thematic maps were identified as focus of the pilot project to support immunization microplanning:

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<sup>h</sup> <http://arcg.is/2lzRrL4>



1. Base microplanning maps of Rural and Urban Health Centres (RHC, UHC) and Sub-Rural Health Centres (SubRHC), to be used by RHC supervisor and SRHC midwives for session microplanning and supervision at the RHC and SRHC level
2. Monitoring and Evaluation maps of the township, to be used by Township Medical Officers (TMO) and EPI focal points to support to support M&E of microplanning at township level for the 6-months and annual reviews

When it comes to the microplanning process, the focus was on creating a GIS-based version of the sketch maps that midwives are using to develop their microplan. Such maps, referred to as base microplanning maps, contain the (i) the geographic location of the Rural and Urban Health Centres (RHC, UHC) and Sub-Rural Health Centres (SubRHC); (ii) the geographic location of the EPI communities<sup>i</sup>; (iii) the boundaries of the sub Rural Health Center reporting area corresponding to the geographic extent of the villages covered by this health facility; (iv) the transportation network (roads and railways); the hydrography (rivers and water bodies). An example of such map is presented in Figure 3.

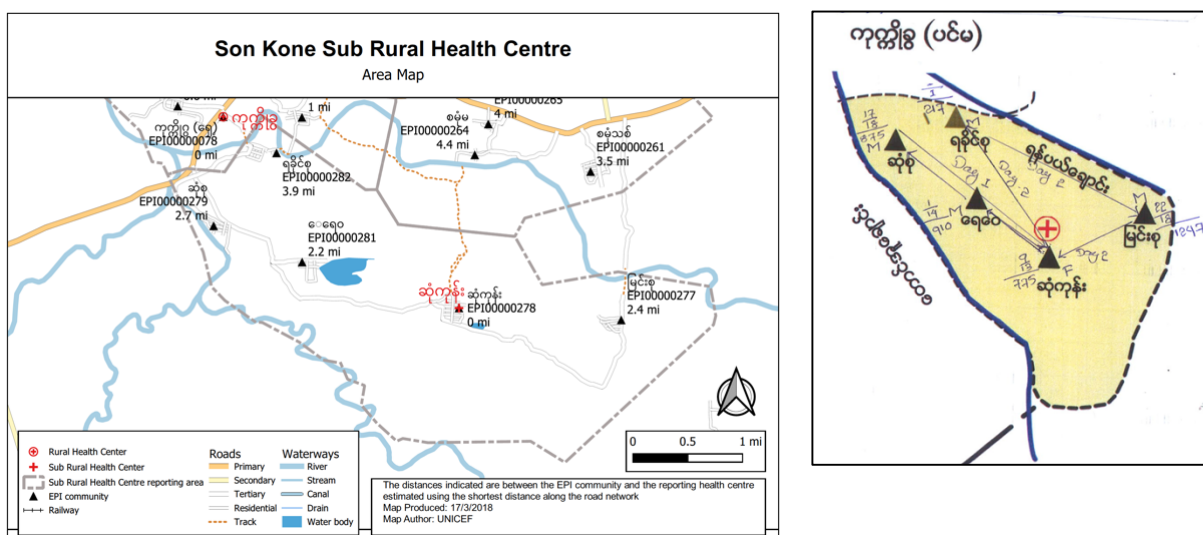
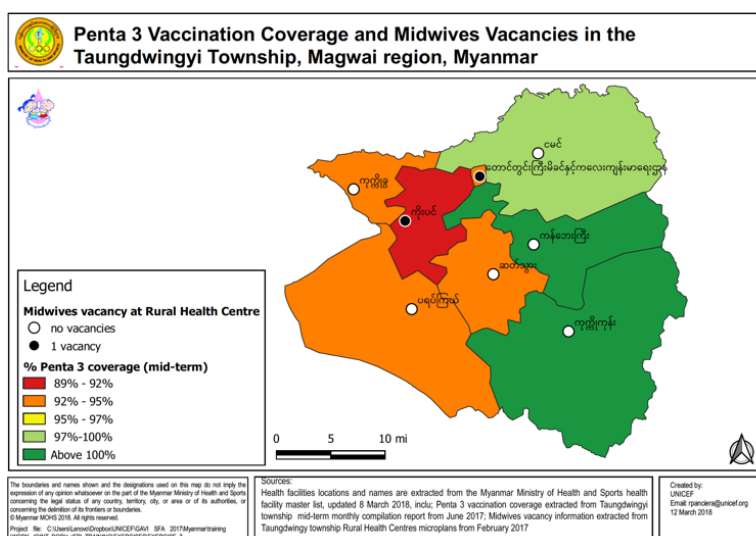


Figure 3. Example of GIS-based base microplanning map for one Sub Rural Health Center (left), and comparison with the currently used sketch map for the same area (right)



<sup>i</sup> EPI communities: populated places where target population of the immunization program resides

Figure 4. Example of GIS-based monitoring and evaluation map for the Taungdwingyi Township

The monitoring and evaluation maps are themselves thematic maps generated at the Township level and presenting the distribution of immunization coverage indicators (e.g. coverage, drop-outs) versus availability of resources (e.g. human resources, cold chain points) after six months (mid-term) and 12 months of implementation of the yearly microplan. These maps are generated on the basis of the RHC reporting areas boundaries. An example of such map is presented in Figure 4.

The pilot project covered 4 activities in relation to the above mentioned maps:

- Collect the necessary geospatial data to create maps
- Generate examples of the maps such as those presented in Figures 3 and 4
- Develop the process and define the roles and responsibilities of health staff at central, States/Regions and township level to be able to produce, interpret and use the two types of maps for programmatic purposes on a yearly basis
- Present the maps and the process that have been developed to cEPI staffs at the central, regional/provincial and Township level to get their feedback and suggestions for improvements

The following data/information has been collected/generated for the Taungdwingyi Township in order to produce the above mentioned maps:

- Master list of health facilities (RHC, UHC, Sub RHC). These were obtained from the Health Facilities Master Lists (HFML) maintained by the DOPH. This master list contains the fields reported in Appendix 1;
- A revised classification of the different EPI communities types observed in the field (Table 1)
- Master list of EPI communities. This list has been developed based on information received from the Township and complemented with data from MIMU when it comes to the geographic location of villages. This master list contains the fields reported in Appendix 2;
- Village location database maintained by MIMU;
- The road and hydrographic network from the OpenStreetMap dataset<sup>j</sup> improved as part of the Magway Region pilot project conducted by the DOPH with ADB's support;
- The extension of the RHC/UHC as well as SubRHC reporting areas have been created as Thiessen polygons (also referred to as Voronoi diagrams<sup>k</sup>) based on the geographic location of the known EPI communities;

It is important to mention here that the collection, checking and cleaning of the above data took much more time than initially anticipated. This does particularly apply to the EPI community master list which has been identified as central to the geo-enablement of the immunization information system.

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<sup>j</sup> downloaded from: <http://download.geofabrik.de/>

<sup>k</sup> [https://en.wikipedia.org/wiki/Voronoi\\_diagram](https://en.wikipedia.org/wiki/Voronoi_diagram)

Type	Definition	Population's presence status options
Ward	4th level administrative divisions encountered in urban areas and officially recognized by the GAD	long term
Village	long term settlement officially recognized by the GAD	long term
Army	Settlement managed by the Ministry of Defense	short term, long term, seasonal
Camp	Settlement typically settled for displaced population (refugees or internally displaced population for example)	short term, long term
Workers settlement	Settlement setup by workers to live close to their place of work (plantation, factory, building site, mining site...)	short term, long term, seasonal
Other settlement	Any other inhabited place not covered by the other definitions	short term, long term, seasonal

Table 1. Classification of EPI communities identified during the pilot project to support the development of the national master list of EPI communities.

The data mentioned here above has then been used to generate the examples of microplanning as well as monitoring and evaluation maps that have been used during the rest of the pilot project.

Going through the collection of the necessary data as well as the production of the example maps allowed defining the processes that should be implemented as well as the roles and responsibilities that should be in place at the central, Region/State, Township and health facility (RHC, Sub RHC) levels to sustain such capacity over the long term within the cEPI.

Figure 5 illustrates the process to take place in order to generate the base microplanning maps and Figure 6 the processes to generate the monitoring and evaluation maps. In the figures activities are organized according to the timeline over the yearly microplanning cycle (Y axis) and the level at which the activity is taking place (X axis).

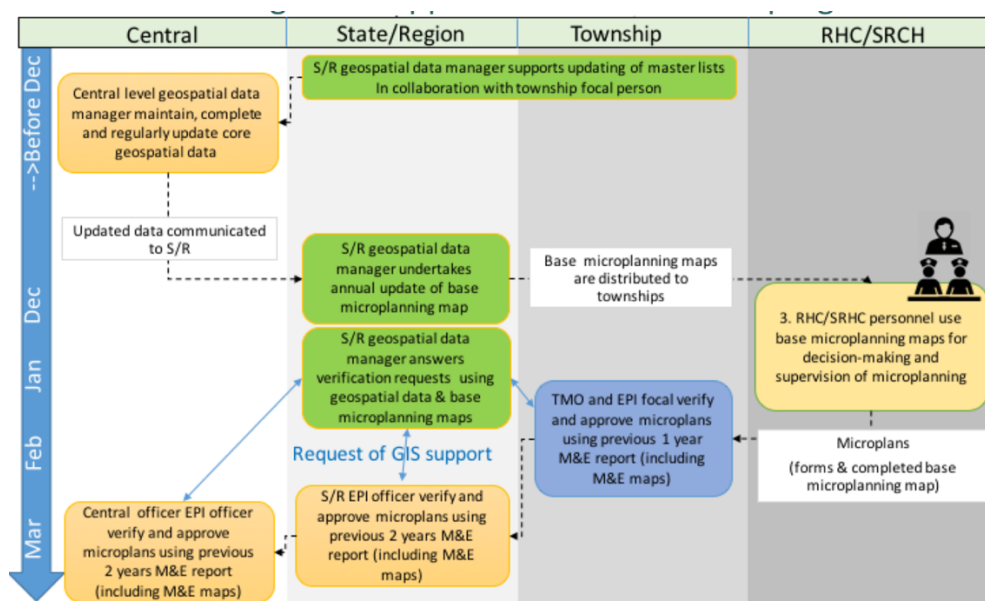


Figure 5. Processes for the production of the base microplanning maps of RHC areas.

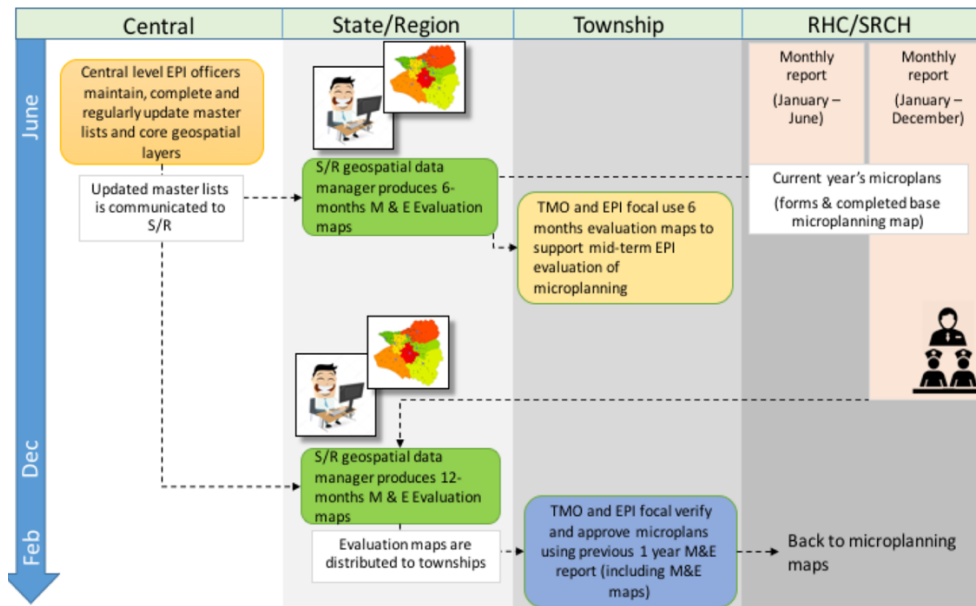


Figure 6. Processes for the production of the the Monitoring and Evaluation maps of townships

It is also important to mention that both processes are related to each other as the monitoring and evaluation maps are being used as the starting point for the microplanning of the following year.

The activities reported in Figure 5 and 6 also served as the basis for the definition of the roles and responsibilities to be covered at the Central and Region/State level to ensure a sustainable use of geospatial data and technologies in support of the immunization microplanning process. These roles and responsibilities have been converted into Terms of Reference (TOR) for the following functions (Appendix 3):

- DOPH geospatial data managers/GIS technicians (Central level)
- EPI Officers (Central level)
- Geospatial data manager (Region/State level)

The examples of maps and the process that have been developed have then been presented to cEPI staffs at the central, Region/Province and Township level as part of the different training that took place during the implementation of the project (see next section) and this to get their feedback and suggestions for improvements.

These consultations involved the township EPI representatives, health assistants, Lady Health Visitors & midwives from the Taungwindgyi township who were trained on the interpretation of the base microplanning maps of RHC areas and the Monitoring and Evaluation maps of the Taungwindgyi township. During the exercises, the ability of RHC personnel to interpret and use the maps for improved immunization microplanning and supervision was assessed and feedback was collected on the perceived usefulness and impact of the maps on the microplanning decision-making process.

RHC personnel highlighted several advantages of the GIS-based base microplanning maps compare to current hand-drawn sketch maps, in particular:

- More efficient session planning thanks to information on distances between EPI communities and master list supports

- More informed supervision of session plans and outreach logistics by RHC supervisors
- Better evidence of gaps in service delivery and resources to support advocacy to township, State/Region and central level regarding
- More efficient delineation of Sub Rural Health Centres catchment areas

The assessment also highlighted some issues with the classification of EPI communities and the accessibility of the road networks depicted in the microplanning maps that will require further attention during the next phase of the work being conducted.

## Technical Capacity Strengthening

Two training sessions were organized during the course of March 2018 centered on the production and use of the base microplanning maps and the Monitoring and Evaluation maps generated during the pilot project, namely:

- A Region/State level training on the use of geospatial data and technologies for immunization programs in Nay Pyi Taw between 12 - 16 March, 2018. A total of 60 participants (Figure 7, left) including GIS and eHealth focal from DOPH, CEU/EPI team and State and Regional EPI teams & data focal persons from all 17 states. The specific objectives of the training were to:
  - Inform the decision making process in Health System Planning for example health facility allocation and expansion
  - Improve the use of geospatial data and technologies to support health system strengthening
  - Strengthen the Region/State level capacity regarding the maintenance and update of the health facilities and EPI communities master lists
  - Strengthen the technical capacity of the Myanmar EPI program when it comes to the use of geospatial data and technologies for microplanning of immunization delivery
  - Train personnel on how to perform the different tasks attached to their respective TOR, namely:
    - The collection of geographic data in the field for maintenance and regular update of the health facilities and EPI communities master lists;
    - The production and interpretation of GIS based base microplanning maps of RHC areas to support RHC level staff in the compilation of microplans;
    - The production and interpretation of GIS based Monitoring and Evaluation maps of the Taungwindgyi township to support township staff evaluate microplans during 6-months and annual review;
    - The use of geospatial data and GIS tools such as satellite images, Digital Elevation Models and land cover maps to respond to request of verification of microplans;
  - Get feedback from the participants on the different data and maps that have been produced during the course of the pilot project

- A Township level training in Taungwindgyi on 19-20 March 2018. A total of 80 participants (Figure 7, right) including Township EPI representatives, and all Health Assistants, Lady Health Visitors & Midwives from the Taungwindgyi township. The specific objectives of the training were to:
  - Assess the ability of RHC personnel to interpret and use microplanning maps and monitoring and evaluation map for improved immunization microplanning and supervision;
  - Test training of township and RHC health staff in the collection of geographic data in the field for maintenance and update of the health facilities and EPI communities master lists;
  - Inform township health staff of the roles and responsibilities concerning the use of the maps and the update of the EPI communities master lists;
  - Get feedback from the participants on the different data and maps that have been produced during the course of the pilot project.

The complete training material for both events can be accessed on the dedicated online repository for Regional/State level training<sup>l</sup> and township level training<sup>m</sup>.



*Figure 7. Participants of the Regional/State level training, Nay Pyi Taw, 12 - 16 March, 2018 (left) and Township level training, Taungwindgyi, 19-20 March 2018 (right).*

<sup>l</sup> [https://drive.google.com/open?id=10JZ\\_MF8n0EJY0D8Rumdxci793p2SICut](https://drive.google.com/open?id=10JZ_MF8n0EJY0D8Rumdxci793p2SICut)

<sup>m</sup> <https://drive.google.com/open?id=1kht8N1-yL5wExKOyHILe0eLIWYK7xIR5>



## Conclusion and Way Forward

The activities implemented in Myanmar as part of the Gavi Data SFA supported project allowed to:

- Confirm the benefits that geospatial data and technologies can bring to the implementation of the microplanning process and therefore provided the necessary evidence for the process to be expanded to the rest of the country;
- Verify of the applicability of the use of geospatial data and technologies on planning and monitoring for immunization delivery by local level health workforce, and identification of the foreseen impact on better decision-making and supervision during the microplanning process;
- Define the processes roles and responsibilities to be established from the central to the Township level to ensure the sustainable use of geospatial data and technologies in support of the immunization microplanning process
- Strengthen the technical capacity of the Ministry of Health and Sports (MOHS) and EPI program staff from the central to the township level when it comes to the management and use of geospatial data and technologies to support immunization microplanning;
- Strengthen the coordination and collaboration between the cEPI program and the geospatial data management and technologies capacity of the Department of Public Health (DOPH) when it comes to the common assets that ensure for the HIS to be geo-enabled, starting with the master lists for the geographic objects core to public health in general and immunization in particular (health facilities, administrative divisions and villages).

The results of the activities implemented as part of the Gavi Data SFA support were presented to the Minister and senior officials during a meeting that took place in Nay Pyi Taw on March 26, 2018<sup>n</sup>. This presentation resulted in the development of a workplan, timeline and budget for the expansion of the processes implemented during the pilot project and therefore the possibility to use geospatial data and technologies to support the immunization microplanning process across the all country.

The expansion of the original pilot project will take place in two phases as follow:

- Phase 1: Extending the Taungdwingyi pilot project over Yangon with the objectives to (9 months of work):
  - Establish the EPI Communities master list for one region based on agreed upon and standardized SOPs (one latitude/longitude for each community)
  - Validate the latitude/longitude approach through the mapping of each EPI community boundaries for part of the Region (list of Townships to be defined)
  - Generate the base microplanning maps for Yangon to be used in the December 2018 for the microplanning process
- Phase 2: Nationwide rollout with the objectives to (12 months of work):
  - Establish the first version of the nationwide EPI master list based on agreed upon and standardized SOPs

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<sup>n</sup> <https://drive.google.com/open?id=1lwanLVOHgDZeHdsNZuc3HhWVh5FrcLKI>

- Develop an updating mechanism to ensure for the EPI communities to be updated on an annual basis
- Use the EPI communities and health facilities master lists to generate the base microplanning maps

The needs in terms of human resources (national and international), equipment and training were then estimated and a full timeline and budget linked to the implementation of the defined two phases has been developed (see Appendix 4 and 5). Two consultants, one national and one international (TORs in Appendix 6) will be hired to support the work of the MOHS staffs trained during the pilot project and as part of the HIS geo-enabling process.

While the expansion will be conducted outside of the scope of the Gavi Data SFA it represents a significant legacy of the pilot project implemented under Gavi's support, as the pilot project provided the initial momentum and learnings that resulted in a detailed plan for the expansion of the use of geospatial data and technology to support the immunization program nationwide.

## Appendix 1 Fields Included in the Health Facility Master List

Official MoHS unique ID for the facility
Official health facility name in English
Official health facility name in Myanmar language
Source of the health facility name
Date at which the health facility has been officially opened taking all the upgrade into account (format dd-mm-yyyy)
Official MOH unique ID of the facility to which patients are referred to
Official name in English of the facility to which patients are referred to
Health facility type in English
Street number and name for the health facility
MIMU P-code for the State or Region in which the health facility is located
Official name of the State or Region (GAD) in which the health facility is located
MIMU P-code for the District in which the health facility is located
Official name of the District (GAD) in which the health facility is located
MIMU P-code for the Township in which the health facility is located
Official name of the Township (GAD) in which the health facility is located
MIMU P-code for the Village track (rural) or Ward (urban) in which the health facility is located
Official name of the Village Track (rural) or Ward (urban) in which the health facility is located
MIMU P-code for the Village in which the health facility is located
Official name of the Village (GAD) in which the health facility is located
Latitude of the health facility (decimal degrees)
Longitude of the health facility (decimal degrees)
Source of the geographic coordinates (collection method)
Accuracy level of the geographic coordinates
Full name of the facility head in English
Full name of the facility head in Khmer
Position of the Head of Facility in English
Position of the Head of Facility in Myanmar language
Landline telephone number for the head of the health facility (format: 023123456; Indicate "NONE" if no landline)
Official general landline telephone number at which the health facility can be contacted (format: 023123456; Indicate "NONE" if no landline)
Cellphone number for the health of the health facility (format: 023123456; Indicate "NONE" if no landline)
General cellphone number at which the health facility can be contacted (format: 023123456; Indicate "NONE" if no landline)
Email of the health facility head
General email address of the health facility
Official website of the health facility

## Appendix 2 Fields Included in the EPI Communities Master List

Temporary EPI site unique identifier
EPI site name in English as provided by the EPI Township staff
EPI site type in English as provided by the EPI Township staff
Name of the village track in which the EPI site is located as provided by the EPI Township staff
Village name as captured in the GAD registry of villages
Remark concerning the EPI site name
Village track P Code as per the MIMU database (September 2017 edition)
Village track name in English as per the MIMU database (September 2017 edition)
Village P Code as per the MIMU database (September 2017 edition)
Village name in English as per the MIMU database (September 2017 edition)
Village name in Myanmar language as per the MIMU database (September 2017 edition) using the UNICODE font
Village name in Myanmar language as per the MIMU database (September 2017 edition) using non-UNICODE fonts
Longitude of the village as per the MIMU database (September 2017 edition)
Latitude of the village as per the MIMU database (September 2017 edition)
Official code of the health facility to which the EPI site is attached to as per the MOHS Health Facilities Master List
Official name in English of the health facility to which the EPI site is attached to as per the MOHS Health Facilities Master List
Type of the health facility to which the EPI site is attached to as per the MOHS Health Facilities Master List
Official code of the RHC, SHU or MCH to which the Level 1 facility is attached to as per the MOHS Health Facilities Master List
Official name in English of the RHC, SHU or MCH to which the level 1 facility is attached to as per the MOHS Health Facilities Master List
When applicable, type of the health facility (RHC, SHU or MCH) to which the SBRHC is attached to as per the MOHS Health Facilities Master List
Total projected population in the EPI site for 2017 (based on December 2016 headcount)
Total projected under 1 years old population in the EPI site for 2017 (based on December 2016 headcount)
Total projected under 5 years old population in the EPI site for 2017 (based on December 2016 headcount)

## Appendix 3 Terms of References for DOPH geospatial data managers/GIS Technicians, EPI Officers and Region/State geospatial data manager

### **TOR for the DOPH geospatial data managers/GIS technicians (Central level) - Full time**

#### Main responsibilities

The main responsibilities of the DOPH geospatial data managers/GIS technician is to provide technical support in the management and use of geospatial data and technologies at the central level and support the geo-enablement of the Health Information System (HIS)

#### Description of duties

Working under the supervision of Deputy Director General for Administration and Finance and in close collaboration with the Region/State level geospatial data manager, the different MOHS programs as well as the international and national consultants, the DOPH geospatial data managers/GIS technician is to be in charge of:

- Providing geospatial data management and GIS technical support to the Department of Public Health in general and cEPI in particular and this at both the central and Region/State level ;
- Developing, maintaining, updating and sharing the master lists for the geographic objects core to public health (health facilities, villages and administrative divisions) and supporting the development of program specific master list (e.g. EPI Communities);
- Developing the guidelines and protocols/SOPs as well as identifying the necessary standards aiming at improving the availability, quality (completeness, uniqueness, timeliness, validity, accuracy and consistency) and accessibility of geospatial data;
- Supporting the implementation of the guidelines, standards, protocols and registries in all the information systems across the MOHS;
- Coordinating and supporting capacity building activities for MOHS staff related to management and use of geospatial data and technologies
- Generating GIS based data products to support decision making including the creation of the reporting division boundaries based on the village location master list

#### Expected deliverables

- Master lists for the geographic objects core to public health (health facilities, villages and administrative divisions);
- Guidelines, standards and protocols endorsed by the TWG on geospatial data management and GIS;
- Strengthened management and use of geospatial data and technologies across health programs
- Data products (table, graphs and maps) as per the established SOPs

#### Required qualifications

##### *Education:*

- University degree with a background in data management and/or GIS or enough professional experience in data management and/or the use of GIS to be considered as equivalent;
- Background in public health

##### *Skills:*

- Good knowledge in the use of ArcView, ArcGIS or other GIS software as well as MS Office suite,
- Demonstrable skills in geospatial data management;
- Ability to work harmoniously as part of a team.

*Experience:*

- At least one experience working in a GIS related project;
- Experience in the area of Public Health would be seen as an advantage;

*Languages:*

- Myanmar: Proficient
- Proficiency in English would be seen as a strong advantage

**TOR for the EPI Officers (Central level) - Part time**

Main responsibilities

The main responsibilities of the EPI Officer is to be the EPI focal point in all matters related to the use of geospatial data and technologies in the immunization program and provide technical support on the EPI specific aspect of the implementation of the Yangon pilot project and the nationwide roll out.

Description of duties

Working under the supervision of the cEPI program director and in close collaboration with the central level DOPH geospatial data manager/GIS technicians, the regional level geospatial data managers as well as the national and the international consultant, the EPI Officer will be in charge of:

- Serving as the cEPI focal point on the management and use of geospatial data and technologies and the liaison the central, Region/State level and Township level in this regards
- Developing, maintaining, regularly updating and sharing the EPI communities master list in collaboration with the DOPH teams
- Developing the guidelines, and protocols/SOPs necessary for the development, maintenance and updating and sharing the the EPI communities master list, field data collection as well as the production of the microplanning as well as Monitoring & Evaluation maps
- Supporting the development of policies related to the use of geospatial data and technologies across the EPI program
- Supporting geospatial data management and technology capacity building and training activities for cEPI staff at the Region/State and Township level
- Support the Region/State level geospatial data managers when it comes to the production of the base microplanning as well as monitoring & evaluation maps
- Participate in regular meetings and workshops for project coordination and reporting

Expected deliverables

- Master lists of EPI communities developed for Myanmar
- Guidelines, standards and protocols on the management and use of geospatial data and technology for immunization developed and endorsed by the EPI program management



- Training delivered to township level MOHS staff on production of microplanning maps, use of satellite imagery for building footprint layer development, field collection of geographic data, and use of geospatial data and GIS software for microplanning validation purposes

### Required qualifications

#### *Education:*

- University degree with a background in public health
- Background in data management would be seen as an advantage

#### *Skills:*

- Good knowledge in the use of the MS Office suite,
- Knowledge in the use of GIS software (ArcGIS, QGIS) would be seen as an advantage
- Ability to work harmoniously as part of a team.

#### *Experience:*

- At least 5 years working in public health
- Experience in the management and use of geospatial data and technologies would be seen as an advantage;

#### *Languages:*

- Myanmar: Proficient
- English: proficiency would be seen as a strong advantage

## **Geospatial data manager (Region/State level) - Part time**

### Main responsibilities

The main responsibilities of the Region/State geospatial data manager is to provide technical support in the management and use of geospatial data and technologies in general and in support to immunization in particular at the Region/State and Township level.

### Description of duties

Working under the supervision of Region/State level director and in close collaboration with the DOPH geospatial data manager/GIS technician, the EPI Officers as well as the international and national consultants, the DOPH geospatial data managers/GIS technician is to be in charge of:

- Serving as the Region/State level focal point for the management and use of geospatial data and technologies
- Providing geospatial data management and GIS technical support to the Region/State and Township level ;
- Contributing to the development and regular updating of the master lists for the geographic objects core to public health (health facilities, villages and administrative divisions) and and specific health programs (e.g. EPI Communities). More specifically:
  - Answer requests from the central level for completing, checking, validating,... information to be included in the health facility and EPI communities master list

- When missing, collect the geographic coordinates of health facilities or EPI communities either in the field or through the use of online tools such as google map
- Submit request for updates to be implemented in the master lists based on information received from or collected in the field
- Supporting the implementation/application of the guidelines and protocols/SOPs that have been developed/identified;
- Coordinating and supporting capacity building activities for Region/State and Township level MOHS staff related to management and use of geospatial data and technologies
- Supporting the implementation of the microplanning process by:
  - Using the master lists, the geospatial data and the travel time/distances matrices provided by the central level to generate the RHC and SubRHC base microplanning maps
  - Using satellite images and other geospatial data to answer requests from the Township, Region/State or central level during the microplanning validation process
- Support the cEPI monitoring and Evaluation process by:
  - Using the master lists and the geospatial data provided by the central level as well as the data collected at the Township level during the implementation of the microplan to generate the thematic maps supporting the 6- and 12-months reviews

#### Expected deliverables

- Strengthened management and use of geospatial data and technologies at the Region/State and Township level
- RHC and SubRHC base and microplanning maps
- Data products (table, graphs and maps) as per the established SOPs

#### Required qualifications

##### *Education:*

- University degree with a background in public health
- Background in data management would be seen as an advantage

##### *Skills:*

- Good knowledge in the use of the MS Office suite,
- Knowledge in the use of GIS software (ArcGIS, QGIS) would be seen as an advantage
- Ability to work harmoniously as part of a team.

##### *Experience:*

- At least 5 years working in public health
- Experience in the management and use of geospatial data and technologies would be seen as an advantage;

##### *Languages:*

- Myanmar: Proficient
- English: would be seen as an advantage

## Appendix 4 Timeline for Extended Pilot Project and National Roll-out Phase

Note: the timeline is yet to be endorsed by the cEPI and shown to provide a reference for similar future activities

### Extended pilot project over Yangon

			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
<b>1. Establish the EPI communities master list for the Yangon Region</b>	<b>In charge</b>	<b>Involved</b>									
1.1 Develop the necessary guidelines, SOPs and Google drive spreadsheets to collect of the information to create the EPI communities master list, including translation to Myanmar language	International consultant	EPI Officers, Central Geospatial data managers, UNICEF CO	█	█	█						
1.2 Collect the information to create the EPI master list using the Google drive spreadsheets taking advantage of the monthly meeting at the Township level	EPI Officers	Region/State Geospatial Data Manager, Township manager, midwives		█							
1.3. Check, clean and validate the data collected and create of the EPI communities master list (starting with the Township(s) selected for the validation) + Finalization of the GPS essentials/Survey 123 based SOPs to collect the lat/long of each EPI community and those missing for health facilities + printing of the documents for the midwives	International consultant	National consultant, EPI Officers, Central Geospatial data managers, WHO CO, Region/State Geospatial Data Manager, Township managers, midwives			█	█	█				
1.4 Collect the geographic coordinates (latitude/longitude) of the EPI communities and health facilities using GPS essentials and Survey 123 during midwife's routine sessions (including live data checks)	National consultant	Central and Region/State Geospatial Data Manager, Township manager, midwives, International consultant				█	█	█			
1.5 Clean, check and validate the EPI communities and health facilities geographic coordinates collected in the field	National consultant	International consultant, EPI Officers, Central Geospatial data managers					█	█			

			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
<b>2. Validation of the lat/long approach for selected Townships</b>	<b>In charge</b>	<b>Involved</b>									
2.1 Select the 5 Township(s) on which the approach will be applied	cEPI	UNICEF CO, International consultant	█	█	█						
2.2 Develop the building foot print/location layers for the selected Township(s)	International consultant	OpenStreetMap, WHO HQ Polio, National Consultant, Esri		█	█	█	█	█			
2.3 Host a workshop in the selected Township(s) to delimitate the boundaries of each EPI community based on the building footprint/location	National consultant	International consultant, EPI Officers, Central Geospatial data managers, UNICEF CO, Region/State Geospatial Data Manager, Township manager, Midwives						█	█	█	
2.4 Digitize the resulting EPI communities boundaries and compare them with the Thiessen polygons created using the EPI communities geographic coordinates	International consultant	National consultant, Central Geospatial data managers							█	█	█

			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
<b>3. Develop the base microplanning maps for Yangon</b>	<b>In charge</b>	<b>Involved</b>									
3.1 Improve the transportation and hydrographic network GIS layers needed for the base microplanning maps	International consultant	OpenStreetMap, National consultant	█	█	█	█	█	█	█	█	
3.2 Create the RHC and SRHC base microplanning maps and distribution to the Townships	National consultant	Region/State and Central Geospatial Data Manager								█	█
3.3 Use of the base microplanning maps at the Township level for December 2018 the microplanning process	Township managers	Region/State Geospatial Data Manager, midwives									█

**National Roll Out**

			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15
<b>4. Establish the EPI communities master list for the whole country (16 Regions/States + update for Yangon)</b>	<b>In charge</b>	<b>Involved</b>															
4.1 If necessary, adjust the guidelines, SOPs, google spreadsheet and Survey 123 forms based on the outcomes of the Yangon extended pilot project	International consultant	EPI Officers, Central Geospatial data managers, National consultant	█	█	█	█	█										
4.2 Collect the information to create the EPI master list for the remaining 16 States/Regions and update Yangon using the google spreadsheets approach as part of the headcount process	EPI Officers	Region/State Geospatial Data Manager, Township manager, midwives			█	█	█										
4.3 Check, clean and validate the data that has been collected and creation of the EPI communities master list	National consultant	EPI Officers, Central Geospatial data managers, UNICEF CO, Region/State Geospatial Data Manager, Township managers, midwives				█	█	█	█	█							
4.4. Collect the geographic coordinates (latitude/longitude) of the EPI communities and health facilities using GPS essentials and Survey 123 during midwife's routine sessions (including live data	National consultant	Region/State Geospatial Data Manager, Township manager, midwives						█	█	█	█	█	█				
4.5 Clean, check and validate the EPI communities and health facilities geographic coordinates collected in the field	National consultant	International consultant, EPI Officers, Central Geospatial data managers								█	█	█	█	█			
4.6 Establish and operationalize the updating mechanism for the EIP communities master list	International consultant	EPI Officers, Central Geospatial data managers, UNICEF CO, Region/State Geospatial Data Manager, Township managers, midwives							█	█	█	█	█	█	█	█	█

			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15
<b>5. Development of the base microplanning maps (16 Regions/States + update for Yangon)</b>	<b>In charge</b>	<b>Involved</b>															
5.1 Improve the transportation and hydrographic network GIS layers needed for the base microplanning maps	National consultant	OpenStreetMap				█	█	█	█	█	█	█	█	█	█	█	█
5.2 Create the RHC and SRHC base microplanning maps and distribution to the Townships	National consultant	Region/State and Central Geospatial Data Manager												█	█	█	█
5.3 Use of the base microplanning maps at the Township level for the December 2019 microplanning process	Township managers	Region/State Geospatial Data Manager, midwives														█	█

## Appendix 5 Budget for Extended Pilot Project and National Roll-out Phase

Note: the budget is yet to be endorsed by the cEPI and shown to provide a reference for similar future activities

### Budget for Yangon pilot (Phase 1)

Staff (working time/per diem)				
Staff	Daily rate	Nbr of staff	Nbr days per staff	Cost
Per diem Geospatial Data Manager (Central)	\$10.29	2	50	\$1,029.4
Per diem EPI officers (Central)	\$10.29	2	40	\$823.5
Per diem Geospatial Data Manager ( State/Region )	\$9.56	2	30	\$573.5
Per diem Township manager (data collection)	\$4.41	45	6	\$1,190.7
Per diem Township manager (EPI communities boundaries)	\$4.41	5	2	\$44.1
Per diem Midwives (data collection)	\$4.41	450	10	\$19,845.0
Per diem Midwives (EPI communities boundaries)	\$4.41	50	2	\$441.0
Working time OpenStreetMap	\$50.00	5	14	\$3,500.0
Salary National consultant	\$150.00	1	170	\$25,500.0
Salary International Consultant	\$700.00	1	70	\$49,000.0

Total staff **\$101,947.3**

Travels						
Staff	Destination	Event	Trip cost (transport)	Nbr of Staff	Nbr of trips	Cost
DOPH geospatial data managers	Yangon	Data collection training + boundaries identification	\$330	2	2	\$1,320
EPI Officer	Yangon	Data collection training + boundaries identification	\$330	2	2	\$1,320
Region/State geospatial manager	Nay Pyi Taw	Inception training	\$330	2	1	\$660
Township manager and midwives	Yangon	Data collection training	\$50	135	1	\$6,750
	Yangon	EPI com boundaries identification	\$50	55	1	\$2,750
National consultant	Nay Pyi Taw or Yangon	Inception training, data collection, EPI boundaries, others	\$330	1	6	\$1,980
International consultant	Nay Pyi Taw or Yangon	Inception training, data collection, EPI boundaries, others	\$2,388	1	6	\$14,328
UNICEF CO representative	Nay Pyi Taw	Inception training, Project follow up	\$330	1	4	\$1,320
WHO CO representative	Nay Pyi Taw	Inception training, Project follow up	\$330	1	4	\$1,320

Total travels **\$31,748.0**

### Training/meetings (per diem included under travels)

Central/Regional level inception training (Nay Pyi Taw, 18-19 May 2018, Nbr participants: 25)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$0	1	\$0
Refreshment and lunch	\$10	50	\$500
Stationary	\$3	50	\$150

Total **\$650**

Township level training on geographic coordinates data collection (Yangon, 18-19 June 2018, Nbr participants: 150)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	300	\$3,000
Stationary	\$3	300	\$900

Total **\$4,900**

Workshop on EPI communities boundaries identification (Yangon, 10-12 September 2018, Nbr participants: 70)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$500	1	\$500
Refreshment and lunch	\$10	140	\$1,400
Stationary	\$3	140	\$420

Total **\$2,320**

Total Meetings/trainings **\$7,870**

### Equipment

Item	Level	Unit cost	Nbr of units	Cost
Laptop (Thinkpad L470 )	cEPI (Central level)	\$769	2	\$1,538
A0 size color printer	DOPH (Central level)	\$5,000	1	\$5,000
Cartridge for A0 size printer	DOPH (Central level)	\$350	4	\$1,400
Stationeries (A0 size paper )	DOPH (Central level)	\$45	10	\$450
Introductory Esri bundles ( ESRI ArcGIS Software-Based Bundles )	cEPI (Central level)	\$750	2	\$1,500
A3 Size color printer	Yangon Regional Office	\$500	1	\$500
Cartridges for A3 size color printer	Yangon Regional Office	\$50	5	\$250
Stationeries (A3 size paper)	Yangon Regional Office	\$5	10	\$50

Total equipment **\$10,688.0**

Grand total Yangon pilot project **\$152,253.3**

## Budget for Nationwide rollout (Phase 2)

Staff (working time/per diem)				
Staff	Daily rate	Nbr of staff	Nbr days per staff	Cost
Per diem Geospatial Data Manager (Central)	\$10.29	2	80	\$1,646.4
Per diem EPI officers (Central)	\$10.29	2	70	\$1,440.6
Per diem Geospatial Data Manager (State/Region )	\$9.56	17	66	\$10,726.3
Per diem Township manager (Township level)	\$4.41	291	20	\$25,666.2
Per diem Midwives (EPI master list)	\$4.41	3360	1	\$14,817.6
Per diem Midwives (lat/long data collection)	\$4.41	2910	13	\$166,830.3
Working time OpenStreetMap	\$50.00	5	160	\$40,000.0
Salary National consultant	\$150.00	1	240	\$36,000.0
Salary International Consultant	\$700.00	1	30	\$21,000.0

Travels						
Staff	Destination	Event	Trip cost (transport+)	Nbr of Staff	Nbr of trips	Cost
DOPH geospatial data managers	Region TBD	Data collection training	\$330	2	4	\$2,640
EPI Officer	Region TBD	Data collection training	\$330	2	2	\$1,320
Region/State geospatial manager	Nay Pyi Taw	Inception training	\$330	32	1	\$10,560
Township manager and midwives	Region TBD	Data collection training	\$330	873	1	\$288,090
National consultant	Region TBD	Inception training, data collection, others	\$330	1	6	\$1,980
International consultant	Nay Pyi Taw or Region TB	Inception training, data collection	\$2,388	1	3	\$7,164
UNICEF CO representative	Nay Pyi Taw or Region TB	Inception training, Project follow up	\$330	1	5	\$1,650
WHO CO representative	Nay Pyi Taw or Region TB	Inception training, Project follow up	\$330	1	5	\$1,650

Total travels **\$315,054.0**

### Training/meetings (per diem included under travels)

Central/Regional level inception training (Nay Pyi Taw, 3-4 December 2018, Nbr participants: 55)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	110	\$1,100
Stationary	\$3	110	\$330
Total			\$2,430

Township level training on geographic coordinates data collection (Part 1 - Region TBD , 11-12 February 2019, Nbr participants: 150)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	300	\$3,000
Stationary	\$3	300	\$900
Total			\$4,900

Township level training on geographic coordinates data collection (Part 2 - Region TBD , 13-14 February 2019, Nbr participants: 150)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	300	\$3,000
Stationary	\$3	300	\$900
Total			\$4,900

Total \$4,900

Township level training on geographic coordinates data collection (Part 3 - Region TBD , 18-19 February 2019, Nbr participants: 150)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	300	\$3,000
Stationary	\$3	300	\$900
Total			\$4,900

Township level training on geographic coordinates data collection (Part 4 - Region TBD , 21-22 February 2019, Nbr participants: 150)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	300	\$3,000
Stationary	\$3	300	\$900
Total			\$4,900

Township level training on geographic coordinates data collection (Part 5 - Region TBD , 25-26 February 2019, Nbr participants: 150)

Item	Unit cost	Nbr of units	Cost
Meeting venue	\$1,000	1	\$1,000
Refreshment and lunch	\$10	300	\$3,000
Stationary	\$3	300	\$900
Total			\$4,900

Total Meetings/trainings **\$26,930**

### Equipment

Item	Level	Unit cost	Nbr of units	Cost
Extension Esri bundles	cEPI (Central level)	\$250	2	\$500
A3 Size color printer	Yangon Regional Office	\$500	16	\$8,000
Cartridges for A3 size color printer	Yangon Regional Office	\$50	80	\$4,000
Stationeries (A3 size paper)	Yangon Regional Office	\$5	160	\$800

Total equipment **\$13,300.0**

**Grand total National Roll Out \$673,411.4**  
**Total Yangion pilot + National Roll out \$825,664.7**



## Appendix 6 Terms of References for the International and National Consultants

### **TOR for the position of geospatial data management and technologies international consultant**

#### Main responsibilities

The main responsibilities of the geospatial data management and technologies international consultant is to ensure the technical coordination of the project as well as provide technical advice and support to the DOPH and the cEPI when it comes to the management and use of geospatial data and technologies.

#### Description of Duties

Working under the supervision of Deputy Director General for Administration and Finance and cEPI director and in close collaboration with the DOPH and Region/State level geospatial data manager as well as the national consultants, the geospatial data management and technology international consultant is to be in charge of:

- Providing overall technical coordination for the Yangon pilot project and national roll out as well as the technical
- Providing technical supervision and coaching to the national consultant in good geospatial data management practices and the use of geospatial technologies as required by the project's objectives
- Support the DOPH geospatial data manager and the national consultant in the development of the guidelines, data specifications and protocols related to the management and use of geospatial data and technologies for the project
- Support the national consultant in the coordination of training and capacity building workshops on the use of geospatial data and technologies for MOHS staff
- Participate to regular in-country meetings and workshops for project coordination and reporting
- Identify and coordinate international partnerships to support the project needs in the area of geospatial data and technologies

#### Expected Deliverables

- Technical implementation workplan, timeline and budget for the Yangon pilot project and the nationwide roll out
- Regular reports, including monitoring & Evaluation, to cEPI regarding the implementation of the pilot project and nationwide roll out
- Guidelines, data specifications and protocols needed for the implementation of the project
- Training and meeting material prepared in collaboration with the national consultant
- Partnership and collaboration with external partners

#### Required qualifications

##### *Education:*

- University degree in natural science, Information Systems or related discipline with a background in geospatial data management and the use of geospatial technologies or enough professional experience in these areas to be considered as equivalent;
- A background in public health would be seen as an advantage

### *Skills:*

- Highly proficient in the use of desktop and web-based GIS software such as ArcGIS, ArcGIS online, QGIS
- Highly proficient with the use of GIS tools and softwares for field collection of geographic data such as Survey123, KoboToolbox and/or similar
- Demonstrated ability to lead international multicultural teams

### *Experience:*

- At least 10 years of professional experience in the application of geospatial data and technologies for public health related projects, including extensive in countries implementation experience
- Demonstrated experience in the:
  - Coordination of national and regional scale projects related to the management and use of geospatial data and technologies
  - Development, maintenance and update of national-scale master lists and geospatial databases
  - Production of guidance documents, training materials, Standard Operating Procedures and/or user manuals

## **TOR for the Position of geospatial data management and technologies national consultant**

### Main responsibilities

The main responsibilities of the geospatial data management and technologies national consultant is to supervise the implementation of the Yangon pilot project and national roll out and provide technical support in all matters related to geospatial data and technologies to the EPI program.

### Description of Duties

Working under the supervision of the cEPI program director, the UNICEF Country Office and the International consultant and in close collaboration with the central level DOPH geospatial data manager/GIS technicians, the EPI officers and the regional level geospatial data managers, the national consultant will be in charge of:

- Ensuring the implementation of the Yangon pilot project and national roll out based on the defined workplan, timeline and budget;
- Supporting the DOPH geospatial data managers when it comes to the:
  - Development, maintenance, update and sharing of the master lists for the geographic objects core to public health (health facilities, villages and administrative divisions) and supporting the development of program specific master list (e.g. EPI Communities);
  - Development of the guidelines, data specifications and protocols/SOPs as well as identifying the necessary standards aiming at improving the availability, quality (completeness, uniqueness, timeliness, validity, accuracy and consistency) and accessibility of geospatial data;
- Supporting the EPI officers when it comes to the:
  - Development, maintenance, regular update and sharing of the EPI communities master list
  - Development of the guidelines, standards and protocols/SOPs necessary for the developing, maintenance, regular updating and sharing of the EPI communities master

list, field data collection as well as the production of the microplanning as well as Monitoring & Evaluation maps

- Development of policies related to the use of geospatial data and technologies across the EPI program
- Geospatial data management and technology capacity building activities for DOPH and cEPI staff at the Region/State and Township level
- Supporting the Region/State level geospatial data manager when it comes to:
  - Providing geospatial data management and GIS technical support to the Region/State and Township level ;
  - Contributing to the development and regular updating of the master lists for the geographic objects core to public health (health facilities, villages and administrative divisions) and specific health programs (e.g. EPI Communities). More specifically:
    - Implementing the guidelines and protocols/SOPs that have been developed/identified;
    - Coordinating and supporting capacity building activities for Region/State and Township level MOHS staff related to management and use of geospatial data and technologies
    - Supporting the implementation of the geographic component of the microplanning as well as Monitoring & Evaluation process
- Participate in regular meetings and workshops for project coordination and reporting

#### Expected Deliverables

- Documented outputs of the Yangon pilot project:
  - EPI Communities master list for the Region based on agreed upon and standardized SOPs (one latitude/longitude for each community)
  - Validation of the latitude/longitude approach through the mapping of each EPI community boundaries for part of the Region
  - Base microplanning maps for Yangon to be used in the December 2018 for the microplanning process
- Documented outputs of the Nationwide EPI communities master list:
  - Established first version of the nationwide EPI master list based on agreed upon and standardized SOPs
  - Developed updating mechanism to ensure for the EPI communities to be updated on an annual basis and supported the development of policies to enforce them
- Strengthened geospatial data management and technologies capacity at the Region/State and Township level

#### Required qualifications

##### *Education:*

- University degree in natural science, Information Systems or related discipline or enough professional experience in these areas to be considered as equivalent;
- A background in public health would be seen as an advantage

##### *Skills:*

- Highly proficient in the use of desktop and web-based GIS software such as ArcGIS, ArcGIS online, QGIS
- Highly proficient in the use of data management software such as Microsoft Excel

- Highly proficient with the use of field collection tools such as Survey123, KoboToolbox and similar

*Experience:*

- At least 5 years professional experience in the use of geospatial data and technologies. Experience in public health related projects highly preferred
- Demonstrated experience in participating to projects related to the field collection of geographic data
- Demonstrated experience in designing and coordinating training and capacity building activities related to geospatial data and technologies
- Demonstrated experience in the production of guidance documents, training materials, Standard Operating Procedures and/or user manuals

*Language*

- Myanmar language: Proficient
- English: Proficient