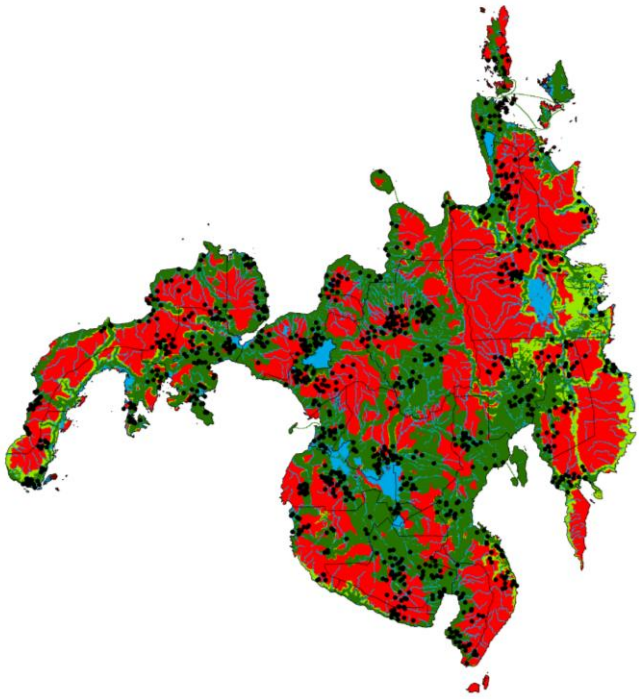
World Health Organization

Geographic Accessibility to Maternity Care Package (MCP) Accredited Facilities Analysis

Mindanao islands



Last Update: October 2013

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Acknowledgements

First and foremost, we would like to express our gratitude to the Commission on Information and Accountability (COIA) for Women's and Children's Health for having made this study possible thanks to their financial support.

We then would like to express our gratitude here to the institutions that have provided their data and time in order for the different analysis to be possible. These institutions are (by alphabetical order):

- The Department of Health (DOH);
- The National Mapping and Resource Information Authority (NAMRIA)
- The National Statistic Office (NSO);
- The OpenStreetMap community (OSM);
- The Philippine Health Insurance Corporation (PhilHealth);

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Executive Summary

Objective
Maternal mortality remains relatively high and the Maternal Mortality Rate (MMR) is still far from the reaching the MDG target by 2015 in the Philippines.

The population part of the lowest income quintiles is particularly vulnerable when it comes to care in general, and Maternal and Newborn Health (MNH) care in particular.

In this regards, both the Universal Health Care program (Kalusugan Pangkalahatan) launched by the Department of and the Maternity Health Care Package (MCP) for normal spontaneous delivery (NSD) initiated under the umbrella of the Health Insurance Corporation (PhilHealth) are there to support this particular part of the population.

The objective of the work conducted here is therefore to analyse how accessible MCP accredited facilities are to NHTS-PR registered beneficiaries (members and dependents) of PhilHealth in one part of the Philippines as well as identify potential gaps towards achieving Universal Health Care in this area.

Methodology
Working in close collaboration with the Department of Health of the Philippines and other key stakeholders, a freely available GIS extension developed by WHO to measure physical accessibility to health care, called AccessMod (See Chapter 4), has been used in combination with statistical data from existing sources (household surveys, Health Information System, data,..) to perform the following analyses (See Chapter 5 for more details):

1. Accessibility coverage: Measure of the proportion of births taking place within 2 hours of travel time of a facility providing MCP;
2. Geographic coverage: Proportion of birth within 2 hours of travel time of a MCP with enough capacity to cover all births if normal delivery;
3. Service utilization: Comparison between the accessibility/geographic coverage analysis and data on actual service utilization
4. Scaling up: Provision of the necessary information to allow for an estimation of the cost to reach universal coverage accessibility and geographic coverage as per the original assumptions if not already reached based on the existing capacity

The results coming out of these analyzes (Chapter 7) are presented in the form of tables, graphs and maps to be included into the analysis of maternal and new born health investments in the country.

Results

In the case of Mindanao Islands, the analyses performed indicate that:

- From an accessibility coverage perspective (see section 7.1), the MCP accredited facilities in place (public and private) are sufficient and well located to cover 83.4% of the birth among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth within 2 hours of travel time. Universal accessibility coverage, as defined in the context of this project, is therefore not reached for MCP accredited facilities;
- When looking at geographic coverage (see section 7.2), the percentage of births among this same population drops down to 76.5% meaning that universal geographic coverage is not reached neither.

The service utilization analyzes (see Section 7.3) does itself only serve as an illustration of the information that can be obtained when combining the results of an accessibility analysis with survey data, would the surveyed clusters be located using GPS devices..

Finally, the scaling up analysis (see Section 7.4) confirmed that the current configuration and capacity of MCP accredited facilities could be improved.

Key messages

Despite the data limitations described in Chapter 6 (mainly time discrepancies between datasets and GIS data quality issues), the results obtained provide a first set of evidence that should be considered for any strategic decision related to accessibility to MCP accredited facilities, especially for the poorest part of the population.

As we can see from Table 1, significant heterogeneity exists at the Provinces level when it comes to accessibility and geographic coverage. This heterogeneity is even more pronounced at the Municipality level where 49.3% of the Municipalities are below the 90% universal coverage benchmark for accessibility coverage perspective and 57.9% for geographic coverage.

In addition to that, and without considering Maguindanao Province, the majority of uncovered births (87.8% of all uncovered births) through the accessibility coverage analysis are finding themselves in Municipalities both below the 90% coverage benchmark as well as presenting a poverty incidence above 25% (Table 9) underlining therefore the potential difficulties for low income patients located in remote areas to easily access MCP accredited facilities.

The accessibility coverage analysis also demonstrated that any program aiming at financially supporting the transportation of pregnant women at the moment of delivery would have an important positive impact on their chance to reach an MCP accredited facility within 2 hours.

Comparing the Province level accessibility and geographic coverage figures (Table 1) with the density of MCP accredited facilities, expressed either by inhabitants or by births (Table 2), we can see that there is no correlation between the two. The current distribution of MCP accredited facilities does therefore not necessarily follow the distribution of the NHTS-PR registered beneficiaries (members and dependents) resulting in longer travel time for pregnant women to reach one of these facilities as well as a potential under use of the capacity of some of them.

PSGC	Province name	Accessibility coverage*	Geographic coverage**
097200000	Zamboanga del Norte	63.1%	59.8%
097300000	Zamboanga del Sur	88.8%	79.1%
098300000	Zamboanga Sibugay	85.0%	70.7%
101300000	Bukidnon	86.5%	86.3%
101800000	Camiguin	99.4%	99.5%
103500000	Lanao del Norte	80.2%	80.5%
104200000	Misamis Occidental	83.6%	83.0%
104300000	Misamis Oriental	93.2%	93.0%
112300000	Davao del Norte	95.6%	94.6%
112400000	Davao del Sur	79.6%	71.2%
112500000	Davao Oriental	76.0%	41.2%
118200000	Compostela Valley	90.4%	74.8%
124700000	Cotabato (North Cotabato)	84.1%	84.6%
126300000	South Cotabato	85.2%	86.1%
126500000	Sultan Kudarat	85.3%	74.1%
128000000	Sarangani	63.6%	62.9%
129800000	Cotabato City (not a province)	100.0%	100.0%
153600000	Lanao del Sur	79.6%	79.6%
153800000	Maguindanao	83.9%	83.9%
160200000	Agusan del Norte	89.7%	83.7%
160300000	Agusan del Sur	67.4%	47.6%
166700000	Surigao del Norte	96.6%	97.5%
166800000	Surigao del Sur	85.8%	56.1%
168500000	Dinagat Islands	80.9%	81.3%
	Study area	83.4%	76.5%

*Percentage of births located within 2 hours of travel to a MCP accredited facility (public and private) with the combined walking + vehicle scenario

**Percentage of births located within 2 hours of travel time to a MCP accredited facility (public and private) and for which there is enough capacity in the facilities

Table 1 – Province level results for the accessibility and geographic coverage analyzes

Province PSGC	Province name	Density of MCP accredited facility (public and private)	
		For 500'000 inhabitants	For 1'000 births among NHTS-PR population
097200000	Zamboanga del Norte	8.9	2.5
097300000	Zamboanga del Sur	11.9	2.8
098300000	Zamboanga Sibugay	7.7	1.6
101300000	Bukidnon	9.6	3.8
101800000	Camiguin	17.9	7.0
103500000	Lanao del Norte	9.7	3.3
104200000	Misamis Occidental	7.9	4.1
104300000	Misamis Oriental	7.4	3.9
112300000	Davao del Norte	7.9	3.6
112400000	Davao del Sur	10.6	5.6
112500000	Davao Oriental	3.9	1.6
118200000	Compostela Valley	2.9	1.0
124700000	Cotabato (North Cotabato)	2.0	0.7
126300000	South Cotabato	10.3	5.7
126500000	Sultan Kudarat	7.4	3.4
128000000	Sarangani	2.0	0.9
129800000	Cotabato City (not a province)	5.5	142.6
153600000	Lanao del Sur	7.0	6.6
153800000	Maguindanao	9.0	12.5
160200000	Agusan del Norte	11.7	4.4
160300000	Agusan del Sur	6.9	2.0
166700000	Surigao del Norte	15.8	5.3
166800000	Surigao del Sur	5.3	2.1
168500000	Dinagat Islands	7.9	4.2
	Total	8.3	3.4

Table 2 –Province level density of MCP accredited facilities

The results of the scaling up analysis did itself demonstrate actions aiming at favoring the accreditation of facilities in particular areas compare to cities would not only result in an increased accessibility and geographic coverage but also improve equity in access over the studied area.

At the same time, this analysis also confirms that other options might have to be considered for the population living in remote areas not necessarily well deserved by the road network.

Conclusion and recommendations

By analysing how accessible MCP accredited facilities are to NHTS-PR registered beneficiaries of PhilHealth and identifying potential gaps towards achieving Universal Health Care over Mindanao island, the present project can inform policy discussions on how to optimize or target the location and capacity of MCP accredited facilities in this part of the country.

Beyond the results obtained and presented here, the interaction and work done in collaboration with the Department of Health (DOH) of the Philippines and other key stakeholder in the context of this project demonstrates the benefit that the health sector would gain if the integration of geography and time into the Health information System (HIS) was improved, the GIS capacity of the DOH was further strengthened and GIS standards and procedures were to be agreed upon and collaboration improved not only within the health sector but also among all key producers of geo spatial information in the country.

Working on these points would not only ensure the transfer and sustainability of the methods used here but open opportunities to use the integrating and visualization power of geography and GIS in other health areas such as emergency preparedness and response, disease surveillance, immunization or programme delivery.

As such, the main recommendations are for WHO and the DOH to continue collaborating in this area, to continue the work aiming at institutionalizing the integration of geography and time in the Health Information System (HIS) as well as strengthening DOH GIS capacity, to implement and expand the present analysis in other part of the country as well as look at other potential applications of this type of work within the health sector.

1. Introduction

Maternal mortality is still relatively high in the Philippines and, according to the MDG watch, Maternal Mortality Rate (MMR) is still far from the 2015 target in the country.

Among the population, those part of the lowest income quintiles are particularly vulnerable when it comes to care in general, Maternal and Newborn Health (MNH) care in particular.

As such, the Universal Health Care program (Kalusugan Pangkalahatan) has been launched by the Department of health to "Ensure equitable access to quality health care by all Filipinos beginning with those in the lowest income quintiles".

In addition to that, the Maternity Health Care Package (MCP) for normal spontaneous delivery (NSD) initiated under the umbrella of the Health Insurance Corporation (PhilHealth) is there to cover the financial needs during delivery as well as pre and post natal services like antenatal check-up, family planning services and immunization. While open to poor and non-poor, several of the MCP accredited facilities are operating with the support from the Local Government Units (LGUs) to benefit the poor members in rural areas.

The objective of the work that has been conducted here is therefore to analyse how accessible MCP accredited facilities are to NHTS-PR registered beneficiaries (members and dependents) of PhilHealth in one part of the Philippines as well as identify potential gaps towards achieving Universal Health Care in this area.

The present report first describes the analytical methods, tool and data that have been used in order to conduct these different analysis over the study area before presenting the results which have been obtained through the implementation of these methods.

2. Choice of the study area

The financial resources at disposal to the project being not sufficient to cover the entire country it has been decided to concentrate on one particular area.

Looking at the spatial distribution of the Municipality level small area poverty incidence (Figure 1) produced for 2009 by the National Statistical Coordination Board (NSCB) [1] we can observe that the southern part of the country contains the highest density of municipalities presenting a poverty incidence above 46%.

It has therefore been decided to focus this project on this part of the country, more precisely on the 24 Provinces reported in Annex 1. This Annex does also provide the indication of the Region in which these Provinces are located as well as their

corresponding Philippine Standard Geographic Code (PSGC). Figure 2 does itself present these Provinces on a map.

The study area cover the complete surface of 4 Regions (Region X, XI, XII and XII (Caraga)) as well as two of the Province part of the Autonomous Region in Muslim Mindanao (ARMM) and 3 of the Provinces in Region IX (Zamboanga Peninsula).

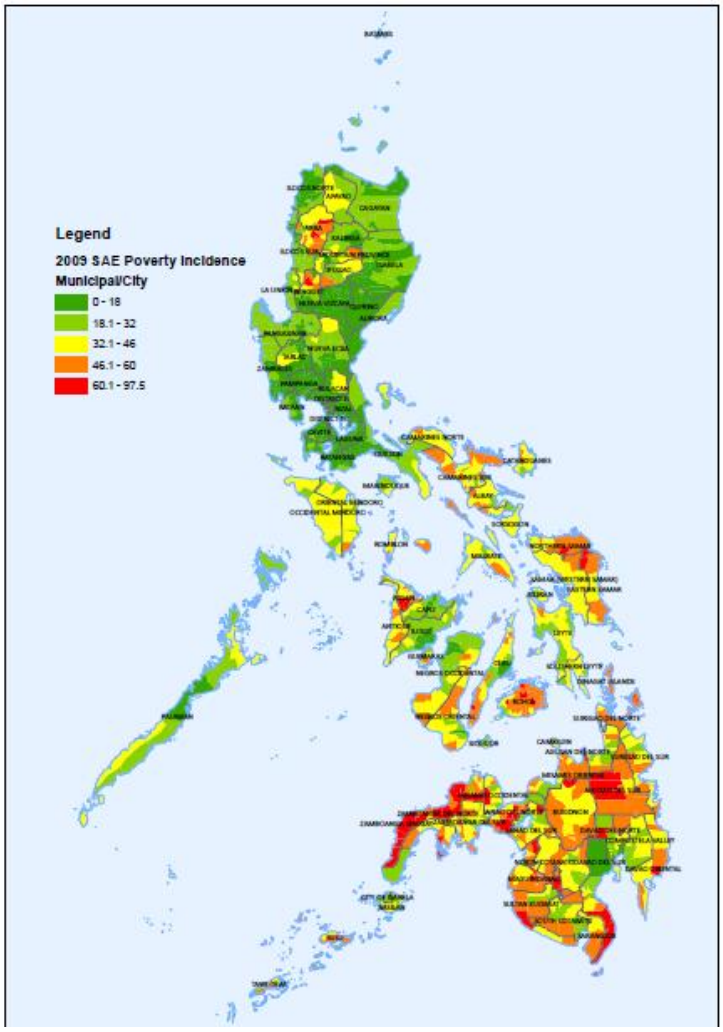

Figure 1 – 2009 Municipality level small areas estimates for poverty incidence [1]

Figure 2 – 24 Provinces on which the project has been implemented

3. Assumptions used during the project

The following assumptions are considered in the context of the present project:

- Skilled birth attendance means a birth attended by a medical worker qualified to perform a normal delivery (midwife, nurse or trained doctor). These skilled birth attendants should normally be capable of performing the Basic Emergency Obstetric Care life saving interventions. As such, births should be attended by skilled health personnel in a facility able to provide all the 7 Basic Emergency Obstetric Care (BEmOC) signal functions. The availability of these signal functions has nevertheless not been considered in the context of the present project;
- Maternal Care Package (MCP) accredited facilities are health facilities accredited by the Philippine Health Insurance Corp (Philhealth) for reaching certain standards in terms of infrastructure, staff and equipment. Normal Spontaneous Deliveries (NSD) taking place in these facilities are covered by PhilHealth through a case payment scheme in claims reimbursement. The MCP package is only accessible to PhilHealth members;
- The maximum acceptable travel time from home to reach a MCP accredited facility is of 2 hours. This intends to account for the standard regarding the availability of services set to be between 2 and 3 hours in the 2009 hand book for monitoring emergency obstetric care [2];
- It is considered that women would walk or be carried from their home to the nearest road. This would take place during early labour (assuming that a birthing plan has been developed and that the woman has the support of her family to

initiate care seeking as labour commences). At this stage in the delivery process a 50% reduction in walking speed is assumed. Upon reaching a road or a maritime transportation route, women would then travel by a motor vehicle (car, truck, boat,..) to the nearest MCP accredited facility. The analysis will include an alternative scenario where women are assumed to travel to the MCP accredited facility by foot alone. This scenario is considered in order to estimate the gains made by financially supporting women to be able to access transportation media;

- The project focusing on the population among the lowest income quintiles, the different analysis have been performed on the births among the National Household Targeting System for Poverty Reduction (NHTS-PR) registered beneficiaries (Member + Dependent) of PhilHealth as these are those who should benefit first from the financial coverage offered by the MCP. Are therefore considered in this study births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth;
- This being said, access to the MCP is not limited to National Household Targeting System for Poverty Reduction (NHTS-PR) but accessible to all PhilHealth members. The present study does nevertheless look at estimating if the current location and capacity of MCP accredited facilities is sufficient to cover births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth taking into consideration that this capacity should normaly be higher to also cover the other PhilHealth members.
- The program of Action of the International Conference on Population and Development (ICPD) and more particularly paragraph 64 of the resolution adopted by a special session of the UN General Assembly in 1999 regarding the key actions for the further implementation of the programme of action of the ICPD states that [3]: "All countries should continue their efforts so that globally, by 2005, 80 per cent of all births should be assisted by skilled attendants, by 2010, 85 per cent, and by 2015, 90 per cent." While MCP accredited facilities do not represent the only type of facilities providing skilled birth attendance, they have been considered as such in the context of this analysis to see if they could cope with the demand would all births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth take place in such type of facility.

It is important to note here that this model:

- Does consider:
    - That women have enough resources in order to pay for the transportation on the road network or maritime route;
- Does not consider:
    - The availability of waiting homes to allow for women living in remote areas to come close to MCP accredited facility before the due date;
    - Demand generation activities (where demand appears to be lower than supply)
    - Improving transport links (e.g., improving the quality of some roads) and the expected impact on accessibility.

In addition to that, this project did not look at the need for referral to an Emergency Obstetric and Newborn Care facility in case of complication during delivery.

The present work is therefore looking at estimating the accessibility and geographic coverage offered by the current network of MCP over Mindanao islands (Figure 2).

4. Tool used for the different analysis: AccessMod 4.0

All analyzes conducted in the context of this project have been possible thanks to the use of AccessMod ©.

AccessMod© is a toolbox that has been developed by WHO to provide Ministries of Health, and other health partners, with the possibility to use the power of Geographic Information System (GIS) to:

- Measure physical accessibility to health care,
- Estimate geographical coverage (a combination of availability and accessibility coverage) of an existing health facility network,
- Complement the existing network in the context of a scaling up exercise or to provide information for cost effectiveness analysis when no information about the existing network is available.

AccessMod© uses the functions of Esri's GIS technology to apply a specific set of algorithms on a series of GIS layers containing the information influencing the time taken by a patient to reach the nearest health facility depending on the mode of travel (for example, by feet, by car, etc).

As GIS technology evolves, and to address needs specific to the present project, a new version of AccessMod (version 4.0) has been developed to work on a more recent version of Esri's technology, ArcGIS 9.3.1 software. This version of AccessMod is freely accessible either through the WHO [4] or Esri ArcGIS online [5] web sites and comes with a user manual and a sample dataset to guide users on the use AccessMod's different modules, namely:

- Module 1 tocreate the combined land cover distribution grid and the travelling scenario table on the basis of the land cover, road and hydrographic network layers;
- Module 2 to measure the travelling time to or from for a given health facility network;
- Module 3 to analyse the geographic coverage an existing health facility network through the generation of catchment areas and determination of the population covered by each of the facilities;
- Module 4 to determine the locations for new health facilities, and the population they cover, to scale up an existing network or to perform different analysis when no information about the location of the existing health facility networks is available (e.g. for cost-effectiveness analysis).

5. Analytical approach

The present project covered 4 specific analyses:

1. Accessibility coverage: Measure of the proportion of births taking place within 2 hours of travel time of a facility providing MCP;
2. Geographic coverage: Proportion of birth within 2 hours of travel time of a MCP with enough capacity to cover all births if normal delivery;
3. Service utilization: Comparison between the accessibility/geographic coverage analysis and data on actual service utilization
4. Scaling up: Provision of the necessary information to allow for an estimation of the cost to reach universal coverage as per the original assumptions if not already reached based on the existing capacity

These objective, method and outputs for each of these analyses are described in more detailed in the following sections.

5.1 Accessibility coverage analyzes

Objective: Measure physical accessibility to facility providing MCP through the following indicators:

1.1 At the national and sub national level, the proportion of births, among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, located within 2 hours travel time from a MCP facility (making the separation between public and private facilities);

1.2 At the health facility level, the number and percentage of births, among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, reaching a MCP facility within 2 hours of travel time;

Method: The methodology takes into account the location of the MCP facilities, the environment that the patient will have to cross to reach the nearest care provider (including the hydrographic network as barriers), the road network as well as the following transportation scenarios: walking outside of the road network/maritime route and then a motor vehicle on the road network/maritime route.

In this first analysis, as well as all the other subsequent ones, the total number of births is spatially distributed using the approach described in section 6.2.8.

Outputs:

1. Map presenting the spatial distribution of the travel time to the nearest MCP accredited facility;

2. Excel file presenting the min, max and mean travel time to the nearest MCP accredited facility for each sub national unit (one scenario only: walking + vehicle on the road network/maritime route);
3. Map presenting the extension of the 2 hours catchment area surface on top of the spatial distribution of the number of births (walking + motor vehicle on the road network/maritime route scenario);
4. Excel file presenting, at the country and sub-national level, the total number and percentage of births within 2 hours from a MCP accredited facility (for two scenarios: walking only, and walking + motor vehicle on the road network/maritime route);
5. Map presenting, at the sub national level the percentage of births within 2 hours of a MCP accredited facility (walking + motor vehicle on the road network/maritime route);
6. Graphs and tables analysing a potential relationship between poverty incidence and accessibility coverage.

5.2 Geographic coverage analyzes

Objectives: Add the availability of human resources to the first analysis in order to identify potential gaps when it comes to reaching universal geographic coverage for the births located within 2 hours of travel time of MCP accredited facilities (walking + motor vehicle on road network/maritime route).

Method: Geographic coverage analysis combines both availability and accessibility coverage into one unique measure.

The method used for this analysis therefore consists in:

- Estimating the coverage capacity of each MCP by multiplying its total number of staff qualified to attend a normal delivery with the workload national norm or WHO's norm if the national one is not available (175 births per year per medical staff)
- Applying the third module of AccessMod to define the catchment area of each MCP facility using the above estimated coverage capacity and 2 hours of travel time;
- Verifying that we are still above 90% of all births being covered through this analysis

The processing order used when looking at geographic accessibility to MCP facilities is as follows:

- Public before private facilities as the poorest part of the population is most likely to go to a public facility when possible,
- Decreasing order of the coverage capacity of each MCP facility (number of staff qualified to attend normal deliveries multiplied by the workload national or WHO (175 births per staff per year) norm. If the staffing information is not

available, then by decreasing order of the population living within the immediate vicinity (5 km) of the facility to treat the most populated areas first;

- Decreasing order of the number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth in the Municipality where the facility is located in order to prioritize Municipalities with a higher number of births.

If the information is available, a comparison between the modelled number of births reaching each MCP facility and the real number of skilled attended births, among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, for a recent year can then be performed.

The first part of the analysis depending very much on the existence of national workload norms as well as on health facility level data (number of medical staff qualified to attend a normal delivery) different options have to be considered.

In the case of the present project, neither the national norms nor facility level data on health workers were available. The maximum coverage capacity of each facility type has therefore been estimated in consultation with the WHO Country office and applied in the calculation.

It is important to mention here that the present analysis could be used to inform a potential adjustment of the national norms for MCP requirements, as part of a policy discussion to take place in the country.

Outputs:

1. Excel file containing separated worksheets for:
    a. the number of births, among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, covered by each MCP facility taking2 hours of travel time and its respective coverage capacity into account. Real number of births will also be included in this worksheet if the information is available
    b. at the country and sub-national level, the total number and percentage of births, among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, within 2 hours from a MCP accredited facility (walking + motor vehicle on the road network/maritime route) and for which there is enough capacity to cover the demand, figures to measure universal geographic coverage;
2. Graph and table analysing a potential relationship between poverty incidence and geographic coverage.

5.3 Service utilization analyzes

Objective: Compare the actual utilisation of services, with the theoretical accessibility and geographic coverage obtained in the first and second analysis.

Method: Data collected in the context of the most recent DHS, or equivalent household survey, are combined with the results of the first analysis at both the cluster and sub national level to obtain a map and a graph allowing for the comparison.

Output:

1. Map showing the spatial distribution of cluster level un-attended home deliveries from DHS on top of the 2 hours catchment area from the accessibility coverage analysis as well as the catchment areas obtained through the geographic coverage analysis
   1.1 Graph that compares, at the sub national level:
      1.1.1 the percentage of births that could have taken place in a MCP accredited facility as within 2 hours of travel time (walking + motor vehicle on the road network/maritime route) with the percentage of births delivered in a health facility (all levels) from DHS (e.g., in district X 75% of births were within 2 hours access but only 45% of women had a delivery in a facility).
      1.1.2 the percentage of births that could have taken place in a MCP facility as within 2 hours of travel time (walking + motor vehicle on the road network/maritime route) and with enough capacity to cover the demand with the percentage of births delivered in a health facility (all levels) from DHS

5.4 Scaling up analyzes

Objective: Provide a scenario to reach geographic universal coverage in the area (90% of all births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth reaching an MCP accredited facility within 2 hours of travel time and enough capacity to cover the demand).

Method: The method used for this analysis depends on the results of the geographic coverage analysis, namely:

1. If the results of the geographic coverage analysis shows that 90% of all births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth in the study area can reach a MCP accredited facility within 2 hours and that these facilities have enough capacity to cover the demand than the geographic coverage analysis provides already all the information for the scaling up exercise
2. If the results of geogrpahic coverage analysis shows that ***less than*** 90% of all births among the NHTS-PR registered beneficiaries (members and dependents) of

PhilHealth in the study can reach a MCP accredited facility within 2 hours and/or that these facilities do not have enough capacity to cover the demand, then the analysis will be completed by expanding the current network of MCP accredited facilities until reaching 90% of all births. This will be done by:

a. First looking at expanding the coverage capacity (number of staff qualified to attend a normal delivery) of existing MCP accredited facilities;
b. Adding new MCP accredited facilities if necessary (for that, national norms or, if not available, WHO norms regarding the number of births covered by skilled birth attendant per year will be used to determine different types of facilities to be located).

Output:

As mentioned here above, the outputs will depend on the results of the geographic coverage analysis:

1. 1st case here above:
   - The files obtained from the geographic coverage analysis will be used for the cost analysis
2. 2nd case here above:
   - Excel file containing the list of the new MCP accredited facilities, including corresponding number of skilled birth attendant that would be needed in order to reach universal coverage (the cost analysis would then be conducted on the basis of the results from geographic coverage analysis + this new file)
   - Map showing the location of the new MCP accredited facilities on top of the existing ones

These outputs could then be used to estimate the cost for scaling up the existing MCP provision to reach universal geographic coverage as considered in the context of this project.

They could also be used to evaluate the pertinence of the current indicators when it comes to the geographical distribution of MCP accredited facilities.

6. Data and national norms used in the different analysis

Performing the different analysis considered in the context of this requires an important volume of data that can be grouped into three main categories:

- Statistical data,
- Geospatial data,
- National norms.

From a statistical point of view, this concerns data collected at different levels, namely:

1. At the national level:
   i. Urban/rural Crude Birth Rate (CBR);
2. At the sub national level:
   i. Total population;
   ii. Total number of births for a recent year;
   iii. Percentage of the population under the National Household Targeting System for Poverty Reduction (NHTS-PR) program;
   iv. Small Area poverty estimates.
3. At the cluster level (Household survey):
   i. Total number of unattended home deliveries.
4. At the health facility level:
   i. Number of medical staff qualified to attend normal deliveries (skilled birth attendant);
   ii. Total number of MCP sponsored deliveries for a recent year.

From a geospatial perspective, the different analysis requires to have the following GIS layers at disposal:

1. Administrative boundaries matching the level of desegregation of the sub national statistical data;
2. Geographic location of all the MCP accredited facilities,
3. Road network;
4. Hydrographic network (major rivers and water bodies);
5. Location and extension of the cluster for the household survey data;
6. Land cover including the extend of urban areas;
7. Digital Elevation Model (DEM);
8. Spatial distribution of the number of birth.

In addition to these layers, mosaic of satellite images have been used as ground reference to evaluate the accuracy, and to some extend level of completeness, of the different layers as well as insure consistency among the different source of GIS data used for each country. The mosaics used in the context of this project have been collected through the Landsat ETM+ program and can be downloaded from the Earth Science Data Interface (ESDI) at the Global Land Cover Facility [6].

When it comes to national norms, the different analysis required having the following in hands:

1. Workload for skilled birth attendant in MCP accredited facilities;
2. Maximum expected travel speed for the different transportation media and road type considered for the analysis.

The following sections describes more in details the sources of the data and norms used in the context of project presented as well as the potential preparation, adjustments or transformations that have been operated on the data in order to obtain the final dataset necessary to implement the different analysis described in Chapter 5.

It is important to emphasize here the temporal discrepancies that exist between the different datasets that have been used. From a statistical perspective, the data used range from 2008 (DHS) to 2013 (NHTS-PR registered beneficiaries (members and dependents) of PhilHealth). In addition to that, it is very difficult to estimate the representativeness of some of the GIS layers used in the different analysis, mainly the road network and land cover. A temporal shift is therefore possible between the two types of data and has to be taken into account when analyzing the results presented here.

6.1 Statistical data

6.1.1 National level figures

The only national level figure used in the context of this project is the urban/rural Crude Birth Rate (CBR) estimated during the 2008 Demographic Health Survey (DHS) [7] as follow:

- Urban: 23.4
- Rural: 24.6

6.1.2 Sub national level figures

The first indicator needed at the sub national level was a municipality level estimation of the number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

The Municipality level number of National Household Targeting System for Poverty Reduction (NHTS) registered beneficiaries (Member + Dependent) of PhilHealth as of May 2013 has itself been provided by PhilHealth.

This dataset contains figures for 405 municipalities covering the 24 Provinces selected for this project. The Province level aggregation for these figures is reported in Annex 1 where we can see that we reach a total population of 7’182’966 NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

It is important to mention here that dependents might not necessarily be living in the same Municipality than the PhilHealth member to which they are attached to but this information is unfortunately not available. It has been considered here that the dependents would all be living in the same Municipality than the PhilHealth member they are attached to.

It was then expected that the total number of births within this population could be estimated through the following process:

1. The Municipality level percentage of the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth would be estimated by dividing the total number of people under that program by the respective total population;
2. The percentage obtained under step 1 would then be multiplied by the number of births reported in the 2010 census to obtained the final desired figure.

Unfortunately, this approach could finally not be applied for the following reasons:

- Municipality level population figure is only available for the 2010 population and housing census [8]. This dataset provides total population figures for 412 municipalities forming the 24 Provinces considered in this project;
- Municipality level number of births is also available from the 2010 population and housing census [8]. In this case, 403 municipalities are covering the 24 Provinces.

As we can see, the data that were available to implement this approach do present two major limitations:

- The number of municipalities differs from one dataset to the other making it difficult to join the different information together to obtain the final figure;
- There is an important temporal difference between the census data (2010) and the NHTS-PR data (2013). Projecting the total population and number of births at the municipality level, even for 3 years, could have induced important errors and inconsistencies in the results.

In view of the above, it has finally been decided to estimate the municipality level number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth as follow:

1. The 2010 census total population and number of births have been aggregated at the Province level (Annex 1);
2. A Province level specific Crude Birth Rate has then been calculated using the Province level figures obtained under point 1 (Annex1);
3. The Province level CBR obtain under point 2 has been applied on the Municipality level total number of NHTS-PR registered beneficiaries (members and dependents) of PhilHealth to obtain the final number of births among this population.

The Province level aggregated figures for this number of births is reported in Annex 1 as well.

Please note that further adjustments had to be made to this dataset in order to make it match the Municipality level boundaries map. Please refer to Section 6.2.1 for more details regarding this adjustement.

When it comes to poverty incidence, the small area estimates produced by the National Statistical Coordination Board (NSCB) for 2009 have been used here [9].

These figures are provided down to the Municipality level but without including the PSGC. These codes have therefore been added manually in the dataset using the list of municipalities coming from the 2010 population and housing census as the reference.

When it comes to the 24 Provinces considered in this project, this results in a poverty incidence figure for 409 municipalities (the 412 municipalities from the 2010 census minus the following ones in the Maguindanao Province: Datu Hoffer Ampatuan, Datu Salibo and Shariff Saydone Mustapha).

6.1.3 Cluster level figures (Provinces)

The cluster level number of non-assisted home deliveries was obtained from the 2008 DHS [7]. In this case, the figures had to be extracted from the original record level dataset and aggregated to the cluster level using the following process:

1. The original record level dataset has been obtained from MEASURE DHS
2. From the set of tables received from MEASURE DHS, the BR61SV-BirthsRecode one as then been used for the rest of the process
3. The following indicators have been extracted from the BR61SV-BirthsRecode table:
    - CASEID Case Identification
    - V001 Cluster number
    - M3A Assistance: doctor, medical assistant
    - M3B Assistance: midwife
    - M3C Assistance: nurse
    - M15 Place of delivery
4. All the deliveries which did not took place at home were removed from the dataset: Place of Delivery (M15) = 10 (Homes) or 11 (Responsdent's home) or 12 (Other home)
5. The remaining records presenting the following values for the 4 other indicators where then kept:
    - Assisted by doctor, medical assistant M3A = No
    - Assisted by nurse, M3B = No
    - Assisted by midwife, M3C = No
6. The remaining records were then summed by cluster ID in order to obtained the cluster level number of non-assisted home deliveries

The final dataset contains a value for 535 clusters distributed over the all country.

Those falling within the study area were then extracted from this dataset, this concerns a total of 171 cluster (see section 6.2.7). Please note that due to the random shifting operated by MEASURE DHS, some of these points are falling on the sea. This has been taken into account when performing the different analyzes.

6.1.3 Health facility level figures

The list of active MCP accredited facilities as of December 2012 has been provided by PhilHealth.

This list counts 341 facilities (194 public and 147 private) distributed over the study area (Annex 2 for the complete list and Table 3 for the distribution by Province).

Please note that in Annex2:

- the MCP code is a code that has been provided by PhilHeatlh;
- The spelling of the health facility name also comes from PhilHealth database and, as such, do not always match the spelling reported in DOH's National Health Facility Registry (NHFR) [10];
- Not all the MCP accredited facilities are currently reported in the NHFR. As such, it has therefore not been possible to attach a DOH code to all of them;
- The PSGC codes for the Regions, Provinces and Municipalities/Cities are those provided by the National Statistical Coordination Board (NSCB) as of March 2013.

Unfortunately, the information regarding the number of medical staff qualified to attend normal deliveries in MCP accredited facilities has not been obtained in the context of the present project because it is not automatically captured in PhilHealth database.

When it comes to the total number of MCP sponsored deliveries, PhilHealth could provide us with the 2012 figures for 226 facilities (66%). These figures are also reported in Annex 2.

It is already interesting to mention here that:

- 53.8% of 19'766 births reported for these 226 facilities took place in a private facility;
- 53.3% of the reported births took place in a MCP accredited facility located in a city.

The two figures are very close to each other because 80% of the 113 MCP accredited facilities located in cities are private.

PSGC	Province name	Total number of MCP accredited facilities	Number of Governmental MCP accredited facilities	Number of Private MCP accredited facilities
097200000	Zamboanga del Norte	17	15	2
097300000	Zamboanga del Sur	42	38	4
098300000	Zamboanga Sibugay	9	9	0
101300000	Bukidnon	25	17	8
101800000	Camiguin	3	2	1
103500000	Lanao del Norte	18	14	4
104200000	Misamis Occidental	9	6	3
104300000	Misamis Oriental	21	8	13
112300000	Davao del Norte	15	1	14
112400000	Davao del Sur	49	4	45
112500000	Davao Oriental	4	3	1
118200000	Compostela Valley	4	1	3
124700000	Cotabato (North Cotabato)	5	2	3
126300000	South Cotabato	28	13	15
126500000	Sultan Kudarat	11	8	3
128000000	Sarangani	2	2	0
129800000	Cotabato City (not a province)	3	0	3
153600000	Lanao del Sur	13	8	5
153800000	Maguindanao	17	13	4
160200000	Agusan del Norte	15	5	10
160300000	Agusan del Sur	9	7	2
166700000	Surigao del Norte	14	12	2
166800000	Surigao del Sur	6	4	2
168500000	Dinagat Islands	2	2	0
	Total:	341	194	147

Table 3 – Province level distribution of the MCP accredited facilities

6.2 Geospatial data

In order to ensure compatibility between the difference sources of GIS data, and in order for AccessMod to produce correct results, all the GIS data presented in this section have been homogenized in terms of projection and spatial resolution (for GIS data in raster format).

When it comes to projection, it has been decided to use the Universal transverse Mercator (UTM) projected coordinate system as the data needs to be projected in a metric system when using AccessMod. Here are the different elements that define this particular projected coordinated system when it comes to the UTM zone in which Mindanao Island is located (Zone 51 North) as it appears in Esri's GIS software:

- Projected Coordinate System: WGS_1984_UTM_Zone_51N
- Projection: Transverse_Mercator
- False_Easting: 500000.00000000
- False_Northing: 0.00000000

- Central_Meridian: 123.00000000
- Scale_Factor: 0.99960000
- Latitude_Of_Origin: 0.00000000
- Linear Unit: Meter

The geographic coordinate system on which the UTM system is the following:

- Geographic Coordinate System: GCS_WGS_1984
- Datum: D_WGS_1984
- Prime Meridian: Greenwich
- Angular Unit: Degree

The spatial resolution of the GIS data in raster format used in this project (land cover, DEM and birth distribution) has itself been decided based on two criteria:

1. The resolution of the freely available data for the concerned layers;
2. The volume of RAM memory in the computer used for performing the different analysis as this is unfortunately one of the limiting factor when using AccessMod.

In view of the above, the spatial resolution that has been used is of 500 meters once projected according to the above-mentioned projected coordinate system.

AccessMod performing the different analysis in raster format, 500 meters is to be considered as a low resolution that induces an important simplification of the reality.

As an example, a road, which in the reality would seldom be wider than 10 meters, would be presenting a width of 500 meters during the different analysis. This has two major implications:

1. The traveling speed within the cells crossed by road segments would be higher than in the reality as the model would consider the patient to be travelling by road over the all surface of these cells while he would normally still have to cross some lands by feet before reaching the road;
2. When roads are located along rivers the combination of the layers in AccessMod might result into the creation of “fake bridges” and therefore potential crossover that do not exist in the reality.

While it has been possible to make some adjustments in the road and hydrographic GIS layers regarding the second point (see section 6.2.5) nothing can unfortunately be done when it comes to the first one.

Because of this, catchments areas obtained with AccesMod tend to be a little bit bigger than what they should be. This being said, this error has been quantified and could finally happen to be smaller than those generated by some of the other assumptions made in the context of this project.

Taking the above into account, the follow sections describe more in details the source of the GIS data that have been used in the context of this project as well as the modifications that have been performed on them before conducting the different analysis described in Chapter 4.

6.2.1 Administrative boundaries

According to the list of administrative divisions provided by NSCB, the study area is composed of 412 municipalities as of March 2013.

Unfortunately, a map showing the delimitation of these 412 municipalities is not yet available in the country.

In the meantime, two administrative boundaries map were necessary in order to be able using the municipality level figures collected in the context of the project (Section 6.1.2), namely a map containing the delimitation of the:

- 409 municipalities for which we have data on poverty incidence (Small Area Estimates, 2009);
- 405 municipalities for which we have the number of NHTS-PR registered beneficiaries (members and dependents) of PhilHealth (PhilHealth, 2012).

The most complete map in GIS format available at the time of performing the different analysis was the one from NAMRIA with 395 municipalities.

This map presenting a good match with the Landsat mosaic used here as ground reference (see the beginning of Chapter 6) it has been decided to look at adjusting it to match the needs of the project.

Unfortunately, it has only been possible to add two more municipalities (San Idriso in Davao Del Norte Province and Lumaca-Unayan in Lanao Del Sur Province) to this map using information found on the internet.

Doing so, the match between the March 2103 list from NSCB and NAMRIA's GIS map is obtained for 23 of the 24 Provinces forming the study area (376 Municipalities). For the last Province, Maguidanao in ARMM Region, the information needed to add the 15 missing municipalities was not available on the internet.

In view of the above, it has finally been decided to only consider the 23 provinces for which there is a match between the PCGC list and the modified NAMRIA map when using the 2009 small area poverty estimates. The map in question is reported in Figure 3 and shows the Province of Maguidanao without Municipalities.

Figure 3 – Map from NAMRIA modified to match the small area poverty estimates in 23 Provinces

In the case of the number of NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, several changes had to be operated on both the map from NAMRIA and the NHTS-PR dataset received from PhilHealth in order to obtain a match between both.

The municipality level GIS format map provided by PhilHealth has been used to modify the map from NAMRIA. These changes are as follow:

- The Municipalities of Lubaca-Unayan and Lumbatan (Lanao del Sur) have been merged to form the previously existing Municipality of Lumbatan Municipality,
- The Municipalities of Butig and Sultan Dumalondong (Lanao del Sur) have been merged to form the previously existing Municipality of Butig,
- The Municipalities of Talitay and Talayan (Maguindanao) have been merged to form the previously existing Municipality of Talayan,
- The Municipalities of Pagagawan and Kabacan (Cotabato (North Cotabato)) to form the previously existing Pagalungan Municipality,
- The Municiaplities of Braulio E. Dujali and Carmen (Davao del Norte) have been merged to form the previously existing Municipality of Carmen,
- The Municipalities of Asuncion (Saug), Kapalong and San Idriso (Davao del Norte) have been rearranged to form the previously existing municipalities of Asuncion (Saug) and Kapalong;

When it comes to the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, the figures reported for 22 Municipalities from the Maguindanao Province had to be merged as per the information reported in Table 4 in order to obtain the match with the map presented here above.

Municipality name (PhilHealth 2013 dataset)	Municiaplity name (final dataset)	PSGC code
AMPATUAN	AMPATUAN	153801000
DATU ABDULLAH SANGKI		
BULUAN	BULUAN	153803000
MANGUDADATU		
SULTAN SA BARONGIS (LAMBAYONG)	SULTAN SA BARONGIS (LAMBAYONG	153813000
RAJAH BUAYAN		
DATU PIANG	DATU PIANG	153806000
DATU SAUDI AMPATUAN		
GEN. SALIPADA K. PENDATUN	GEN. S. K. PENDATUN	153819000
PAGLAT		
KABUNTALAN (TUMBAO)	KABUNTALAN (TUMBAO)	158405000
NORTHERN KABUNTALAN		
SHARIFF AGUAK (MAGANOY)	SHARIFF AGUAK (MAGANOY)	153808000
DATU UNSAY		
SULTAN KUDARAT (NULING)	SULTAN KUDARAT (NULING)	158408000
SULTAN MASTURA		
TALAYAN	TALAYAN	153816000
GUINDULUNGAN		
TALITAY		
DATU ANGGAL MIDTIMBANG		
UPI	UPI	158410000
DATU BLAH SINSUAT		

Table 4 – Merging of Municipalities in the Maguindanao Province to obtain the match between the NHTS-PR dataset from PhilHealth and the NAMRIA municipality boundaries layer

At the end of this process, we obtain both a datasets and a map (Figure 4) that contain the number of NHTS-PR registered beneficiaries (members and dependents) of PhilHealth for 392 municipalities over the study area.

Figure 4 – 392 Municipalities boundaries map matching the NHTS-PR head count dataset

The Province level boundaries map (Figure 2) has been obtained by merging the corresponding Municipalities together from NAMRIA Municipality boundaries level map (Figure 4).

Unfortunately, the quality of the editing work performed by NAMRIA created numerous holes in the resulting map (example on Figure 5).

While these holes have been corrected manually on the Province level boundary map the resources at disposal of the project were not sufficient to operate this cleaning at the Municipality level.

Finally, it is also important to mention here that the PSGC have been added manually in the attributes table of all the maps presented because they were not integrated in the first place in the GIS layer received from NAMRIA.

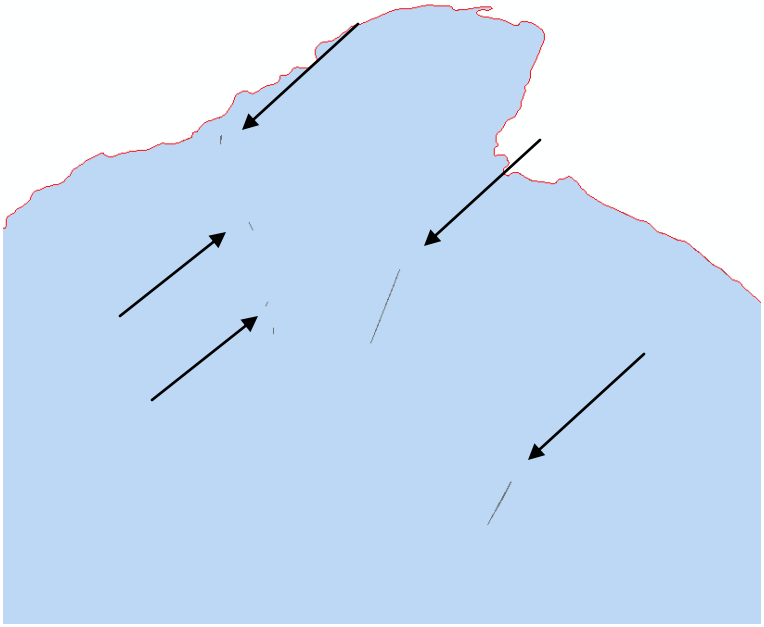

Figure 5 – Example of editing problems in NAMRIA's Municipality boundaries GIS layer

6.2.2 Geographic location of MCP accredited facilities

The Department of Health (DOH) is still in the process of getting a geographic coordinate for each health facility in the country and Mindanao being one of the Regions in the country were collecting data in the field is not easy.

As such a geographic coordinate, collected with a GPS were only available for 165 (57 collected by the Regional Center for Health Development (CHD), 25 by NAMRIA in 2000 and 83 by PhilHealth) of the 341 MCP accredited facilities (see section 6.1.3 and Annex 2).

Different approaches have then been used to obtain a location for the remaining 176 facilities. These approaches include:

- Identifying the location directly on the satellite images accessible in Google Map (9 facilities);
- Using an online database containing the location of maternity clinics in Davao visible from Google Map (https://maps.google.com/maps/ms?msid=216795801736214638821.0004d1766490e0468f74b&msa=0&ie=UTF8&t=m&source) (15 facilities);
- Using the delimitation of the Barangay in which the facility is located in connection with the road network to get an approximate potential location for the facility (52 facilities);

- Using the address of the facility and the road names in Google Map to obtain an approximate location of the facility (61 facilities);
- Using the location of a landmark known as being close to the facility (39 facilities)

Once all these coordinates stored in an excel file, these have been displayed on top of the Landsat satellite images mosaic as well as the final road network (see section6.2.4) to make any last adjustment in order to avoid facilities to be located on water bodies and or on areas where they are most likely not located (top of a mountain for example).

Annex 2 contains the final geographic coordinates, both in decimal degrees (geographic projection) and in the metric system (UTM Zone 51 N) as they have been used in the context of the present study. Figure 6 shows the location of these facilities making the distinction between those that are managed by the government from those managed by the private sector.

In view of the mixed approaches that have been used it is clear that this location remains approximate for most of the health facilities. This uncertainty is therefore to be taken into account when looking at the results from the different analysis conducted here.

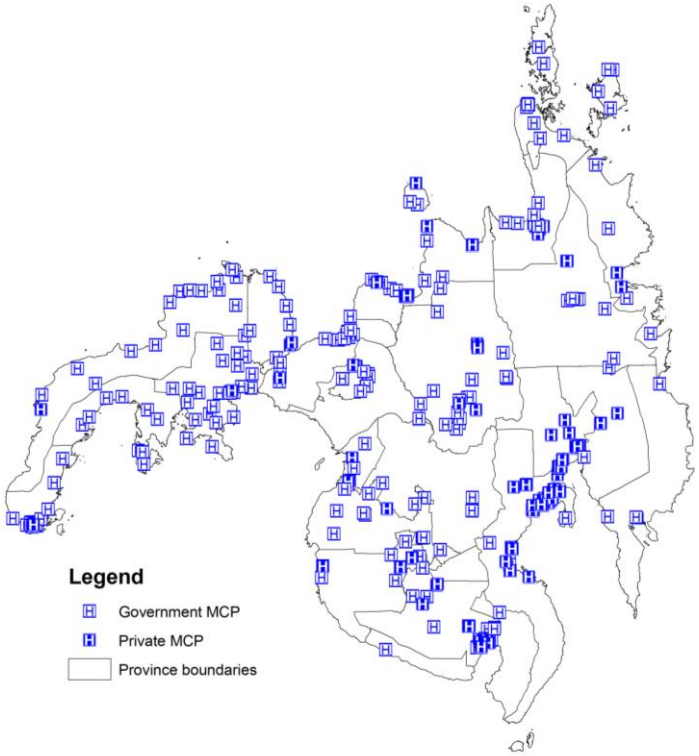

Figure 6 – Location of the MCP accredited facilities over the study area

6.2.3 Land cover including the extend of urban areas

This project used the land cover distribution GIS layer generated by NAMRIA.

The original vector format layer contains 20 land cover types that have been regrouped in order to obtain a simplified classification in six types (Table 5).

Once the simplified classification applied on NAMRIA's original layer, the last step consisted into converting it into a grid presenting a resolution of 500 m. The grid in question is presented in Figure 7.

Original NAMRIA land cover types	Original NAMRIA landcover classes	Final land cover types	Final land cover classes
Closed forest, broadleaved	1	Dense vegetation	5
Closed forest, mixed	2	Dense vegetation	5
Open forest, broadleaved	4	Dense vegetation	5
Open forest, mixed	5	Dense vegetation	5
Mangrove forest	7	Water	6
Forest plantation, broadleaved	8	Dense vegetation	5
Forest plantation, coniferous	9	Dense vegetation	5
Other wooded land, shrubs	10	Medium dense vegetation	4
Other wooded land, fallow	11	Medium dense vegetation	4
Other wooded land, wooded grassland	12	Low dense vegetation	3
Other land, natural, barren land	13	Bare areas	1
Other land, natural, grassland	14	Low dense vegetation	3
Other land, natural, marshland	15	Water	6
Other land, cultivated, annual crop	16	Medium dense vegetation	4
Other land, cultivated, perennial crop	17	Medium dense vegetation	4
Other land, cultivated, perennial	17	Medium dense vegetation	4
Other land, fishpond	19	Water	6
Other land, built-up area	20	Urban	2
Inland water	21	Water	6
Forest plantation, mangrove	23	Water	6

Table 5 – Original NAMRIA and final landcover types and classes

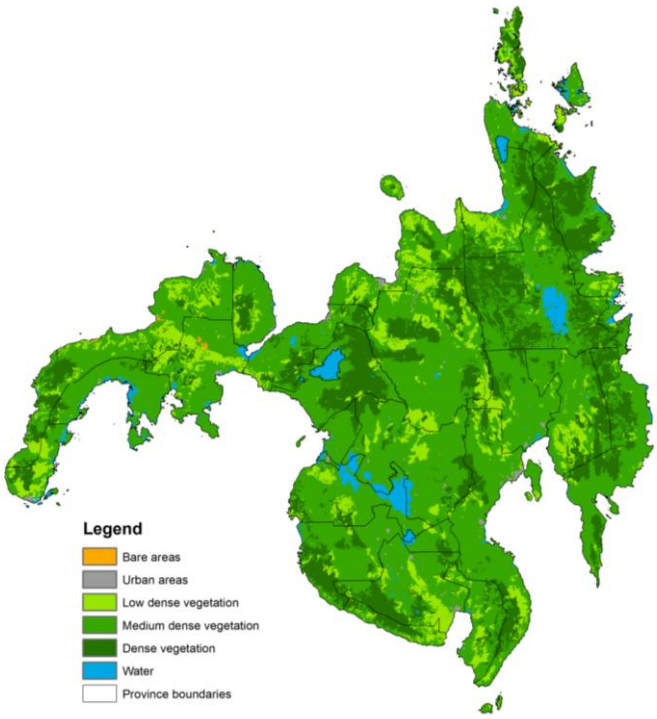

Figure 7 – Land cover distribution layer used in the different analysis

6.2.4 Transportation network

The starting point for creating the transportation network layer over the study area is the one developed by the OpenStreetMap (OSM) community and extracted from the bbbike web site [11] on April 29, 2013.

In a first phase, the following changes have been applied on this layer:

1. The segments presenting the following categories have been removed as not used for transportation purposes:
    - Bridleway
    - construction
    - Cycleway
    - Emergency access
    - Raceway
    - Crossing
2. The segments presenting the following categories were reclassified into Foot tracks as all corresponding to path used by feet:
    - Ford
    - Footway
    - Passing place
    - Path
    - Pedestrian

- Steps

3. The segments presenting the following categories were then reclassified:
   - Trunk and trunk_link into Highways
   - Primary_link into Primary roads
   - Roads, Unclassified and secondary_link and secondary_unclass unto Secondary roads
   - Services (access to fuel station, parking lot, reserved residence place, between properties), Residential and tertiary_link into Tertiary roads

In a second phase, a GIS datasets received from the Department of Public Works and Highways has been used to add secondary roads segments that were not present in the original OSM dataset.

In the third phase, Google Map and the Landsat satellite mosaic have been used to manually add:

- Important road segments that were not in the OSM nor in the DPHW datasets,
- Boat routes between the main islands.

In the fourth, and final phase, the layer has been cleaned manually to remove small segments and correct disconnect over the all network.

At the end of this process, the resulting map (Figure 8) contains the following road categories: highways, primary roads, secondary roads, tertiary roads, tracks, foot tracks and boat routes.

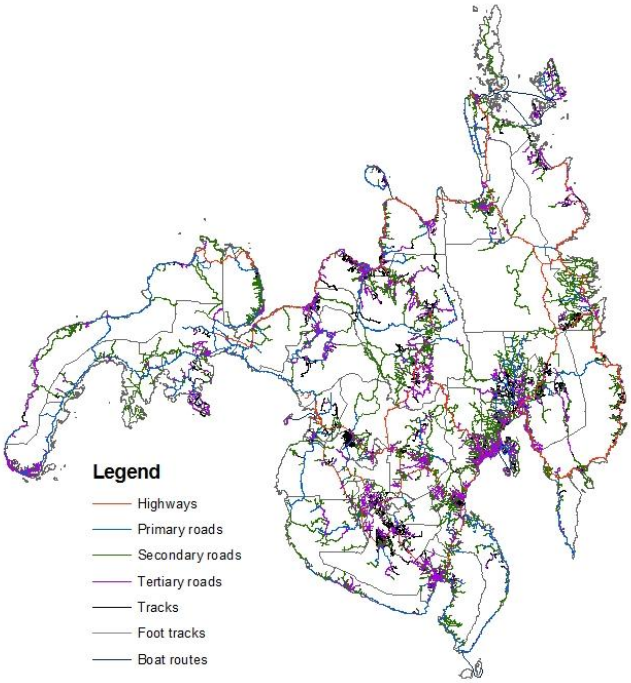

Figure 8 - Road network layer used in the different analysis

6.2.5 Hydrographic network

The hydrographic network has to be separated into two different layers:

- The river network (lines)
- Water bodies (polygons)

When it comes to the river network, four different GIS datasets were available for the study area at the beginning of the project, namely the one:

- provided by the Department of Public Work and Highways (DPWH);
- provided by the Department of Science and Technology (DOST);
- provided by NAMRIA through the Global Mapping Project [12];
- generated by the OpenStreetMap (OSM) community and extract from the bbbike web site [11].

Unfortunately, each of them were presenting some limitations towards their use in the context of the project as follow (Figure 9):

- The dataset from DPWH is too generalized;
- The datasets from DOST and NAMRIA are both presenting important shifts compare to the location of the real network observed on the satellite images and the direction and amplitude of this shift is not constant over the surface of the study area;
- The OSM dataset is the one presenting the best match with the real network but is not complete;

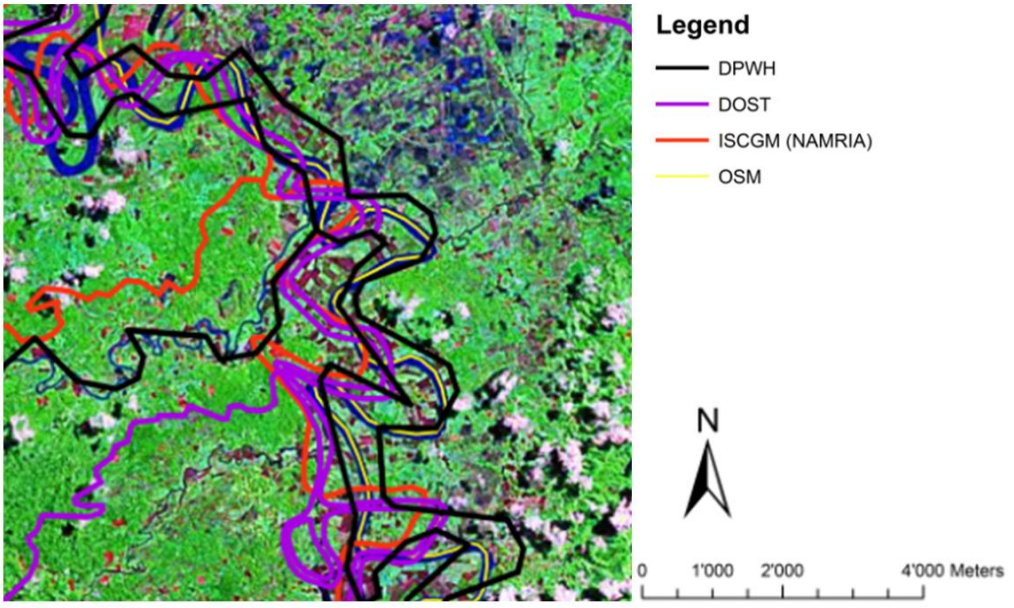

Figure 9 – Example of overlay of the different source of river network on top of the Landsat satellite images mosaic

In view of the above, and in order to ensure that the natural barriers represented by rivers are in the right location and is complete as much as possible, it has finally been decided to proceed as follow in order to obtain the final river network layer:

1. The OSM dataset has been used as the basis for the final layer. In this layer, segments categorized as ditches have been removed
2. The river segments from NAMRIA's dataset have been added to the OSM one and manually corrected in order to:
    a. Match the location of the real river on the Landsat mosaic
    b. Connect with OSM segments
3. Additional major river segments visible on the Landsat mosaic but not present in the OSM or NAMRIA datasets have been digitized on the screen in ArcView

The result from this process is presented in Figure 10.

Because of the low resolution used in the context of this project (500 meters) adjustments have then been made on this layer in order to ensure that once converted into raster format in AccessMod the road network was not generating any artificial bridges in the dataset.

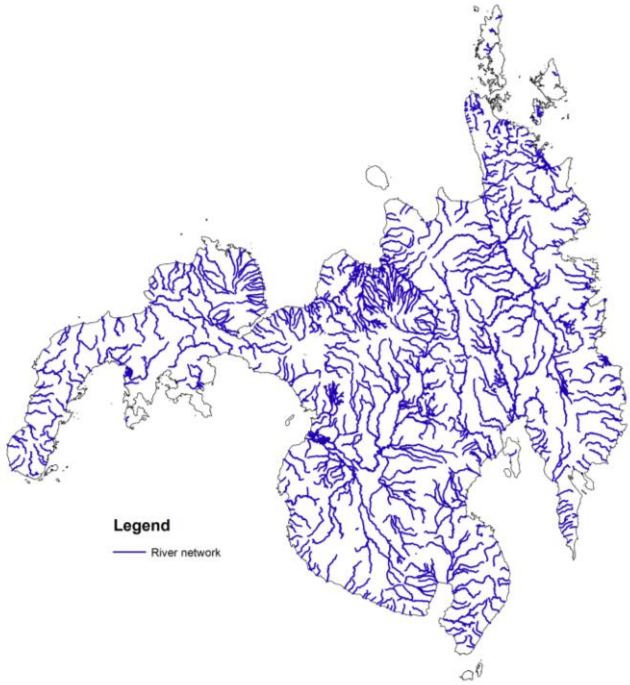

Figure 10 – River network layer used in the different analysis

This has been done by combining the land cover (Figure 7), road (Figure 8) and river network (Figure 10) layers using the first module of AccessMod and then manually correcting areas where these artificial bridges where appearing. Figure 11 gives an example of the type of corrections that has been implemented in order to keep the consistency between roads and rivers, namely:

1. In Figure 11 a) two artificial bridges, red arrows, have been created by the overlap of the road network converted into raster cells (in green) over the river network (in white) while the original vector layers (lines) clearly shows that there are no existing crossover between the left and right side of the river;
2. To correct this, a buffer equivalent to 1.5 time the resolution of the grid (750 meters) has been drawn from the road network (blue area on Figure 11b). An additional, and artificial, river segment has then been drawn at the limit of this buffer (light blue line on Figure 11 b)
3. Once the first module of AccessMod applied on the modified layer created under the previous point we can see on Figure 11 c) that the two artificial bridges are not there anymore and that the river is therefore playing its role of barrier to movement.

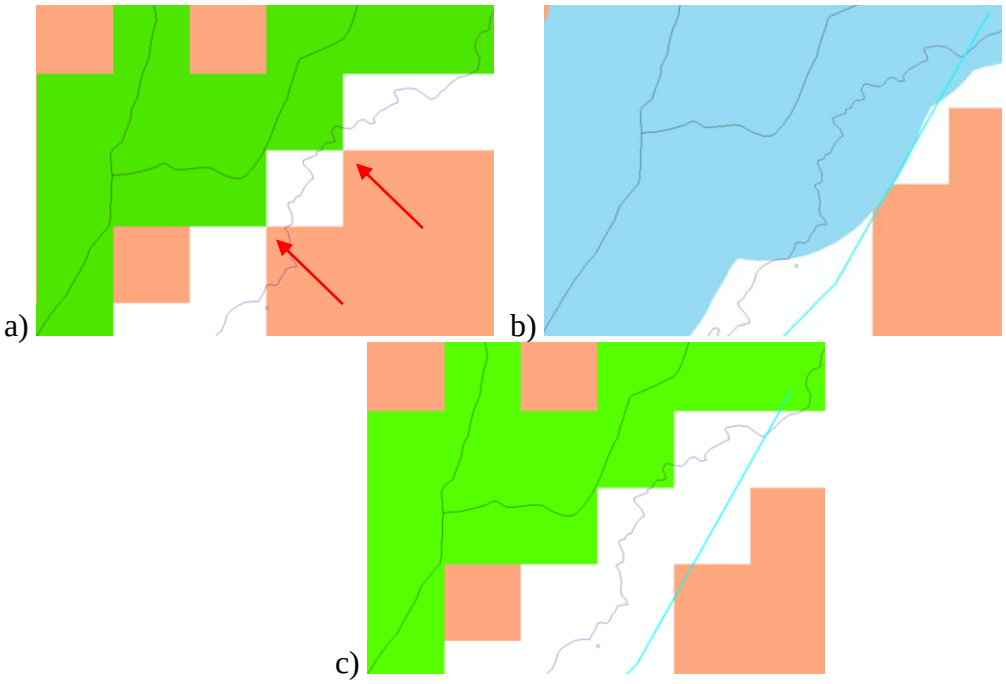

Figure 11 – Example of correction made on the river network layer to keep the consistency between the road and the hydrographic network

In some cases, adjustments have also been applied on the road network layer to obtain the above-mentioned consistency.

The water bodies have themselves been extracted from the land cover GIS layer from NAMRIA (see section 6.2.3).

6.2.6 Digital Elevation Model

This project used the freely accessible 90m Shuttle Radar Topography Mission (SRTM) dataset accessible from the CGIAR Consortium for Spatial Information (CSI) web site [13].

In order to comply with the resolution used in the context of this project (500m), the original data has been resampled using the Data Management Tools > Raster > Raster Processing > Resample function in ArcGIS. The resulting layer is presented in Figure 12.

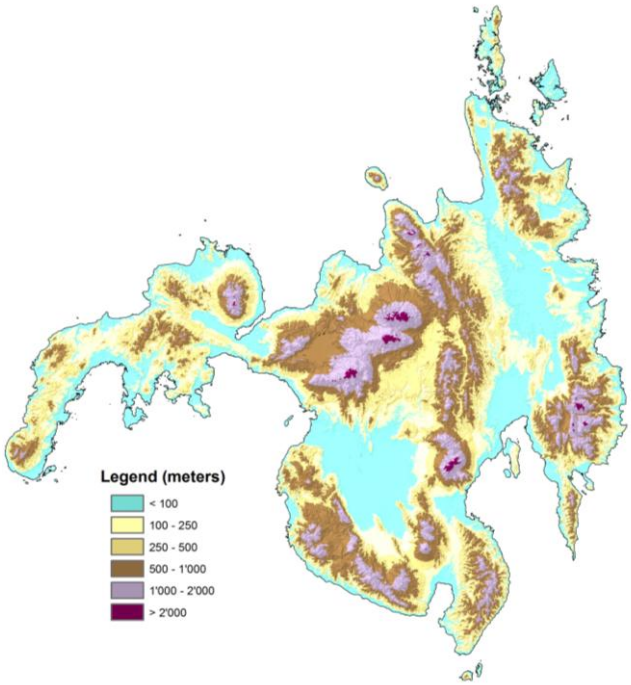

Figure 12 – Digital Elevation Model (DEM) used in the different analysis

6.2.7 Spatial distribution of unattended home deliveries

The 2008 DHS [7] covered 171 clusters spread all over the study area (Figure 13).

For confidentiality reason, the location of these clusters has been randomly shifted by Measure DHS (5 kilometers in rural areas and up to 2 kilometers in urban areas) and that a further 1 percent of rural clusters have been displaced up to 10 kilometers. This is the reason why some of the points on Figure 13 are falling in the sea.

In view of the above, and in order to account for the surface of the cluster (information not provided by DHS), it has been decided to represent the number of non-assisted home deliveries as random dots within a 5 km in urban areas and 10 km radius in rural areas.

These buffers have been created and adjusted using the process presented in Annex 3. Once this done, a special function in ArcGIS has been used to randomly distribute dots within these buffers (one dot per unattended home delivery) (Figure 14).

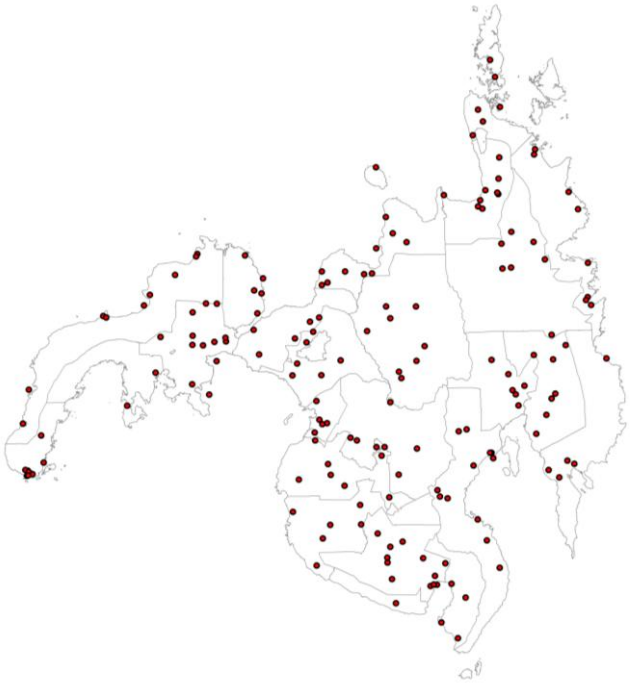

Figure 13 - Spatial distribution of the 171 clusters from the 2008 DHS

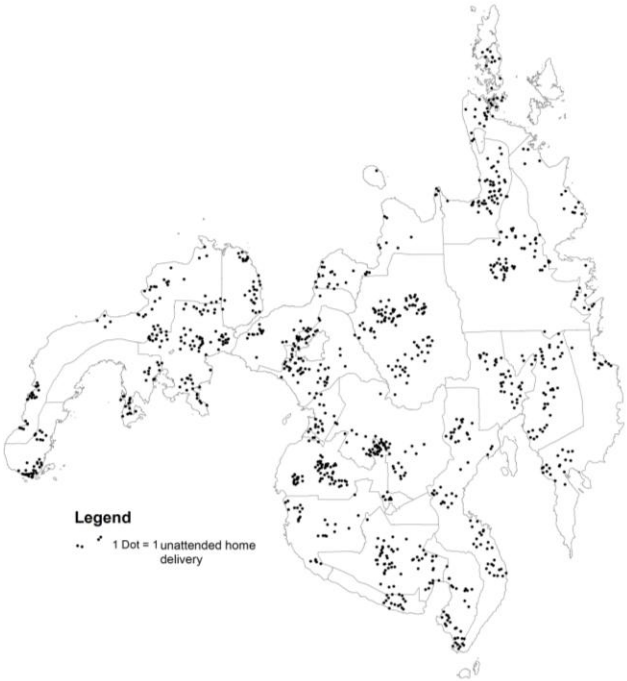

Figure 14 - Spatial distribution of the unattended home deliveries

6.2.8 Spatial distribution of the number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth

When using AccessMod, there is a need to spatially distribute the number of births down to the resolution of the other projected GIS layers in raster format (500 meters).

This had been done using the Municipality level number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth estimated earlier (Section 6.1.2), a population distribution grid as well as the process described in Annex 4. Through this process, no births are being placed on water bodies nor on areas that would be out of reach as per the result of the accessibility coverage analysis (see Figure 16).

A population distribution grid is a modeled spatial distribution of the population down to a certain level of desegregation or resolution. Such model provide a picture of the probability for the population to be located in a given part of the country based on some criteria such as, but not limited to: distance to the road network, slope,…. The geographic expression of this probability is what is being used here to obtain the final spatial distribution of the number of births in the country.

In the context of this project, the 2008 edition of the proprietary Landscan population distribution grid [14] has been preferred over other free datasets such as the Gridded Population of the World (GPW) [15] or AsiaPop [16]. The reason for this choice is linked to the spatial resolution (1 km) and the better homogeneity from one country to the other offered by the Landscan dataset.

Once this process applied, we obtain the spatial distribution of the total number of births observed among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth in 2013 over the study area (Figure 15).

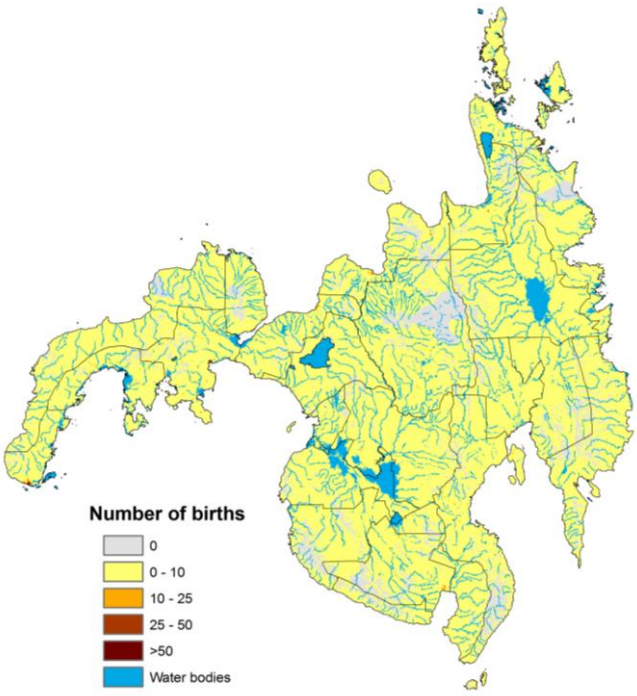

Figure 15 – Spatial distribution of the total number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth used in the different analysis

6.3 National norms

Two different national norms are needed to produce the outputs listed in Chapter 5, namely:

1. The maximum acceptable workload for skilled birth attendant in MCPs;
2. The maximum speed expected on the different road types and boat routes observed over the study area.

When it comes to the first norm, the WHO benchmark of 175 births per midwife reported in the 2005 World Health Report [17] has been used as a starting point considering that this would mostly apply at the hospital level in the Philippines.

The 2011 manual of operations for the Maternal, Newborn and Child Health and Nutrition (MNCHN) strategy [18] does itself consider a ratio for Barangay Health Station (BHS)/ Midwife to Population equivalent to 1 midwife to 5,000 populations

Using the National Crude Birth Rate (CBR) of 21.6 coming from the 2008 DHS [7] this gives us 1 midwife for 108 births.

After consultation with the WHO Country Office, the following maximum acceptable workloads have therefore been considered in the context of the present projects:

1. 1 midwife for 175 births in hospitals and large size clinics (private sectors)
2. 1 midwife for 100 in facilities from the RHU down to the lowest level of referral

When it comes to the maximum speed expected on the transportation network over the study area, the norms reported in Republic Act nº 4136 (http://www.gov.ph/1964/06/20/republic-act-no-4136/) has been used as a starting point (Table 6).

Using this table as well as local knowledge, maximum expected speed for each type of road reported in the road network distribution layer (Figure 8) has been identified (Table 7).

Maximum allowable speeds	**Passengers Cars and Motorcycle**	**Motor trucks and buses**
1. On open country roads, with no "blinds corners" not closely bordered by habitations.	80 km. per hour	50 km. per hour
2. On "through streets" or boulevards, clear of traffic, with no " blind corners," when so designated.	40 km. per hour	30 km. per hour
3. On city and municipal streets, with light traffic, when not designated "through streets".	30 km. per hour	30 km. per hour
4. Through crowded streets, approaching intersections at "blind corners," passing school zones, passing other vehicles which are stationery, or for similar dangerous circumstances.	20 km. per hour	20 km. per hour

Table 6 – Maximum allowable speeds on different road types as per Republic Act nº 4136

Then, estimating the maximum expected speed for boats is not easy as many different of boats could be used. Using the information reported on the following web site for ferries:

http://www.wiseship.biz/ferryspeeds.html it has finally been decided to consider a speed of 20 miles per hours, equivalent to 32 km/hour as reported in Table 7.

Finally, considering a walking speed for a women in age to give birth, but not being pregnant, to be around 5 km/h and making the assumption that her speed would be reduced by half close to the delivery, the maximum traveling speed by feet outside of the road network/boat routes has been attributed for each of the classes reported in the final land cover layer (Figure 7). These speeds are also reported in Table 7.

Land cover/Transportation type	Speed (Km/h)	Transportation Media
Bare areas	2.5	Feet
Urban	2.5	Feet
Low dense vegetation	2	Feet
Medium dense vegetation	1.5	Feet
Dense vegetation	1	Feet
Foot track	2.5	Feet
Boat route	32	Boat
Highway	80	Motor Vehicle
Primary road	50	Motor Vehicle
Secondary road	40	Motor Vehicle
Tertiary road	30	Motor Vehicle
Track	20	Motor Vehicle

Table 7 – Maximum travel speed on the different land cover and transportation media types considered in the different analysis

7. Results

This Chapter describes the results obtained for each of the analysis described in Chapter 5.

7.1 Accessibility coverage analyzes

This set of analyzes look at measuring how the MCP accredited facilities are accessible, in terms of travel time, to the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

The following GIS layer and associated data previously generated have been used for this set of analyzes:

1. Location of the MCP accredited facilities (see section 6.2.2);
2. Road network (see section 6.2.4),
3. Hydrographic network (see section 6.2.5),
4. Digital Elevation Model (DEM) (see section 6.2.6),
5. Land cover (see section 6.2.3)

6. Municipality and Province boundaries (see section 6.2.1)
7. Births distribution (see section (6.2.8)
8. The following travelling scenarios
    a. Pregnant woman walking or being carried until reaching a road/boat route and then taking a vehicle/boat
    b. Pregnant woman walking only
9. The maximum travelling speeds reported in Table 7.

The first module of AccessMod has then been used to generate the combine land cover and scenario file and have the maximum travelling speeds reported in Table 7 integrated into it.

These two files, the DEM as well as the location of the MCP accredited facilities (both public and private) have then been used as the input data for the second module of AccessMod.

The first result coming out of this module is the spatial distribution of the travel time to the nearest MCP accredited facility (public, private and both types combined) when considering that pregnant women are walking, or are being carried, until reaching a road/boat route and then taking a vehicle/boat until the facility (Figure 16). Please note that areas appearing as being "out of reach" corresponds to islands or areas for which no evidence of potential passage across water has been found.

The traveling scenario table has then been modified in order to consider women would only be walking or being carried until the nearest facility. In this case, the maximum speed on any road was considered to be of 2.5 km/h and the boat was not considered an option. Figure 17 presents the results when using this scenario.

The following observations can already be made on Figure 16 and 17:

1. The possibility to take a vehicle/boat once reaching the road network/boat routes is having a very important and positive impact on accessibility coverage. This confirms the importance of any programs aiming at financially supporting the transportation of pregnant women at the moment of delivery;
2. The results are similar between public and private facilities in several parts, but not all the study area (see difference in the Western and Southern parts for example). Similarities are due to both types of facilities to be present in these areas which is confirmed when including both types of facilities at the same time in the analysis (Figure 16c and 17c).
3. Some islands are out of reach when considering the second scenario (walking/carried) simply because there are no facilities of that type on these islands and that boat is not considered as a transportation option to reach them.

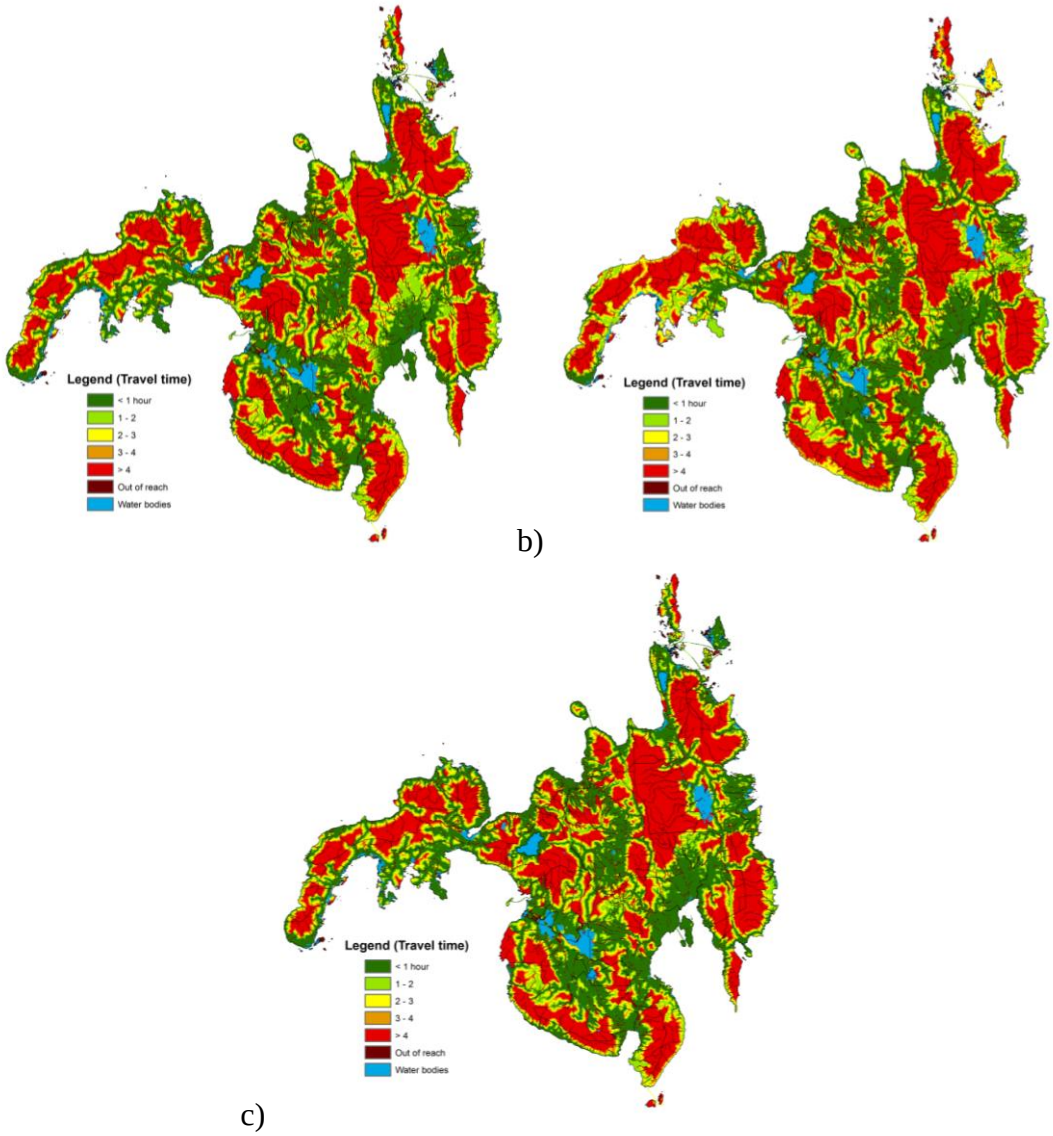

Figure 16 – Travel time to the nearest MCP accredited facility (a: Public; b: private; c: both combined) considering that pregnant women are walking, or are being carried, until reaching a road/boat route and then taking a motor vehicle/boat until the facility

Using GIS makes it possible to extract the Province and Municipality level number, and therefore indirectly the percentage, of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth located within 2 hours of travel time from a MCP accredited facility (public, private and both types combined) for both considered scenarios.

Annexes 6 and Figure 18 present the Province level when considering the combined scenario and Annex 7 the results at that same level when considering the walking/carried scenario.

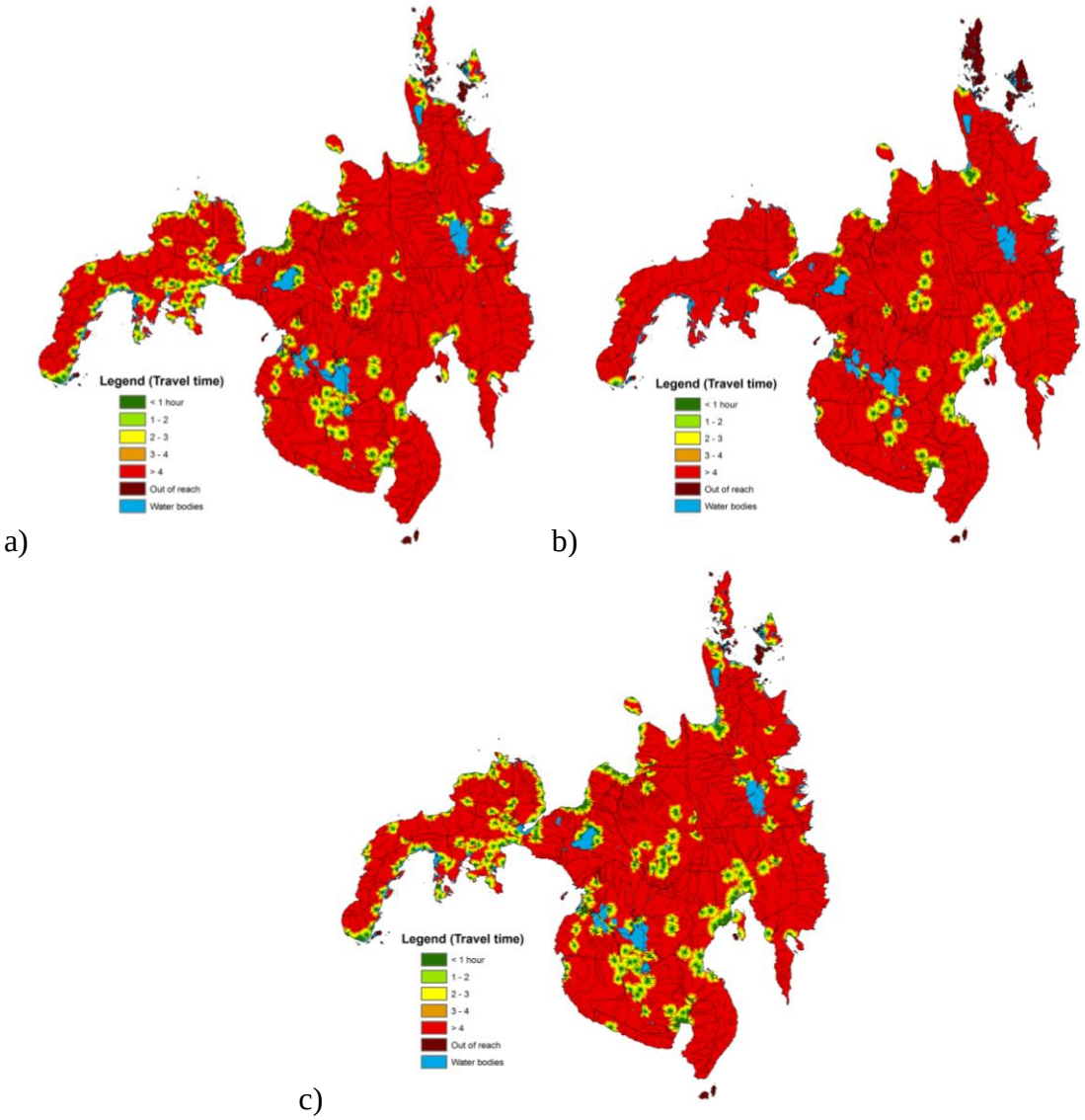

Figure 17 – Travel time to the nearest MCP accredited facility (a: Public; b: private; c: both combined) considering that pregnant women are walking, or are being carried, until reaching the facility

Figure 19 presents the spatial distribution of this percentage at the Municipality level (using the Municipality map with 392 Municipalities presented in Figure 4) for the first scenario only (combined walking/carried and motor vehicle/boat). On this figure, Municipality reported in grey corresponds to Municipalities for which no NHTS-PR registered beneficiaries (members and dependents) of PhilHealth have been reported for May 2013.

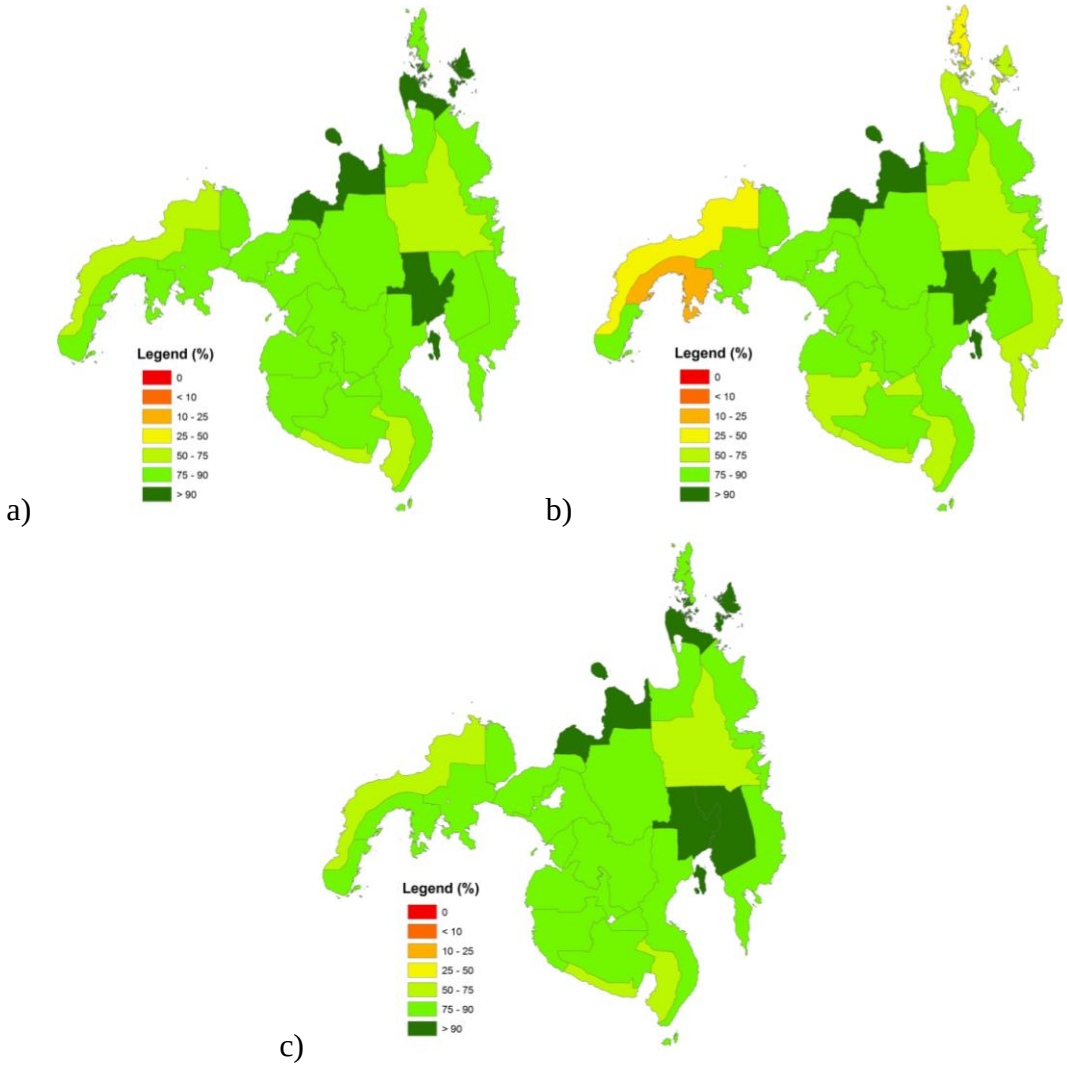

Figure 18 – Province level percentage of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth reaching an MCP accredited facility (a: Public; b: private; c: both combined) in less than 2 hours when considering the combined walking/carried and motor vehicle scenario

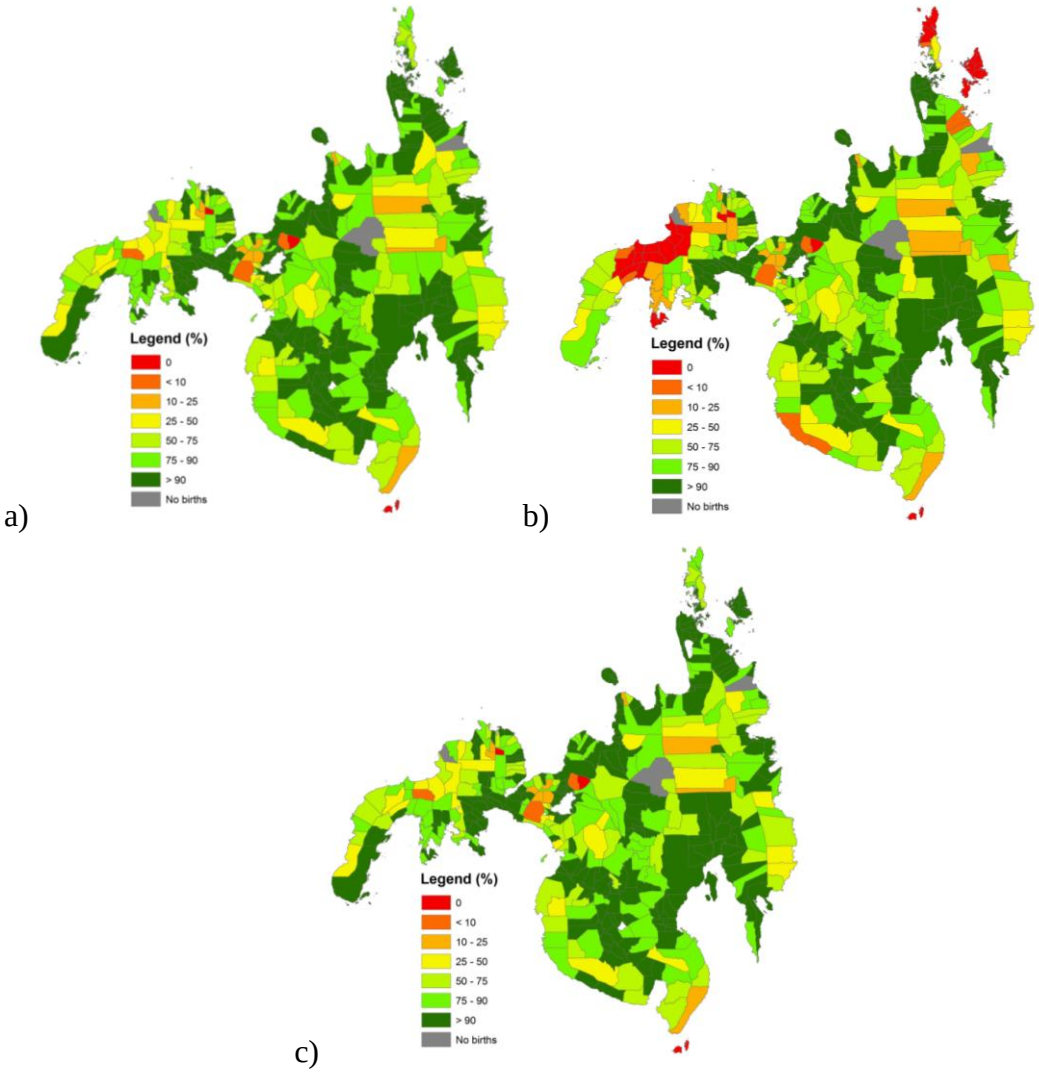

Figure 19 – Municipality level percentage of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth reaching an MCP accredited facility (a: Public; b: private; c: both combined) in less than 2 hours considering that pregnant women are walking, or are being carried, until reaching a road/boat route and then taking a motor vehicle/boat until the facility

The following can be observed from Figure 18 and 19 as well as Annexes 6 and 7:

- Figures 18 and 19 are a good illustration that aggregating information might mask pockets of heterogeneity at a lower level. This is particularly visible when comparing Figure 19b with Figure 20b;
- Annex 7 confirms the important drop in accessibility coverage in all Provinces would pregnant women only be walking and/or being carried until the nearest MCP accredited facility;
- At the level of the all study area:

  - The 194 public facilities offer better accessibility coverage (82.7%) than the 147 private facilities (74%);
  - With 82.7%, the accessibility coverage provided by the public facilities is not far from the benchmark set to define universal coverage (90%, see Chapter 3);
  - When adding the private facilities in the analysis, accessibility coverage reaches 83.4%. There is therefore an important overlap, in terms of accessibility coverage, between the catchment areas of the public and privates MCP accredited facilities;
  - Universal accessibility coverage (90%) is nevertheless not reached;
- At the Province level (looking only at the combined travelling scenario):
  - The accessibility coverage offered by the public facilities remain higher than the one offered by the private facilities in almost all the Provinces;
  - Five Provinces find themselves above the 90% universal access benchmark when only considering public accredited MCP facilities. This number remain the same for private facilities but two differences are observed compare to the public ones. When combined both types of facilities, we find 6 Province above the benchmark
  - The lowest level of accessibility coverage is observed in the following Provinces:
    - For public accredited MCP facilities: Zamboangao Del Norte, Sarangani and Agusan Del Norte;
    - For private accredited MCP facilities: Zamboanga Sibungay, Zamboanga Del Norte and Dinagat Islands;
    - When considering both types of facilities: Zamboangao Del Norte, Sarangani and Agusan Del Norte.
  - The private facilities provide a significant increase in accessibility coverage when added to the public ones in the following Provinces:: Compostela Valley (+2.7%), Davao Del Sur (+2.1%) and Aguisan Del Sur (+2.0%). In all other Provinces the gain is inferior to 1.2%;
- At the Municipality level (looking only at the combined travelling scenario):
  - Universal accessibility coverage is reached in:
    - 196 Municipalities (50%) when considering only public accredited MCP facilities
    - 158 Municipalities (40.3%) when considering only private accredited MCP facilities
    - 199 Municipalities (50.7%) when considering both types of facilities.
  - The 25 municipalities for which the coverage is the lowest when considering both types of MCP accredited facilities (public and private) are reported in Table 8. Municipalities in question are located in different provinces over the study area;
  - Among those 25 Municipalities, 3 of them are presenting an accessibility coverage equal to 0, namely:

- Sarangani (Davao del Sur Province, Region XI) with 329 births
- Tagoloan II Lanao del Sur Province, ARMM) with 35 births
- Concepcion (Misamis Occidental Province, Region X) with 24 births

PSGC	Province name	Municipality name	2013 Estimated number of births among the NHTS-PR sponsored PhilhHealth members	Number of births within 2 hours of any MCP (combined scenario)	Number of births further away than 2 hours of any MCP (combined scenario)	Accessibility coverage (2 hours, combined scenario)
097204000	ZAMBOANGA DEL NORTE	LA LIBERTAD	50.75623	9.456	41	18.6
097208000	ZAMBOANGA DEL NORTE	MUTIA	97.10024	11.922	85	12.3
097213000	ZAMBOANGA DEL NORTE	SALUG	278.09532	88.815	189	31.9
097225000	ZAMBOANGA DEL NORTE	GODOD	155.05371	2.302	153	1.5
097227000	ZAMBOANGA DEL NORTE	KALAWIT	200.03650	65.740	134	32.9
103511000	LANAO DEL NORTE	MAGSAYSAY	116.01060	26.866	89	23.2
103514000	LANAO DEL NORTE	MUNAI	182.23685	24.595	158	13.5
103515000	LANAO DEL NORTE	NUNUNGAN	144.90284	0.889	144	0.6
103517000	LANAO DEL NORTE	POONA PIAGAPO	219.53689	24.869	195	11.3
103521000	LANAO DEL NORTE	TANGCAL	118.08282	24.482	94	20.7
104206000	MISAMIS OCCIDENTAL	CONCEPCION	23.58290	0	24	0.0
104303000	MISAMIS ORIENTAL	BALINGOAN	64.43238	11.781	53	18.3
112405000	DAVAO DEL SUR	JOSE ABAD SANTOS (TRINIDAD)	1085.21256	248.874	836	22.9
112415000	DAVAO DEL SUR	SARANGANI	329.45271	0	329	0.0
112503000	DAVAO ORIENTAL	BOSTON	75.65046	21.859	54	28.9
124701000	COTABATO (NORTH COTABATO)	ALAMADA	443.48575	155.378	288	35.0
126319000	SOUTH COTABATO	LAKE SEBU	509.59358	160.449	349	31.5
128007000	SARANGANI	MALUNGON	489.75509	171.390	318	35.0
153610000	LANAO DEL SUR	KAPAI	62.65092	0.720	62	1.1
153614000	LANAO DEL SUR	MADAMBA	27.13748	7.406	20	27.3
153620000	LANAO DEL SUR	PAGAYAWAN (TATARIKAN)	39.46164	12.530	27	31.8
153638000	LANAO DEL SUR	TAGOLOAN II	34.95955	0	35	0.0
160309000	AGUSAN DEL SUR	SAN LUIS	233.05366	57.972	175	24.9
160313000	AGUSAN DEL SUR	VERUELA	245.64494	47.473	198	19.3
166816000	SURIGAO DEL SUR	SAN MIGUEL	217.24026	64.768	152	29.8
		Total:	5'443	1'241	4'203	18

Table 8 – 25 Municipalities presenting the lowest accessibility coverage when considering both types of facilities (public and private)

Figure 20 present the relation that exist between the 2009 poverty incidence and accessibility coverage considering 2 hours of travel time and both type of MCP accredited facilities (public and private) for 372 of the Municipalities that could be mapped (Figure 3). This analysis does therefore not cover Maguindanao Province.

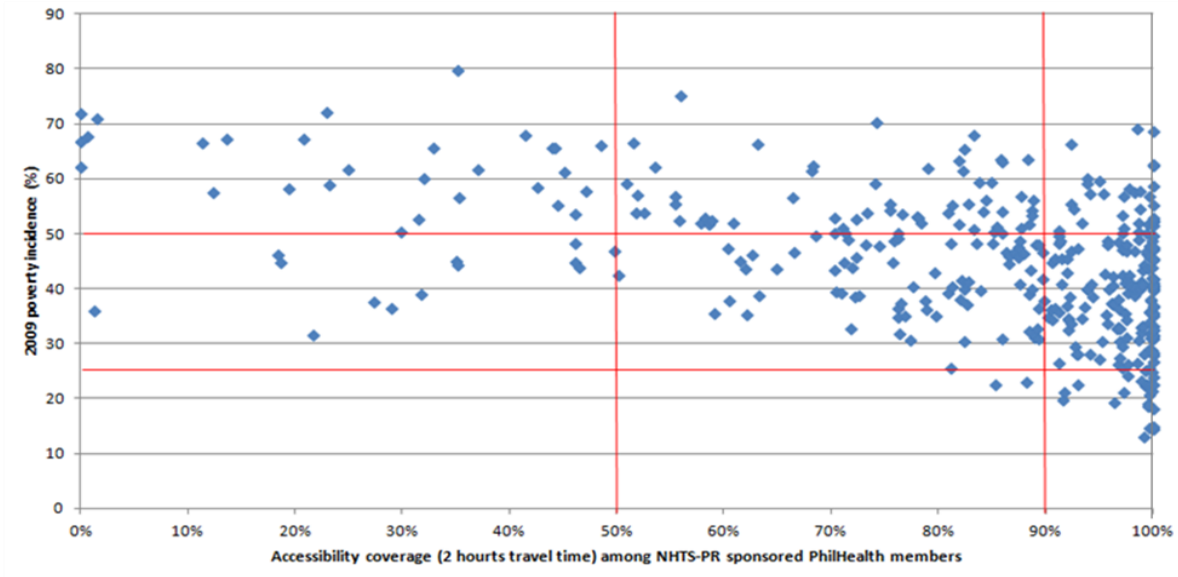

Figure 20 – 2009 poverty incidence according to accessibility coverage considering 2 hours of travel time and both type of MCP accredited facilities (public and private)

Table 9 does itself present the number of uncovered births, and corresponding number of Municipalities in between brackets, according to poverty incidence and accessibility coverage when considering 2 hours

		Accessibility coverage (2 hours travel time)			Total
		<50%	50-90%	>90%	
Poverty incidence	<25%		33 (2)	531 (22)	564 (24)
	25-50%	1'307 (13)	3'747 (74)	1'223 (138)	6'277 (225)
	>50%	4'967 (29)	4'599 (61)	229 (33)	9'795 (123)
Total		6'274 (42)	8'379 (137)	1'983 (193)	16'636 (372)

Table 9 – Uncovered number of births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, and corresponding number of Municipalities in between brackets, according to poverty incidence and accessibility coverage when considering 2 hours of travel time and both MCP facility types (public and private)

Remembering that they do not include Maguindanao Province, the following can be observed from Figure 20 and Table 9:

- 22 of the 24 Municipalities presenting a poverty incidence below 25% are above the 90% benchmark set for universal accessibility coverage and the other two very close to this benchmark;
- 171 other Municipalities (45.9%) presenting a poverty incidence above 25% also remain above the 90% universal accessibility benchmark;
- The remaining 177 Municipalities (47.5%) present a poverty incidence above 25% and an accessibility coverage below 90%. The majority of uncovered births

(14'620 birth, 87.8% of all uncovered births in this analysis) are located in these Municipalities. Among them, it is important to highlight the ones presenting an accessibility coverage bellow 50% and a poverty incidence above 50% (Table 10). The overlap with the list reported in Table 8 is highlighted in blue.

PSGC code	Province name	Municipality/City name	Poverty Incidence	2013 Estimated number of births among the NHTS-PR sponsored PhilhHealth members	Number of births within 2 hours of any MCP (combined scenario)	Percentage of uncovered births within 2 hours of any MCP (combined scenario)
104206000	MISAMIS OCCIDENTAL	CONCEPCION	62.3	24	0	100%
153638000	LANAO DEL SUR	TAGOLOAN II	67.08	35	0	100%
112415000	DAVAO DEL SUR	SARANGANI	72.12	329	0	100%
103515000	LANAO DEL NORTE	NUNUNGAN	67.87	145	1	99%
097225000	ZAMBOANGA DEL NORTE	GODOD	71.06	155	2	99%
103517000	LANAO DEL NORTE	POONA PIAGAPO	66.75	220	25	89%
097208000	ZAMBOANGA DEL NORTE	MUTIA	57.82	97	12	88%
103514000	LANAO DEL NORTE	MUNAI	67.47	182	25	87%
160313000	AGUSAN DEL SUR	VERUELA	58.48	246	47	81%
103521000	LANAO DEL NORTE	TANGCAL	67.36	118	24	79%
112405000	DAVAO DEL SUR	JOSE ABAD SANTOS (TRINIDAD)	72.32	1'085	249	77%
103511000	LANAO DEL NORTE	MAGSAYSAY	59.18	116	27	77%
160309000	AGUSAN DEL SUR	SAN LUIS	61.99	233	58	75%
166816000	SURIGAO DEL SUR	SAN MIGUEL	50.46	217	65	70%
126319000	SOUTH COTABATO	LAKE SEBU	52.83	510	160	69%
097213000	ZAMBOANGA DEL NORTE	SALUG	60.19	278	89	68%
097227000	ZAMBOANGA DEL NORTE	KALAWIT	65.83	200	66	67%
097215000	ZAMBOANGA DEL NORTE	SIAYAN	79.86	369	130	65%
160305000	AGUSAN DEL SUR	LORETO	56.88	245	86	65%
160303000	AGUSAN DEL SUR	ESPERANZA	61.94	364	135	63%
097216000	ZAMBOANGA DEL NORTE	SIBUCO	68.21	247	102	59%
112508000	DAVAO ORIENTAL	MANAY	58.67	213	90	58%
097214000	ZAMBOANGA DEL NORTE	SERGIO OSMEÑA SR.	65.8	276	121	56%
097226000	ZAMBOANGA DEL NORTE	BACUNGAN (Leon T. Postigo)	65.96	171	75	56%
097209000	ZAMBOANGA DEL NORTE	PIÑAN (NEW PIÑAN)	55.52	161	71	56%
101313000	BUKIDNON	MALITBOG	61.42	193	87	55%
153632000	LANAO DEL SUR	CALANOGAS	53.7	50	23	54%
112504000	DAVAO ORIENTAL	CARAGA	58	190	89	53%
097211000	ZAMBOANGA DEL NORTE	PRES. MANUEL A. ROXAS	66.34	310	150	52%
			Total	6'977	2'010	

Table 10 – 29 Municipalities presenting an accessibility coverage bellow 50% and a poverty incidence above 50%

In a next step, it is important to analyze the expected travel time for the birth located further away than 2 hours of travel time from any MCP accredited facilities.

These figures have been obtained by applying a mask containing only the cells in which uncovered births were remaining to the travel time distribution grid presented in Figure 16c.

Once this done, the minimum, maximum and mean travel time for each Province and Municipalities have been extracted using the respective boundaries layer in raster format.

Table 11 presents the results obtained for the Province level while Table 12 present the results for the 25 Municipalities presenting the highest maximum travel time observed at that level.

Province PSGC	Province name	Travel time to the nearest MCP accredited facility (hours)		
		Minimum	Maximum	Mean
097200000	Zamboanga del Norte	2	27	6
097300000	Zamboanga del Sur	2	13	4
098300000	Zamboanga Sibugay	2	13	4
101300000	Bukidnon	2	27	5
101800000	Camiguin	2	5	3
103500000	Lanao del Norte	2	30	7
104200000	Misamis Occidental	2	19	5
104300000	Misamis Oriental	2	15	4
112300000	Davao del Norte	2	34	10
112400000	Davao del Sur	2	32	5
112500000	Davao Oriental	2	22	8
118200000	Compostela Valley	2	25	6
124700000	Cotabato (North Cotabato)	2	33	6
126300000	South Cotabato	2	20	6
126500000	Sultan Kudarat	2	15	4
128000000	Sarangani	2	24	7
129800000	Cotabato City (not a province)	No births	No births	No births
153600000	Lanao del Sur	2	39	8
153800000	Maguindanao	2	25	6
160200000	Agusan del Norte	2	33	10
160300000	Agusan del Sur	2	61	14
166700000	Surigao del Norte	2	14	4
166800000	Surigao del Sur	2	31	7
168500000	Dinagat Islands	2	12	4

Table 11 – Province level minimum, maximum and mean travel time to the nearest MCP accredited facilities for births uncovered within 2 hours of travel time (combined scenario)

In Table 12:

- Municipalities highlighted in blue are in common between Table 8, 10 and 12;
- Those highlighted in green are in common between Table 10 and 12,
- The one highlighted in purple is in common between Table 8 and 12.

The following can be observed when looking at Tables 11 and 12:

- Apart for the Municipality of Salador, and as excepted, the minimum travel time for all the administrative divisions is of two hours. In the case of Salvador Municipality, the minimum value of 22 hours is explained is explained by a river that cut across the Municipality without any indication of a bridge in this area.
- Maximum travel time can be very high in several Municipalities, reaching up to 61 hours in the Municipalities of Esperanza and San Luis.

Municipality PSGC	Municipality name	Travel time to the nearest MCP accredited facility (hours)		
		Minimum	Maximum	Mean
160303000	ESPERANZA	2	61	16
160309000	SAN LUIS	2	61	23
153607000	BUTIG	2	39	9
160304000	LA PAZ	2	39	17
153611000	LUMBA-BAYABAO (MAGUING)	2	36	14
112305000	KAPALONG	2	34	13
160207000	LAS NIEVES	2	33	15
124701000	ALAMADA	2	33	12
160313000	VERUELA	2	33	9
112402000	DAVAO CITY	2	32	5
160305000	LORETO	2	32	15
166807000	CARRASCAL	2	31	7
103504000	ILIGAN CITY	2	30	7
103519000	SAPAD	2	30	12
112322000	TALAINGOD	2	30	8
160203000	CABADBARAN	2	30	13
103509000	LALA	2	28	4
166805000	CANTILAN	2	28	8
103518000	SALVADOR	22	28	25
097219000	SIOCON	2	27	8
160314000	SIBAGAT	2	27	13
160210000	SANTIAGO	2	27	14
101318000	SAN FERNANDO	2	27	8
103515000	NUNUNGAN	2	26	9
118205000	MARAGUSAN (SAN MARIANO)	2	25	10

Table 12 – Minimum, maximum and mean travel time to the nearest MCP accredited facilities for births uncovered within 2 hours of travel time (combined scenario) for the 25 municipalities presenting the highest maximum travel time

Based on results reported in Tables 8, 10 and 12, the Municipalities for which accessibility to MCP accredited facilities for the poorest part of the population could be an issue are:

- The Municipalities of Nunungan, San Louis and Veruela. Between the 3 of them we reach a total of 517 births which are further away than 2 hours from a MCP facility;
- Then comes the Municipalities of Esperanza, Alamada and Loreto for which we reach a total of 676 births located further away than 2 hours from a MCP facility.

The majority of these Municipalities are located within the Province of Agusan Del Sur, making it the Province where the accessibility coverage issues seem to be the most important among all the Provinces covered in the context of the present study.

7.2 Geographic coverage analyzes

This second set of analyzes look at including the availability component into the accessibility coverage analysis conducted in the previous section.

The geographic coverage of the existing MCP accredited facilities (public and private) has been measured based on the same layers and data than those used for the accessibility coverage analysis (see section 7.1). The only element that has been added is the maximum coverage capacity of each MCP accredited facility to account for the availability of services.

By lack of real health facility level data, the maximum coverage capacity for each facility, expressed in terms of number of normal deliveries covered in a year has been defined on the basis of a mean number of skilled birth attendant (midwifes, nurses and doctors) expected in the different type of MCP accredited facilities. This mean number has been estimated in collaboration with the WHO Country Office in the Philippines and is presented in Table 13.

MCP accredited facility type	Estimated mean number of skilled birth attendant
RHU/CHO/MHO	4
Birthing Center/Clinic/Home	2
Maternity Clinic/ Center	2
Lying-In Center/Clinic	2
Health Center	1
Midwife Clinic	1
Other Clinic	1
BHS	1
Puericulture Center	1
OB-GYN Clinic	1
Delivery Clinic	1
Pregnancy Clinic	1

Table 13 – Estimated mean number of skilled birth attendant by MCP accredited facility type

The coverage capacity of each facility has then been obtained by multiplying the number of skilled birth attendant with the maximum accepted workload estimated as being of 100 births per staff per year (see section 6.3).

It is important to note here that, using this approach, the total coverage capacity of all the MCP accredited facilities over the study area, when it comes to normal deliveries would reach 88’100 births. This is above the number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth located within two hours of any MCP accredited facility: 84’645 births (Annex 6).

The estimated available capacity should therefore be sufficient to cover the demand within this travel but this has to be confirmed through the current analysis as this capacity might be distributed in such a way that this is not the case.

This being said, we can already see that this total capacity would not be sufficient to reach the 90% universal geographic coverage benchmark for all births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth as 88'100 births corresponds to 86.7% of these births.

In view of the importance played by the road network/boat routes on accessibility, only the combined walking/carrying and motor vehicle/boat scenario has been analyzed here.

At the same time, in order to be able analyzing the potential overlap between the private and public facilities, the analysis has only been performed on all the facilities at the same time and not on each type separately.

As a result of this, and as per the methodology described under Section 5.2, the maximum coverage capacity has been used in conjunction with the ownership (public or private) and the total number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth in the Municipality where the facility is located to define in which order the facilities would be processed in AccesMod. This order is reported in Annex 8.

Once the above data and information uploaded in ArcGIS, the third module of AccessMod has been used to produce:

1. MCP accredited facility specific figures regarding the number of births covered by each facility taking both travel time (2 hour maximum) and maximum coverage capacity into account (Annex 8);
2. The extension of the catchment area associated to each MCP accredited facility (see zoom in Figure 22 and full country extend on Figure 21);
3. Province level number and percentage of births located within 2 hours of travel time of an MCP accredited facility (public and private) when taking both travel time and coverage capacity into account (Annex 9).
4. Municipality level number and percentage of births located within 2 hours of travel time of an MCP accredited facility (public and private) when taking both travel time and coverage capacity into account. The 50 Municipalities presenting the lowest geographic coverage are reported in Annex 10.

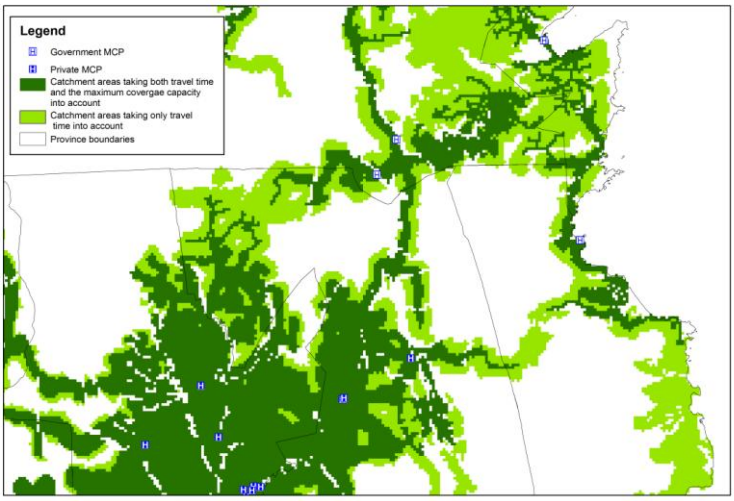

Figure 20 – Example of comparison between the catchments areas obtained through the accessibility coverage analysis (light green) and those from the geographic coverage analysis (dark green)

Before commenting on the results of this analysis, it is important to remember that the real capacity of each MCP accredited facility was not available and that this value has been estimated based on the information reported in Table 13 as well as the maximum acceptable workload described in Section 6.3. These results should therefore been analyzed with cautious and considered more from a qualitative than a quantitative perspective waiting to have access to real coverage capacity figures.

To illustrate this, Figure 21 presents the relation that exists between the number births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth covered by the model and the real number of MCP sponsored deliveries for 226 MCP accredited facilities for 2012.

For 46 of these facilities (20.3%) the model is covering fewer births than the real number of deliveries observed in 2012. The main reasons behind this are:

- An underestimation of the coverage capacity for some of these facilities;
- An overlap between the catchment area of these facilities and other facilities located nearby;
- Patient by-passing the nearest facility to seek care in one of these;
- An overuse of the capacity in these facilities.

For the other 180 facilities (79.6%), the model is covering more births than the real number of deliveries observed in 2012. In this case, this might be due to:

- An overestimation of the coverage capacity for some of these facilities;
- Patients by-passing these facilities to seek care in another facility located further away resulting in an under-use of the capacity in these facilities.

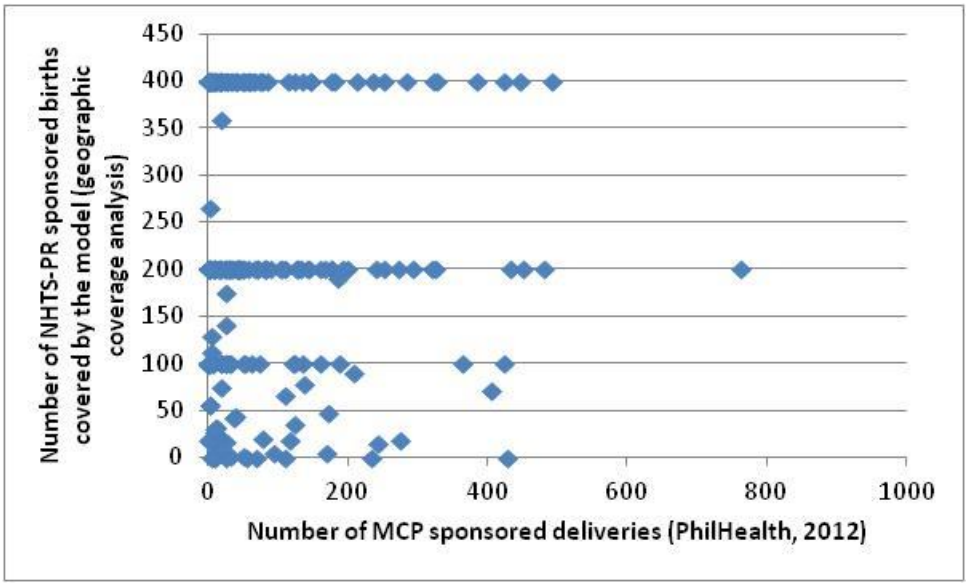

Figure 21 - Relation between the number births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth covered by the model and the real number of MCP sponsored deliveries for 226 MCP accredited facilities for 2012

These points clearly highlight the need for:

- The availability of complete health facility level data regarding the number of MCP sponsored deliveries and MCP accredited staff;
- A revision of the maximum acceptable workload set in Section 6.3

Taking the above into account, the following observation can nevertheless be made from Annex 8, 9 and 10 as well as Figure 20 and 22:

1. The geographic distribution and coverage capacity of the MCP accredited facilities (public or private) allows covering 77'629 births within 2 hours of travel time (88.1% of the total coverage capacity among MCP accredited facilities). This represents a geographic coverage of 76.5% at the level of the study area;
2. The unused coverage capacity (10'471 births) is spread among 68 facilities located in 16 different provinces (Table 14). As expected, a large part of these facilities are located in cities, namely:
    - Davao City (6 facilities);
    - Cagayan De Oro City (4);
    - Marawi City (4);
    - General Santos City (Dadiangas) (3)
    - Cotabato City (3);
    - City of Malaybalay (3);
    - Iligan City (3);

    On top of the list we find 12 facilities for which the model did not use any of their coverage capacity, namely:
    - Alegria RHU;

- Burgos RHU;
- GEMS Midwifes Lying-In and Maternity Clinic;
- Kidapawan Puericulture and Birthing Home;
- Bagua Lying-In;
- Blueistar birthing home Clinic;
- Sta. Monica Health Center;
- TVI resource development Philippines Inc. Minesite Clinic
- Daliaon Puericulture Center;
- The Datu Mamalinding Specialists' Clinic;
- Sala'am Clinic;
- Matavia-Tomines OB-GYN Clinic

3. Five of the six Provinces that were above the 90% benchmark for accessibility coverage (Annex 6) remain above this benchmark for geographic coverage (Annex9), namely: Camiguin, Misamis Oriental, Davao del Norte, Cotabato City and Surigao del Norte. For the last one, Compostela Valley a drop of 15,6% is observed when passing from when passing from accessibility to geographic coverage
4. An important drop in coverage is also observed in the following Provinces (Figure 21 and Annex 9):
   - Davao Oriental (-34.8%);
   - Surigao del Sur (-29.7%);
   - Agusan del Sur (-19.8%)
   - Zamboanga Sibugay (-14.3%)
   - Sultan Kudarat (-11.1%)
   - Zamboanga del Sur (-9.7%)
   - Davao del Sur (-8.4%)
5. At the Municipality level (Annex 10) we find:
   - Six Municipalities for which passing from accessibility to geographic coverage result in having none of the births being covered (Bayabas, Governor Generoso, Maragusan (San Mariano), Carage, Manay and Godod);
   - We also find the same Municipalities that were presenting the lowest accessibility coverage (Table 8). These Municipalities are reported in light blue in Annex 10;
   - We finally have an additional 20 Municipalities presenting a geographic coverage below 45%.
   - On the other side of the list, we find 165 Municipalities above the 90% universal geographic coverage benchmark (42%). Most of these Municipalities are actually cities or Municipalities adjacent to a city. In these cases, the difference between the accessibility and geographic coverage is below 5%.

Province Name	Number of Facilities
ZAMBOANGA DEL NORTE	8
LANAO DEL SUR	7
DAVAO DEL SUR	6
MISAMIS ORIENTAL	6
BUKIDNON	6
MAGUINDANAO	6
MISAMIS OCCIDENTAL	5
SOUTH COTABATO	5
SURIGAO DEL NORTE	4
LANAO DEL NORTE	4
COTABATO CITY	3
SULTAN KUDARAT	3
COTABATO (NORTH COTABATO)	2
CAMIGUIN	1
ZAMBOANGA DEL SUR	1
DINAGAT ISLANDS	1
Total:	68

Table 14 – Province level distribution of the number of facilities for which not all the coverage capacity has been used

The main conclusions of this analysis are that:

- The coverage capacity of MCP accredited facilities is most probably not sufficient and/or not well located to cover 90% of the births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth;
- The shortage in terms of coverage capacity is observed outside of cities, mainly in the Municipalities listed in Annex 10;
- An important part of the coverage capacity located in cities might be underused due to the important density of MCP accredited facilities observed in several of them.

7.3 Service utilization analyzes

This set of analyzes looks at comparing the results of the accessibility and geographic coverage analyzes with real data on service utilization to see if there are gaps between the two.

This analysis should have been based on service utilization data for the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth. This information being unfortunately not available, the data collected in the context of the 2008 Demographic Health Survey (DHS) [7] have been used instead to illustrate the potential that could be

offered would similar information be available for NHTS-PR registered beneficiaries (members and dependents) of PhilHealth only.

This analysis therefore consists in overlaying the cluster level number of unattended home deliveries from the 2008 DHS (Figure 14) on the 2 hours catchment areas obtained through the accessibility and geographic coverage analysis (Figure 22).

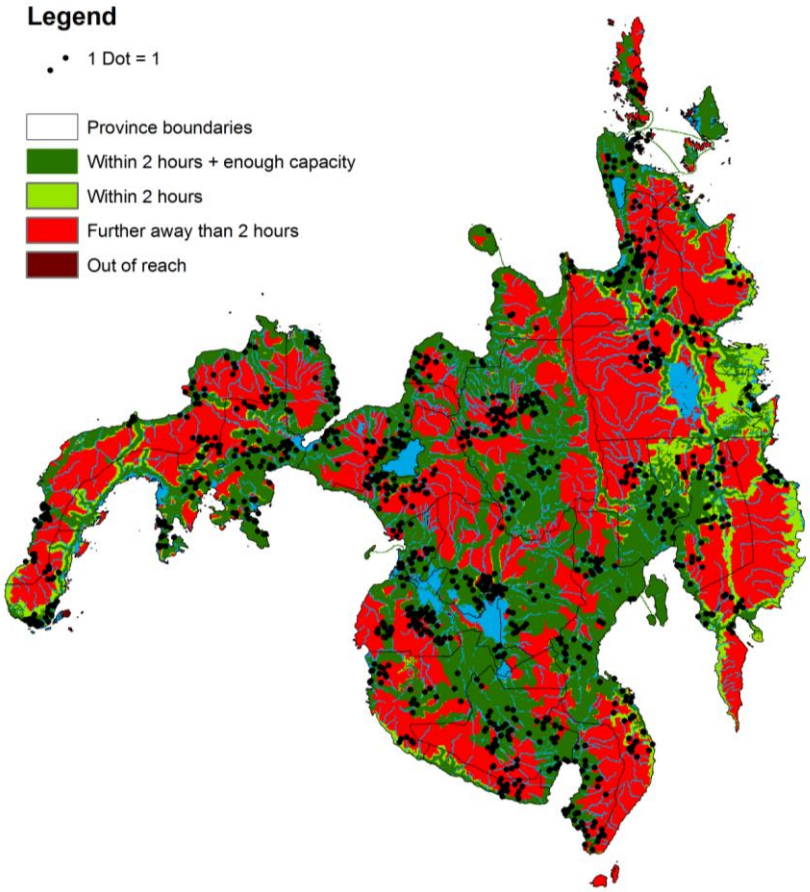

Figure 22 - Number of unattended home deliveries (DHS, 2008) on top of the catchment areas from the accessibility and geographic coverage analysis

When looking at Figure 22 it is important to also remember that:

1. The sample frame of DHS surveys is designed to ensure for the data to be representative at the national and sub-national level but not at the cluster level;
2. The location of each cluster is randomly shifted (see section 6.2.7) and we do not know the exact size of each cluster;
3. There is an important time discrepancy between both datasets as the DHS data were collected in 2008 while the accessibility analysis has been performed on the basis of the 2012 list of MCP accredited facilities.

Taking the above limitations into account, Figure 22 provides an additional illustration of the accessibility and geographic coverage issues that can be observed among the provinces forming the study area.

More specifically, we can observe unattended home deliveries further away than 2 hours from a MCP accredited facility (red areas) in the western part of Agusan del Sur or the Eastern part of Zamboanga del Norte.

At the same time, we can also observe that an important number of unattended home deliveries are within 2 hours of travel time to a MCP accredited facility (green areas) but that some time, even when taking the coverage capacity into account like it is for example the case for Surigao del Sur.

Availability and accessibility might therefore not be the only barriers to attended deliveries in a MCP accredited facility.

7.4 Scaling up analyzes

While the quantitative aspect of these results has to be taken with cautions because of data limitations, the previous two analyses indicated that the location and capacity of the current MCP accredited facilities do not allow reaching accessibility or geographic coverage over the study area when it comes to births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

NHTS-PR registered beneficiaries (members and dependents) of PhilHealth being only a part all PhilHealth members it is expected that these would actually be even lower in the reality.

As such, it is important to look at potential options aiming at scaling up the current capacity in order to at least cover 90% of the births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth, more specifically 91’350 births.

As we have seen from the geographic coverage analysis, the estimated total coverage capacity of the current MCP accredited facilities reaches 88’100 births (Section 7.2) and only 77’629 of these births were actually covered in 2 hours through the analysis (Annex 9).

While additional births could be covered if we were to increase the capacity of some of these facilities it would not be possible to cover more than the total number of births located within 2 hours of travel, namely 84’645 births (83.4% of all considered births), as per the results of the accessibility analysis (Annex 6).

Finally, the geographic coverage analysis illustrated a potential important overlap among MCP accredited facilities in Cities while an important gaps remains in more rural Municipalities.
In conclusion, aiming at only increasing the capacity of the current MCP accredited facilities would not be enough to reach universal accessibility and geographic coverage over the study area, additional MCP facilities would have to be considered. At the same time, part of the high density observed in some cities could be reduced to avoid under-use of services.

In view of the above, it has therefore been decided to use the results of the geographic coverage analysis to optimize the current network of MCP accredited facilities as follow:

- 19 facilities for which the coverage capacity has not been fully used during the geographic analysis (Annex 8) have been removed from the initial list after checking that there were other facilities near buy covering the demand in the concerned area. These facilities are listed in Table 15 and mapped in Figure 17;
- The coverage capacity of 26 other facilities has been expanded based on both the results of the coverage analysis and the number of MCP sponsored deliveries observed in 2012 (Annex 2). These facilities, and the corresponding increase in coverage capacity, are reported in Table 16 and mapped in Figure 17;
- 19 new facilities have been located among the municipalities presenting the lowest geographic coverage (Annex 10). The maximum coverage capacity for these facilities has been determined on the basis of the remaining uncovered births in the municipalities in which they are located as well as the neighboring ones. In addition to that, they have been considered as being managed by the government at this stage. These new facilities are reported in Table 17 and mapped in Figure 23.

MCP Code	Facility name	Province name	Municipality	Ownership
1411	ALEGRIA RHU	SURIGAO DEL NORTE	ALEGRIA	GOVERNMENT
1420	STA. MONICA HEALTH CENTER	SURIGAO DEL NORTE	SANTA MONICA (SAPAO)	GOVERNMENT
1187	GEMS MIDWIVES LYING-IN AND MATERNITY CLINIC	MISAMIS OCCIDENTAL	OZAMIS CITY	PRIVATE
1353	KIDAPAWAN CITY MATERNITY CENTER	COTABATO (NORTH COTABATO)	CITY OF KIDAPAWAN (Capital)	GOVERNMENT
1234	BLUEISTAR BIRTHING HOME CLINIC	BUKIDNON	CITY OF MALAYBALAY (Capital)	PRIVATE
1223	MOTHER & CHILD LYING-IN CLINIC	BUKIDNON	CITY OF MALAYBALAY (Capital)	PRIVATE
1155	TVI RESOURCE DEVELOPMENT PHILIPPINES INC. MINESITE CLINIC	ZAMBOANGA DEL NORTE	SIOCON	PRIVATE
1437	SALA'AM CLINIC	LANAO DEL SUR	MARAWI CITY (Capital)	PRIVATE
1354	DOC SWEET'S MATERNAL CARE AND LYING-IN CLINIC	COTABATO CITY	COTABATO CITY	PRIVATE
1272	DELFIN-GORNEZ WELL FAMILY MIDWIFE CLINIC	DAVAO DEL SUR	DAVAO CITY	PRIVATE
1285	AQUINO WELL FAMILY MIDWIFE CLINIC	DAVAO DEL SUR	DAVAO CITY	PRIVATE
1286	ANITA E. ALOJADO WELL FAMILY MIDWIFE CLINIC	DAVAO DEL SUR	DAVAO CITY	PRIVATE
1257	MA. THERESA L. MORALLAS WELL CARE MIDWIFE CLINIC	DAVAO DEL SUR	DAVAO CITY	PRIVATE
1252	NURSE MID MATERNITY CLINIC	DAVAO DEL SUR	DAVAO CITY	PRIVATE
1436	THE DATU MAMALINDING SPECIALISTS' CLINIC	LANAO DEL SUR	MARAWI CITY (Capital)	PRIVATE
1232	BUHIA MEDICAL AND MATERNITY CLINIC	BUKIDNON	MARAMAG	PRIVATE
1194	WELL FAMILY MIDWIFE CLINIC	LANAO DEL NORTE	LALA	PRIVATE
1195	TUBOD MATERNITY CLINIC	LANAO DEL NORTE	ILIGAN CITY	PRIVATE
1203	JM CLAIRE MATERNITY BIRTHING CLINIC	LANAO DEL NORTE	ILIGAN CITY	PRIVATE

Table 15 – List of existing MCP accredited facilities that have been removed from scaling up analysis

MCP Code	Facility name	Province name	Municipality	Ownership	Previous Maximum coverage capacity	New Maximum coverage capacity
1315	RHU- BAGUMBAYAN	SULTAN KUDARAT	BAGUMBAYAN	GOVERNMENT	400	493
1164	OPOL RHU	MISAMIS ORIENTAL	OPOL	GOVERNMENT	400	448
1225	MARAMAG BIRTHING HOME	BUKIDNON	MARAMAG	GOVERNMENT	200	434
1314	RHU- ISULAN	SULTAN KUDARAT	ISULAN (Capital)	GOVERNMENT	400	425
1428	MANGANGOY PRIVATE - PUBLIC MIXED BIRTHING FACILITY	SURIGAO DEL SUR	CITY OF BISLIG	GOVERNMENT	200	400
1336	JOSE J. CATOLICO PUERICULTURE, FAMILY PLANNING & MATERNITY CENTER	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	GOVERNMENT	200	321
1233	BRGY. NORTH POBLACION LYING-IN CLINIC	BUKIDNON	MARAMAG	GOVERNMENT	200	274
1313	TACURONG CITY BIRTHING HOME	SULTAN KUDARAT	CITY OF TACURONG	GOVERNMENT	200	241
1101	VITALI HEALTH CENTER & LYING-IN CLINIC	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	GOVERNMENT	100	200
1103	TUMAGA HEALTH CENTER	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	GOVERNMENT	100	200
1108	TALON-TALON HEALTH CENTER	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	GOVERNMENT	100	200
1109	STA. MARIA HEALTH CENTER	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	GOVERNMENT	100	200
1123	GUIWAN HEALTH CENTER	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	GOVERNMENT	100	200
1136	CITY GOV'T OF ZAMBOANGA/CHO-TUGBUNGAN HEALTH CENTER	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	GOVERNMENT	100	200
1270	DIGOS MATERNITY LYING-IN CLINIC	DAVAO DEL SUR	CITY OF DIGOS (Capital)	PRIVATE	200	762
1342	C.A. ESTIMADA BIRTHING HOME	SOUTH COTABATO	POLOMOLOK	PRIVATE	200	481
1382	BUTUAN MATERNITY BIRTHING CLINIC	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	PRIVATE	200	451
1334	MATAVIA-TOMINES OB-GYNE CLINIC	SOUTH COTABATO	SURALLAH	PRIVATE	100	428
1179	GINGOOG PUERICULTURE CENTER	MISAMIS ORIENTAL	GINGOOG CITY	PRIVATE	100	423
1327	SUSIE CAMACHO-GEDORIO OB-GYNE CLINIC	SOUTH COTABATO	SURALLAH	PRIVATE	100	406
1296	MERCY MOM'S PREGNANCY CLINIC	DAVAO DEL NORTE	CITY OF TAGUM (Capital)	PRIVATE	100	364
1350	SPRINGSIDE WOMAN CENTER AND BIRTHING HOME	COTABATO (NORTH COTABATO)	CITY OF KIDAPAWAN (Capital)	PRIVATE	200	293
1397	ANGEL'S BIRTHING CLINIC	AGUSAN DEL SUR	CITY OF BAYUGAN	PRIVATE	200	253
1260	LOLITA T. DELFIN WELL FAMILY MIDWIFE CLINIC	DAVAO DEL SUR	DAVAO CITY	PRIVATE	100	208
1337	FPOP-COMMUNITY HEALTH CARE CLINIC	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	PRIVATE	100	200
1290	WELLNESS MIDWIFE CLINIC	DAVAO DEL NORTE	SANTO TOMAS	PRIVATE	100	200

Table 16 – Existing MCP accredited facilities for which the maximum coverage capacity has been increased for the scaling up analysis

MCP Code	Facility name	Province name	Municipality	Ownership	Maximum coverage capacity
9001	New_1	SURIGAO DEL SUR	TANDAG (Capital)	GOVERNMENT	400
9002	New_2	DAVAO DEL SUR	JOSE ABAD SANTOS (TRINIDAD)	GOVERNMENT	400
9003	New_3	DAVAO DEL SUR	JOSE ABAD SANTOS (TRINIDAD)	GOVERNMENT	400
9004	New_4	SULTAN KUDARAT	PALIMBANG	GOVERNMENT	400
9005	New_5	DAVAO DEL SUR	MALITA	GOVERNMENT	400
9006	New_6	DAVAO ORIENTAL	GOVERNOR GENEROSO	GOVERNMENT	200
9007	New_7	COMPOSTELA VALLEY	MARAGUSAN (SAN MARIANO)	GOVERNMENT	400
9008	New_8	DAVAO ORIENTAL	MANAY	GOVERNMENT	200
9009	New_9	DAVAO ORIENTAL	BAGANGA	GOVERNMENT	400
9010	New_10	COMPOSTELA VALLEY	LAAK (SAN VICENTE)	GOVERNMENT	200
9011	New_11	SURIGAO DEL SUR	HINATUAN	GOVERNMENT	200
9012	New_12	AGUSAN DEL SUR	TRENTO	GOVERNMENT	200
9013	New_13	ROMBLON	SAN FERNANDO	GOVERNMENT	200
9014	New_14	COTABATO (NORTH COTABATO)	ALAMADA	GOVERNMENT	400
9015	New_15	ZAMBOANGA DEL NORTE	SIBUCO	GOVERNMENT	400
9016	New_16	SURIGAO DEL SUR	MARIHATAG	GOVERNMENT	200
9017	New_17	AGUSAN DEL SUR	LORETO	GOVERNMENT	200
9018	New_18	MASBATE	ESPERANZA	GOVERNMENT	400
9019	New_19	DAVAO ORIENTAL	CARAGA	GOVERNMENT	200

Table 17 – New proposed MCP accredited facilities for the scaling up analysis

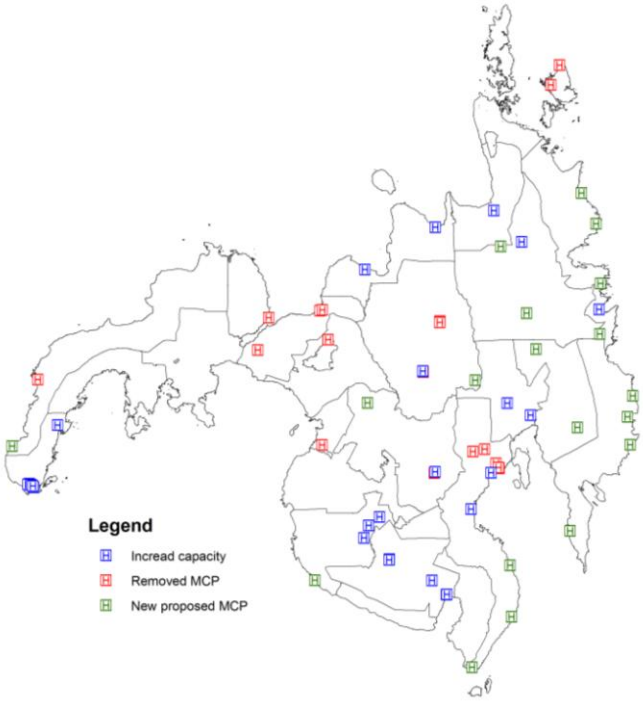

Figure 17 – Location of the MCP accredited facilities that have been removed, added or for which the coverage capacity has been increased for the scaling up analysis

It is important to note here that the absence of roads in several remote areas in the GIS dataset being used did not justify for additional changes to be made on the initial of existing MCP accredited facilities when performing the scaling up analysis. Among these areas, we can mention the following Municipalities for which a low geographic coverage has been observed (Annex 10):

- Munungan
- Kapai
- Tangcal
- Godod
- Tagoloan II

All these changes results in a total coverage capacity among the considered MCP accredited facilities of 95’005 births, capacity that would be above 90% of all births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

The accessibility and geographic coverage analysis have been conducted again using this list of facilities. The Province level results for this analysis is reported in Table 18.

PSGC	Province name	Accessibility coverage	Geographic coverage	Gain in accessibility coverage compare to the existing network	Gain in geographic coverage compare to the existing network
097200000	Zamboanga del Norte	66.2%	63.0%	3.1%	3.2%
097300000	Zamboanga del Sur	90.1%	84.5%	1.3%	5.3%
098300000	Zamboanga Sibugay	85.7%	73.6%	0.7%	2.9%
101300000	Bukidnon	87.9%	86.2%	1.4%	-0.1%
101800000	Camiguin	99.7%	99.5%	0.3%	0.0%
103500000	Lanao del Norte	81.0%	80.7%	0.8%	0.3%
104200000	Misamis Occidental	84.9%	82.5%	1.3%	-0.4%
104300000	Misamis Oriental	94.8%	93.4%	1.6%	0.4%
112300000	Davao del Norte	96.2%	95.3%	0.6%	0.7%
112400000	Davao del Sur	89.7%	83.5%	10.1%	12.3%
112500000	Davao Oriental	79.4%	75.7%	3.4%	34.5%
118200000	Compostela Valley	92.4%	89.4%	2.0%	14.6%
124700000	Cotabato (North Cotabato)	85.2%	83.6%	1.0%	-1.0%
126300000	South Cotabato	85.7%	85.2%	0.5%	-1.0%
126500000	Sultan Kudarat	86.6%	82.9%	1.3%	8.8%
128000000	Sarangani	65.3%	63.1%	1.7%	0.2%
129800000	Cotabato City (not a province)	100.0%	100.0%	0.0%	0.0%
153600000	Lanao del Sur	81.3%	79.8%	1.7%	0.2%
153800000	Maguindanao	84.3%	83.2%	0.4%	-0.7%
160200000	Agusan del Norte	90.4%	89.5%	0.7%	5.8%
160300000	Agusan del Sur	68.2%	65.1%	0.9%	17.5%
166700000	Surigao del Norte	97.2%	96.4%	0.6%	-1.1%
166800000	Surigao del Sur	86.9%	83.4%	1.1%	27.3%
168500000	Dinagat Islands	82.3%	81.3%	1.4%	0.0%
	Study area	85.5%	82.1%	2.1%	5.6%

Table 18 – Results of the accessibility and geographic coverage analysis after implementing the changes for the scaling up analysis

As we can see in Table 18:

- Despite the increased coverage capacity, the new configuration of MCP accredited facilities remain insufficient to reach both universal accessibility and geographic coverage;
- While the gain in coverage, compare to the current situation, is of 2.1% when it comes to accessibility coverage the gain for geographic coverage reaches 5.6%
- The biggest gain in terms of accessibility coverage is observed in the Provinces of Davao del Sur (10.1%) and Davao Oriental (3.4 %);
- When it comes to geographic coverage the biggest gain is observed in the Provinces of Davao Oriental (34.5%), Surigao del Sur (27.3%), Agusan Islands (17.5%) , Compostella Valley (14.6%), Davao del Sur (12.3%) and Sultan Kudarat (8.8%)
- Compare to the existing network of MCP accredited facilities, we now have 8 Provinces above the 90% universal coverage benchmark when it comes to accessibility coverage but still the same 5 Provinces for geographic coverage.

While this new configuration did not allow reaching universal accessibility or geographic coverage it has definitively improve equity in access among the covered Provinces.

It is also important to note here that all the new proposed facilities (Table 17) have seen their full coverage capacity being used during the analysis confirming therefore the pertinence of their need and location.

This being said, this new configuration did also lead to a very low usage of the coverage capacity of several facilities, most of them being one more time located in cities.

In conclusion, while this analysis did not succeed in reaching universal accessibility and geographic coverage over the study area it already provides important information regarding possible actions that could be taken in order to improve equity in access to MCP accredited facilities, namely by:

- favoring the accreditation of facilities located in areas which are currently far from existing facilities or at least outside of cities;
- looking at options that would allow for pregnant women close to labor to stay close to an MCP accredited facility, waiting home for example, in case they live in remote areas.

8. Knowledge transfer

The preparation of the data as well as the performing of the different analysis presented in the report requires specific GIS skills that are not necessarily obtained through basic GIS courses. In addition to that, despite the availability of a good user manual, it is good to have hands on exercises on AccesssMod in order to understand its capacities and limitations.

In this regards, the members of the DOH GIS team, part of the Information Management Service (IMS) division, have progressively been trained since August 2012 in the different concepts, methods and tools necessary not only to create and maintain a good quality GIS data set but also to conduct the different analysis presented here.

This training is provided following the order of the steps reported in the data, information and knowledge chain presented in Figure 18. While very generic in nature, this chain has been adjusted to integrate the development, management and update of geospatial data as well as the use of Geographic Information System (GIS) as one of the tools for producing information and knowledge.

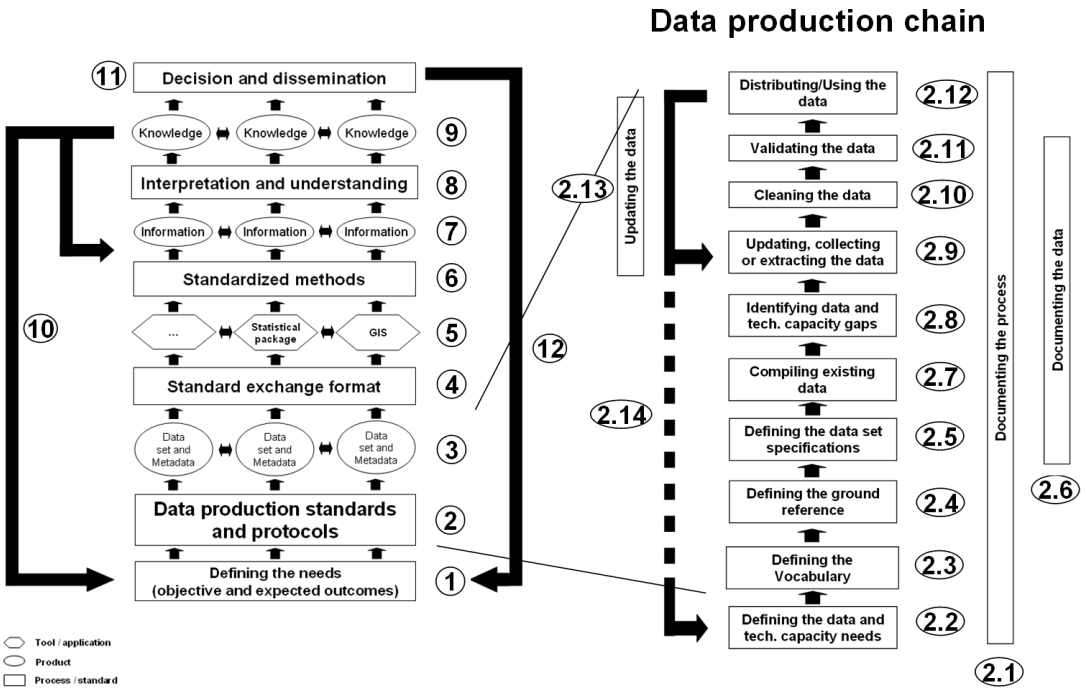

Figure 18 - Data, information and knowledge chain that integrates GIS

Until now, DOH GIS team has been mainly trained on handling all the steps reported in the data production chain, which is a sub-component of the overall chain itself, to be able to generate the necessary dataset for performing advanced GIS analyzes such as those presented here.

This did not only allow for the members of the team to strengthen their capacities in this areas but also to identify several issues that could be addressed through the implementation of the present project and its potential extension to other parts of the country, namely:

- A poor integration of the geographic and time dimensions in DOH's Health Information System (HIS);
- The lack of standards and protocol for the collection, maintenance and use of geospatial information within the DOH;
- An out-of-date and incomplete National Health Facility Database (NHFDB) resulting in the existence of several different list of health facilities and the use of different health facility coding schemes.

All the above results in important data compatibility issues not only within the DOH but also between different health partners (PhilHealth for example) as well as in a limited use of geography and GIS to conduct spatial analyses.

In order to address the above, a first set of standards and protocols have been developed, used at the central level and shared with the Regional Centers for Health Development (CHD). All this material is now to be completed and combined into a set of guidelines aiming at standardizing the collection and use of spatial information within the DOH.

In addition to that, a process aiming at updating and completing the National Health Facility Database (NHFDB) and converting it into a georeferenced National Health Facility Registry (NHFR) for the all country.

The above as well as the improvement of the collaboration with key partners within and outside the health sector will form the pillars of a long term GIS strategy for the DOH.

When it comes to performing accessibility and geographic coverage analysis, the concepts, approach and tools behind these analysis have been introduced to DOH's GIS team but it has not yet been possible to provide them with a complete training on the use of AccessMod because of some hardware and software issue as well as by lack of time. This training will therefore take place during the next phase of implementation of this project.

9. Conclusion and recommendations

The present study had for objective to analyse how accessible MCP accredited facilities are to NHTS-PR registered beneficiaries (members and dependents) of PhilHealth over 24 Provinces part of Mindanao islands as well as to identify potential gaps towards achieving Universal Health Care in this area to inform policy discussions on how to optimize or target the location and capacity of MCP accredited facilities in among the 24 Provinces being covered by the study.

At first, the all data preparation process highlighted several important gaps that should be addressed in order to facilitate the implementation of this kind of study in the future.

These gaps mainly concern the lack of:

1. A complete and up-to-date georeferenced health facility registry with a unique coding system that would be used by all the health partners in the country;
2. Integration of the Philippine Standard Geographic Code (PSGC) in the dataset produced by the different entities from which data have been received, namely: the Philippine Health Insurance Corporation (PhilHealth), National Statistical Coordination Board (NSCB) and the National Statistical Office (NSO). In addition to that, while used by the DOH, PGSC had not been updated since 2008 in the central database at the time of the study;
3. Complete, up-to-date, compatible and of quality GIS dataset for the administrative divisions, roads and the river network (see Sections 6.2.1, 6.2.4 and 6.2.5);
4. An historic changes table allowing to do the match between the different Municipality level databases used in the project (see Sections 6.1.2 and 6.2.1);
5. Complete health facility level data on Human Resources and deliveries;
6. Service utilization data for NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

The above gaps do not only result in time consuming efforts to prepare the different datasets but also in potential errors in the final results.

At the same time, these highlight important information management issues not only within the health sector but also among other key institutions in charge of collecting, maintaining and sharing data and information of critical importance for the development of the country. In other words, the analysis presented here depends very much on having a strong Information System in place in which the geographic and time dimension are well integrated.

While the work currently being done by the DOH regarding the establishment and maintenance of a National Health Facility Registry (NHFR) as well as the development of geo spatial data standards and protocols aims at solving the first gap, the other ones would have to be addressed through a more cross sectoral discussion involving not only

governmental institutions but also the academic and open data community for those related to coding and spatial data issues.

In addition to the data quality and completeness issues mentioned here above, it is important to mention once more the important temporal shift that exists between the different sources of statistical data as well as the uncertainty regarding the level of completeness of some of the GIS layers being used here (Chapter 6).

Taking these limitations into account, the results obtained through the different analysis performed in the context of this project are presented here.

At first, the accessibility and geographic coverage provided by the currently existing MCP accredited facilities have been analysed to see if 90% of all births among NHTS-PR registered beneficiaries (members and dependents) of PhilHealth would be within 2 hours of travel from one of these facilities and there would be enough capacity in these facilities to answer the demand.

In the case of the 24 Province, this analyses demonstrate that:

- From an accessibility coverage perspective (see section 7.1), the MCP accredited facilities in place (public and private) are sufficient and well located to cover 83.4% of the birth among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth within 2 hours of travel time. Universal accessibility coverage, as defined in the context of this project, is therefore not reached for MCP accredited facilities;
- When looking at geographic coverage (see section 7.2), the percentage of births among this same population drops to 76.5% indicating a potential shortage in terms of skilled birth attendants in some part of the study area. Universal geographic coverage is therefore also not reached.

At the Province level we find 18 Provinces (75%) below the 90% benchmark for accessibility coverage (Annex 6) and 19 of them (79.1%) for geographic coverage.

Then, at the Municipality level, 49.3% of the Municipalities are below the 90% benchmark for accessibility coverage and 57.9% for geographic coverage.

In addition to that, and without considering Maguindanao Province, the majority of uncovered births (87.8% of all uncovered births) through the accessibility coverage analysis are finding themselves in Municipalities both below the 90% coverage benchmark as well as presenting a poverty incidence above 25% (Table 9) underlining therefore the potential difficulties for low income patients located in remote areas to easily access MCP accredited facilities.

Finally, the accessibility analysis demonstrated that any program aiming at financially supporting the transportation of pregnant women at the moment of delivery would have

an important positive impact on their chance to reach an MCP accredited facility within 2 hours.

When looking at these results, it is important to remember that these analysis have been based on the assumption that MCP accredited facilities would principally benefit NHTS-PR registered beneficiaries (members and dependents) of PhilHealth while, in the reality, anyone can deliver in these facilities. As such, the above mentioned figures are certainly an overestimation of the real accessibility and geographic coverage to be expected among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

The service utilization analyzes (see Section 7.3) does itself only serve as an illustration of the information that can be obtained when combining the results of an accessibility analysis with survey data, would the surveyed clusters be located using GPS devices. Other analysis could also be done would such survey data be representative down to the Province or even Municipality level.

In view of the above, performing a scaling up analysis was justified in order to look at potential options aiming at optimizing the location and capacity of MCP accredited facilities over the study area. The results of this analysis confirmed that actions aiming at favoring the accreditation of facilities in particular areas compare to cities would not only result in an increased accessibility and geographic coverage but also improve equity in access. At the same time, this analysis also confirms that other options would have to be considered for the population living in remote areas not necessarily well deserved by the road network.

While all the results presented here above are subject to the quality, accuracy and level of completeness of the data that have been used (see Chapter 6) the information they provide does already allow identifying potential areas on which the government might want to invest or particular situation that could require more in depth analyzes.

While these analyzes could always be repeated and made more comprehensive would new, or better, data be available, additional analysis could also be performed.

Among those, the possibility to look at the impact of floods, or landslides, on accessibility could be measured using the same tool and approaches than those used here. This type of analysis could be particularly relevant in the regions of the country being the most affected by tropical cyclones.

At the same time, it could also be interesting to consider Emergency Obstetric Care in these analyses, first by identifying which MCP accredited facilities are performing the BEmOC signal functions and then looking at the CEmOC referral system in place both from an accessibility and geographic coverage perspective in order to identify potential issues in case of complications during the delivery.

These are just two examples among others to illustrate the benefits for the health sector to strengthen its geographic information management practices and technical capacity as well as improve collaboration and coordination with other key stakeholders.

As such, it is proposed for WHO and the DOH to continue collaborating in this area and to use the work presented here as a driver to continue strengthening the integration of geography and time in the HIS as well as DOH GIS capacity.

The following recommendations are proposed for consideration:

For the DOH to:

- Review the results of the present project and see if adjustments should be made when it comes to the different assumptions and benchmarks that have been used;
- Assess the usefulness of these results to inform policy discussions on how to optimize or target the location and capacity of MCP accredited facilities;
- Implement the present analysis in other part of the country taking both Emergency Obstetric Care and the impact of major natural hazards on accessibility into account;
- Continue the work aiming at institutionalizing the integration of geography and time in the Health Information System (HIS) not only to ensure data compatibility within the health sector but also to allow for a better use of GIS. This should include, but not be limited to:
    - The establishment and uses of specific GIS standards, guidelines and protocols;
    - the availability of a complete and up-to-date National Health Facility Registry (NHFR) used as the reference for all health facility level data,
    - The integration of the Philippine Standard Geographic Code (PSGC) in all sub national data sets used within the health sector;
    - The continuity of the strengthening of the GIS capacity at the DOH.
- Look at other potential applications of GIS based analysis within the health sector;
- Advocate for data compatibility and data sharing issues to be addressed not only within the health sectors but among sectors.

For WHO to:

- Also provide feedback on the results obtained through the implementation of the present project;
- Continue supporting the strengthening of the GIS capacity at the DOH as well as the implementation of this approach, as well as other relevant GIS based studies, in other parts of the country;
- Advocate for the NHFR as well as DOH GIS standards, guidelines protocols to be used as the reference in the context of any health related projects they support.

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Annex 1 – Provinces names and Province level figures used in the context of the different analysis

Region PSGC	Region name	Province PSGC	Province name	Total population (2010 census)	Number of births (2010 census)	Estimated CBR (2010)	Members of the NHTS-PR program (Philhealth, 2013)	Dependents part of the NHTS-PR program (Philhealth, 2013)	2013 total population under the NHTS-PR program (Members and dependents)	2013 Estimated number of births among the population under the NHTS-PR program
150000000	Autonomous Region in Muslim Mindanao	153600000	Lanao del Sur	933260	3'152	3.38	103'996	477'899.00	581'895	1'965
		153800000	Maguindanao	944718	1'319	1.40	213'755	763'800.00	977'555	1'365
090000000	Region IX (Zamboanga Peninsula)	097200000	Zamboanga del Norte	957997	14'989	15.65	161'756	281'001.00	442'757	6'927
		097300000	Zamboanga del Sur	1766814	32'056	18.14	235'419	589'172.00	824'591	14'961
		098300000	Zamboanga Sibugay	584685	9'699	16.59	101'315	245'066.00	346'381	5'746
100000000	Region X (Northern Mindanao)	101300000	Bukidnon	1299192	26'624	20.49	73'669	248'812.00	322'481	6'609
		101800000	Camiguin	83807	1'842	21.98	5'666	13'887.00	19'553	430
		103500000	Lanao del Norte	930738	15'809	16.99	83'279	233'643.00	316'922	5'383
		104200000	Misamis Occidental	567642	10'442	18.40	37'148	82'372.00	119'520	2'199
		104300000	Misamis Oriental	1415944	30'080	21.24	69'762	184'777.00	254'539	5'407
110000000	Region XI (Davao Region)	118200000	Compostela Valley	687195	12'943	18.83	48'837	161'418.00	210'255	3'960
		112300000	Davao del Norte	945764	18'886	19.97	49'380	159'126.00	208'506	4'164
		112400000	Davao del Sur	2317986	46'252	19.95	102'008	337'754.00	439'762	8'775
		112500000	Davao Oriental	517618	6'853	13.24	42'306	150'241.00	192'547	2'549
120000000	Region XII (Soccsksargen)	129800000	Cotabato City (not a province)	271786	814	3.00	1'697	5'325.00	7'022	21
		124700000	Cotabato (North Cotabato)	1226508	23'309	19.00	81'913	277'208.00	359'121	6'825
		128000000	Sarangani	498904	6'284	12.60	38'545	133'798.00	172'343	2'171
		126300000	South Cotabato	1365286	25'889	18.96	59'780	199'184.00	258'964	4'911
		126500000	Sultan Kudarat	747087	10'085	13.50	56'384	185'602.00	241'986	3'267
160000000	Region XIII (Caraga)	160200000	Agusan del Norte	642196	12'102	18.84	42'394	140'147.00	182'541	3'440
		160300000	Agusan del Sur	656418	10'790	16.44	62'657	211'540.00	274'197	4'507
		168500000	Dinagat Islands	126803	1'272	10.03	12'064	35'174.00	47'238	474
		166700000	Surigao del Norte	442588	7'018	15.86	42'189	123'111.00	165'300	2'621
		166800000	Surigao del Sur	561219	7'308	13.02	51'662	165'328.00	216'990	2'826
			Total	20'492'155	335'817	16.39	1'777'581	5'405'385	7'182'966	101'501

Annex 2 – Public and private MCP accredited facilities as of December 2012

MCP Code	DOH Code	Name of the facility	Ownership	Region name	Province name	Municipality name	Municipality PSGC	Final Easting	Final Northing	Source original coordinate	Number of MCP sponsored deliveries (Philhealth, 2012)
1439	5730	BALINDONG RHU	GOVERNMENT	ARMM	LANAO DEL SUR	BALINDONG (WATU)	153603000	632862.1029	875145.3109	Google map - approximate	No Data
1440	118	BUADIPOSO BUNTUNG RHU	GOVERNMENT	ARMM	LANAO DEL SUR	BUADIPOSO-BUNTONG	153633000	651984.752	878964.9845	Google maps - precise	No Data
1441	3713	BUBONG RHU	GOVERNMENT	ARMM	LANAO DEL SUR	BUBONG	153606000	652765.608	877005.1795	Philhealth	5
1442	2981	DITSA-AN RAMAIN RHU	GOVERNMENT	ARMM	LANAO DEL SUR	DITSAAN-RAMAIN	153624000	648853.6444	880774.4098	Google map road	23
1443	7446	LUMBABAYABAO RHU	GOVERNMENT	ARMM	LANAO DEL SUR	LUMBA-BAYABAO (MAGUING)	153611000	651036.3036	869654.0761	Google map - approximate	No Data
1444	3247	MARANTAO RHU	GOVERNMENT	ARMM	LANAO DEL SUR	MARANTAO	153616000	632736.3251	875327.3501	Philhealth	No Data
1438		CLINICA FARIDA	PRIVATE	ARMM	LANAO DEL SUR	MARAWI CITY (Capital)	153617000	640845.8023	885600.8323	Google map - approximate	1
1434		RANAO DOCTORS' POLYMEDIC	PRIVATE	ARMM	LANAO DEL SUR	MARAWI CITY (Capital)	153617000	642263.795	884912.7011	Google map road	No Data
1437	23641	SALA'AM CLINIC	PRIVATE	ARMM	LANAO DEL SUR	MARAWI CITY (Capital)	153617000	643278.7764	884559.0546	Google map road	10
1436		THE DATU MAMALINDING SPECIALISTS' CLINIC	PRIVATE	ARMM	LANAO DEL SUR	MARAWI CITY (Capital)	153617000	643221.3222	884567.1667	Google map road	No Data
1445	808	TAMPARAN RHU	GOVERNMENT	ARMM	LANAO DEL SUR	TAMPARAN	153626000	646347.7843	865896.1403	Philhealth	No Data
1435		GANNABAN MEDICAL CLINIC & BIRTHING HOME	PRIVATE	ARMM	LANAO DEL SUR	WAO	153630000	690207.66	844495.0289	Google map road	20
1446	7162	WAO RHU/WAO RHU TB DOTS CLINIC	GOVERNMENT	ARMM	LANAO DEL SUR	WAO	153630000	690416.8921	845145.0774	Google map road	285
1453	2610	BARIRA RHU	GOVERNMENT	ARMM	MAGUINDANAO	BARIRA	153818000	649572.0563	826079.7397	Philhealth	No Data
1455	6696	DATU ODIN SINSUAT RHU	GOVERNMENT	ARMM	MAGUINDANAO	DATU ODIN SINSUAT (DINAIG)	153807000	634215.3324	791832.8784	Google map road	No Data
1456	2842	DATU PAGLAS RHU	GOVERNMENT	ARMM	MAGUINDANAO	DATU PAGLAS	153805000	706377.3561	745912.7495	Philhealth	No Data
1451		WELL-FAMILY MIDWIFE CLINIC	PRIVATE	ARMM	MAGUINDANAO	DATU PAGLAS	153805000	706784.1484	746054.7113	Google map - approximate	No Data
1447		PARISA WELL FAILY MIDWIFE CLINIC	PRIVATE	ARMM	MAGUINDANAO	DATU PIANG	153806000	666338.4032	777044.3309	Google map - approximate	No Data
1457	57	GEN. SALIPADA K. PENDATUN RHU (BADAK)	GOVERNMENT	ARMM	MAGUINDANAO	GEN. S. K. PENDATUN	153819000	693931.5535	755041.6597	Google map road	1
1452		WELL- FAMILY MIDWIFE CLINIC BRANCH II	PRIVATE	ARMM	MAGUINDANAO	GEN. S. K. PENDATUN	153819000	692516.8786	754915.2004	Google map road	No Data
1458	1416	KABUNTALAN RHU	GOVERNMENT	ARMM	MAGUINDANAO	KABUNTALAN (TUMBAO)	153814000	652417.7863	788392.3393	Philhealth	No Data
1460	1790	NORTHERN KABUNTALAN RHU	GOVERNMENT	ARMM	MAGUINDANAO	NORTHERN KABUNTALAN	153834000	662947.9008	796303.3487	Google map road	No Data
1454	6418	DATU MONTAWAL RHU	GOVERNMENT	ARMM	MAGUINDANAO	PAGAGAWAN	153822000	694679.0396	785174.7659	Google map road	No Data
1461	3594	PAGALUNGAN RHU	GOVERNMENT	ARMM	MAGUINDANAO	PAGALUNGAN	153810000	687510.5467	780442.4803	Philhealth	No Data
1448		MONIB WELL FAMILY MIDWIFE CLINIC	PRIVATE	ARMM	MAGUINDANAO	PARANG	153811000	640038.0442	815342.726	Google map - approximate	No Data
1462	4519	SOUTH UPI RHU	GOVERNMENT	ARMM	MAGUINDANAO	SOUTH UPI	153817000	626306.9709	757977.2099	Philhealth	No Data
1463	3895	SULTAN MASTURA RHU	GOVERNMENT	ARMM	MAGUINDANAO	SULTAN MASTURA	153824000	641292.4664	807579.1226	Google map road	No Data
1464	5257	TALAYAN RHU	GOVERNMENT	ARMM	MAGUINDANAO	TALAYAN	153816000	649735.2513	772299.3095	Philhealth	No Data
1465	129	TALITAY RHU	GOVERNMENT	ARMM	MAGUINDANAO	TALITAY	153821000	648651.1704	773619.9805	Philhealth	No Data
1459	2236	NORTH UPI RHU	GOVERNMENT	ARMM	MAGUINDANAO	UPI	153815000	628293.177	775229.6696	Philhealth	10
1394	6382	BUENAVISTA RURAL HEATH UNIT & REPRODUCTIVE HEALTH CARE CENTER	GOVERNMENT	CARAGA	AGUSAN DEL NORTE	BUENAVISTA	160201000	764809.7398	993000.9298	Philhealth	No Data
1382		BUTUAN MATERNITY BIRTHING CLINIC	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	779277.6633	990214.0434	Google map - approximate	451
1393		IMAP BIRTHING LYING- IN CLINIC	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	780026.1157	992041.2119	Barangay road	45
1395		J. P. RIZAL HEALTH STATION	GOVERNMENT	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	780535.8238	990820.0159	Barangay road	No Data
1392		KRISTINA FAMILY PLANNING & BIRTHING CLINIC	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	776867.4013	992387.6948	Barangay road	11
1384		MAMA CARE & LYING-IN CLINIC	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	778218.3212	991238.9638	Barangay road	30
1385		MARILYN BIRTHING HOME CLINIC AND FAMILY PLANNING	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	784550.8627	990614.3554	Barangay road	8
1386		MOTHER'S HEALTH FIRST BIRTHING HOME	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	778723.1954	990419.9332	Google map road	176
1388		PREVIES BIRTHING & FAMILY PLANNING CLINIC	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	777773.996	995127.1019	Barangay road	4
1389		R & J MATERNITY CLINIC & FAMILY PLANNING	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	779532.0014	990772.5955	Barangay road	17
1390		RAINBE- 2 BIRTHING CLINIC	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	781386.7235	988317.5875	Barangay road	31
1391		RAINBE BIRTHING HOME	PRIVATE	CARAGA	AGUSAN DEL NORTE	BUTUAN CITY (Capital)	160202000	780451.0749	984577.8885	Barangay road	27
1383		CABADBARAN CITY PUERICULTURE CENTER, INC.	GOVERNMENT	CARAGA	AGUSAN DEL NORTE	CITY OF CABADBARAN	160203000	780502.1709	1008299.573	Barangay road	136
1396	3342	RHU MAGALLANES	GOVERNMENT	CARAGA	AGUSAN DEL NORTE	MAGALLANES	160208000	777264.3784	999348.4354	NAMRIA 2000	76
1387	1414	NASIPIT RHU BIRTHING CLINIC	GOVERNMENT	CARAGA	AGUSAN DEL NORTE	NASIPIT	160209000	755790.974	993551.2804	NAMRIA 2000	1
1397		ANGEL'S BIRTHING CLINIC	PRIVATE	CARAGA	AGUSAN DEL SUR	CITY OF BAYUGAN	160301000	801971.8937	964484.4626	Google map road	253
1401		NEKIE' S PAANAKAN CENTER	PRIVATE	CARAGA	AGUSAN DEL SUR	CITY OF BAYUGAN	160301000	802539.8675	964416.4259	Google map road	No Data
1402		ROSARIO MUNICIPAL HEALTH OFFICE & REPRODUCTIVE HEALTH CENTER	GOVERNMENT	CARAGA	AGUSAN DEL SUR	ROSARIO	160307000	830870.2803	928328.2105	Philhealth	12

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1404	4978	STA. JOSEFA RHU	GOVERNMENT	CARAGA	AGUSAN DEL SUR	SANTA JOSEFA	160310000	833893.8505	883892.5395	Philhealth	51
1398	17884	BIRTHING CLINIC OF BHS- DEL MONTE	GOVERNMENT	CARAGA	AGUSAN DEL SUR	TALACOGON	160311000	811328.5361	935716.3683	Barangay road	31
1399	17856	BIRTHING CLINIC OF BHS- LABNIG	GOVERNMENT	CARAGA	AGUSAN DEL SUR	TALACOGON	160311000	809564.1672	935246.7368	Barangay road	8
1400	17855	BIRTHING CLINIC OF ZILLOVIA BHS	GOVERNMENT	CARAGA	AGUSAN DEL SUR	TALACOGON	160311000	802656.9709	934351.1593	Barangay road	19
1403	4434	RHU TALACOGON	GOVERNMENT	CARAGA	AGUSAN DEL SUR	TALACOGON	160311000	806512.6298	935886.8898	Philhealth	50
1405	78	TRENTO RHU	GOVERNMENT	CARAGA	AGUSAN DEL SUR	TRENTO	160312000	837539.2905	890564.5696	Philhealth	65
1412	2889	BASILISA RHU AND REPRODUCTIVE HEALTH CENTER	GOVERNMENT	CARAGA	DINAGAT ISLANDS	BASILISA (RIZAL)	168501000	784509.0005	1113870	NAMRIA 2000	No Data
1415	139	LIBJO RHU AND FAMILY PLANNING CENTER	GOVERNMENT	CARAGA	DINAGAT ISLANDS	LIBJO (ALBOR)	168504000	780831.2106	1126119.949	Google map road	No Data
1411		ALEGRIA RHU	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	ALEGRIA	166701000	825872.2947	1092820.628	NAMRIA 2000	27
1413	2503	BURGOS RHU	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	BURGOS	166704000	836897.8	1109113.77	Philhealth	No Data
1414	5794	CLAVER RHU	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	CLAVER	166706000	799848.0006	1059530	Philhealth	No Data
1407	3258	DAPA RHU & BIRTHING CLINIC	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	DAPA	166707000	834892.0003	1080143	Philhealth	7
1417	843	RHU DEL CARMEN	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	DEL CARMEN	166708000	825908.9996	1092708	Philhealth	18
1420		STA. MONICA HEALTH CENTER	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	SANTA MONICA (SAPAO)	166721000	833094.4874	1109167.61	Google map road	No Data
1418	5119	RHU, SISON	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	SISON	166722000	777310.0005	1068683.999	Philhealth	11
1416		LUNA DISTRICT HEALTH CENTER	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	SURIGAO CITY (Capital)	166724000	771709.5105	1080733.838	Barangay road	No Data
1408		MADONNA & CHILD BIRTHING HOME	PRIVATE	CARAGA	SURIGAO DEL NORTE	SURIGAO CITY (Capital)	166724000	773089.3592	1082137.067	Google map - approximate	176
1409		MAMA' S LOVE LYING- IN CLINIC	PRIVATE	CARAGA	SURIGAO DEL NORTE	SURIGAO CITY (Capital)	166724000	772385.2708	1082710.801	Barangay road	68
1419	5151	SAN JUAN DISTRICT HEALTH CENTER	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	SURIGAO CITY (Capital)	166724000	772460.9998	1083514	Philhealth	No Data
1410	3083	TAFT DISTRICT HEALTH CENTER AND BIRTHING FACILITY	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	SURIGAO CITY (Capital)	166724000	773296.1225	1082618.781	Barangay road	No Data
1422	1943	WASHINGTON DISTRICT HEALTH CENTER	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	SURIGAO CITY (Capital)	166724000	772762.001	1082785	Philhealth	7
1421	1590	TUBO RHU	GOVERNMENT	CARAGA	SURIGAO DEL NORTE	TUBOD	166727000	782074.0349	1057161.556	Google map - approximate	No Data
1425		ANGELITA M. YMA MATERNITY CARE AND FAMILY PLANNING CLINIC	PRIVATE	CARAGA	SURIGAO DEL SUR	BAROBO	166801000	843133.713	944857.9651	Google map road	35
1427	5847	CARRASCAL RHU & INFIRMARY	GOVERNMENT	CARAGA	SURIGAO DEL SUR	CARRASCAL	166807000	823798.7575	1037061.82	Philhealth	60
1428		MANGANGOY PRIVATE - PUBLIC MIXED BIRTHING FACILITY	GOVERNMENT	CARAGA	SURIGAO DEL SUR	CITY OF BISLIG	166803000	865411.0494	909368.173	Google map - approximate	326
1426		DIATAGON BIRTHING & FAMILY PLANNING CLINIC	PRIVATE	CARAGA	SURIGAO DEL SUR	LIANGA	166811000	839980.46	955524.8353	Google map - approximate	No Data
1423		MUNICIPAL HEALTH OFFICE & REPRODUCTIVE HEALTH CENTER - SAN MIGUEL	GOVERNMENT	CARAGA	SURIGAO DEL SUR	SAN MIGUEL	166816000	833439.4331	988944.0436	Google map - approximate	No Data
1424	3664	REPRODUCTIVE HEALTH & FAMILY PLANNING CENTER - TAGBINA	GOVERNMENT	CARAGA	SURIGAO DEL SUR	TAGBINA	166817000	847438.9623	936306.7504	Philhealth	No Data
1211	15116	CABANGLASAN RHU & FPC	GOVERNMENT	Region 10	BUKIDNON	CABANGLASAN	101322000	753966.9473	894876.9499	From CHD	No Data
1234		BLUEISTAR BIRTHING HOME CLINIC	PRIVATE	Region 10	BUKIDNON	CITY OF MALAYBALAY (Capital)	101312000	734840.3122	898752.3004	Barangay road	10
1223		MOTHER & CHILD LYING-IN CLINIC	PRIVATE	Region 10	BUKIDNON	CITY OF MALAYBALAY (Capital)	101312000	735002.0781	899941.9596	Barangay road	52
1222		MOTHER'S ANGEL BIRTHING HOME/ FAMILY PLANNING CLINIC	PRIVATE	Region 10	BUKIDNON	CITY OF MALAYBALAY (Capital)	101312000	734314.4881	901785.7203	Google map road	275
1212		SAIT BIRTHING CLINIC	PRIVATE	Region 10	BUKIDNON	CITY OF VALENCIA	101321000	730903.7413	874427.0849	Google map road	No Data
1214	15131	VALENCIA CHO MATERNAL CARE & TB DOTS CENTER	GOVERNMENT	Region 10	BUKIDNON	CITY OF VALENCIA	101321000	730341.2539	874661.9924	From CHD	385
1217	2956	RHU- DANGCAGAN	GOVERNMENT	Region 10	BUKIDNON	DANGCAGAN	101303000	720912.2835	841930.1357	From CHD	176
1230	4674	DON CARLOS RHU & FAMILY PLANNING CENTER	GOVERNMENT	Region 10	BUKIDNON	DON CARLOS	101304000	719629.0817	849599.9175	From CHD	66
1215	4426	SIMBULAN SANTO NIÑO GEN. HOSP. BIRTHING HOME	PRIVATE	Region 10	BUKIDNON	DON CARLOS	101304000	720244.5299	849619.706	Private hospitals database	2
1229	15119	IMPASUG-ONG MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 10	BUKIDNON	IMPASUG-ONG	101305000	727116.4283	861109.1341	NAMRIA 2000	3
1228		KADINGILAN MATERNITY CARE PACKAGE AND TB DOTS CENTER	GOVERNMENT	Region 10	BUKIDNON	KADINGILAN	101306000	710497.7005	840541.3244	NAMRIA 2000	126
1224		MATERNITY CARE CENTER - LGU KALILANGAN	GOVERNMENT	Region 10	BUKIDNON	KALILANGAN	101307000	691667.627	856336.6288	Barangay road	No Data
1226		LGU KIBAWE BIRTHING HOME & TB DOTS CENTER	GOVERNMENT	Region 10	BUKIDNON	KIBAWE	101308000	718900.1683	837371.2161	NAMRIA 2000	104
1227	15148	KITAOTAO RHU & FAMILY PLANNING CLINIC	GOVERNMENT	Region 10	BUKIDNON	KITAOTAO	101309000	721443.3902	845240.79	NAMRIA 2000	No Data
1218	15107	RHU - MALITBOG	GOVERNMENT	Region 10	BUKIDNON	MALITBOG	101313000	706695.5088	943722.0053	From CHD	No Data
1221	1434	MUNICIPAL HEALTH OFFICE- MANOLO FORTICH	GOVERNMENT	Region 10	BUKIDNON	MANOLO FORTICH	101314000	704453.5355	925956.7444	From CHD	213
1235		AZNAR BIRTHING HOME AND LYING- IN	PRIVATE	Region 10	BUKIDNON	MARAMAG	101315000	720606.4771	856513.5311	Barangay road	2
1233		BRGY. NORTH POBLACION LYING-IN CLINIC	GOVERNMENT	Region 10	BUKIDNON	MARAMAG	101315000	720965.3798	858905.593	Google map road	274
1232		BUHIA MEDICAL AND MATERNITY CLINIC	PRIVATE	Region 10	BUKIDNON	MARAMAG	101315000	721305.7899	858156.8786	Barangay road	7
1225		MARAMAG BIRTHING HOME	GOVERNMENT	Region 10	BUKIDNON	MARAMAG	101315000	721009.0696	858508.9007	NAMRIA 2000	434
1220		PANGANTUCAN MATERNITY CARE & TB DOTS CENTER	GOVERNMENT	Region 10	BUKIDNON	PANGANTUCAN	101316000	701394.9396	866033.4197	Philhealth	168
1231		BUTONG LYING- IN CENTER	GOVERNMENT	Region 10	BUKIDNON	QUEZON	101317000	728977.3316	861346.6963	Barangay road	24

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1219		QUEZON MATERNITY CARE & PPMD DOTS CENTER	GOVERNMENT	Region 10	BUKIDNON	QUEZON	101317000	756199.1934	876730.8838	Google map - approximate	134
1213		SALAWAGAN LYING-IN CENTER	PRIVATE	Region 10	BUKIDNON	QUEZON	101317000	733488.525	851795.1847	Barangay road	No Data
1216		RHU TB DOTS CENTER & BIRTHING HOME	GOVERNMENT	Region 10	BUKIDNON	SAN FERNANDO	101318000	756753.9164	875495.8947	From CHD	No Data
1209	7658	CATARMAN MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 10	CAMIGUIN	CATARMAN	101801000	683795.46	1009290.91	Philhealth	#N/A
1210		MARYDEL BIRTHING HOME	PRIVATE	Region 10	CAMIGUIN	SAGAY	101805000	688157.083	1023316.805	Google map - approximate	#N/A
1208	4958	SAGAY RURAL HEALTH UNIT	GOVERNMENT	Region 10	CAMIGUIN	SAGAY	101805000	689369.62	1007040.57	NAMRIA 2000	#N/A
1193	7337	BAROY RHU	GOVERNMENT	Region 10	LANAO DEL NORTE	BAROY	103503000	585769.5804	887234.7417	From CHD	43
1206		BARANGAY HINAPLANON MATERNITY CLINIC	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	638921.0726	911906.9876	Barangay road	44
1205		BARANGAY SUAREZ HEALTH CENTER LYING-IN	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	633906.4207	905555.6276	Barangay road	No Data
1204	14916	BURUUN HEALTH CENTER	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	629675.1998	904670.1606	Barangay road	No Data
1203		JM CLAIRE MATERNITY BIRTHING CLINIC	PRIVATE	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	638536.956	908916.857	Barangay road	No Data
1200	15047	PUGAAN HEALTH CENTER	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	640978.234	908886.5005	Barangay road	No Data
1199	15062	SARAY HEALTH CENTER	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	636600.5417	910645.8649	Barangay road	No Data
1198	15056	TAMBACAN HEALTH CENTER	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	635892.917	908593.1068	Barangay road	No Data
1197	15081	TIBANGA HEALTH CENTER	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	636682.4561	911050.8379	Google map - approximate	No Data
1196	15063	TIPANOY HEALTH CENTER	GOVERNMENT	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	637688.4196	906536.2585	Google map road	No Data
1195		TUBOD MATERNITY CLINIC	PRIVATE	Region 10	LANAO DEL NORTE	ILIGAN CITY	103504000	636681.5967	908342.9796	Google map road	No Data
1191	15165	MUNICIPAL HEALTH OFFICE OF KAPATAGAN	GOVERNMENT	Region 10	LANAO DEL NORTE	KAPATAGAN	103505000	585022.6163	873117.7319	From CHD	No Data
1202	15174	KAUSWAGAN RHU LYING- IN CLINIC	GOVERNMENT	Region 10	LANAO DEL NORTE	KAUSWAGAN	103507000	619712.1302	905416.946	From CHD	14
1207		A & M LYING IN AND DIAGNOSTIC CLINIC	PRIVATE	Region 10	LANAO DEL NORTE	LALA	103509000	585770.3152	875908.2521	Barangay road	46
1201		LSSTI OPD AND BIRTHING CLINIC	GOVERNMENT	Region 10	LANAO DEL NORTE	LALA	103509000	585447.0779	878586.6611	Google map road	83
1190	5843	RHU-LALA/LALA RHU TB-DOTS CLINIC	GOVERNMENT	Region 10	LANAO DEL NORTE	LALA	103509000	585472.8223	880377.1422	From CHD	327
1194		WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 10	LANAO DEL NORTE	LALA	103509000	585605.4047	876088.7114	Google map road	No Data
1192	5787	LINAMON RHU	GOVERNMENT	Region 10	LANAO DEL NORTE	LINAMON	103510000	628182.7209	904762.8178	From CHD	136
1189	1887	ALORAN RHU LYING-IN CLINIC	GOVERNMENT	Region 10	MISAMIS OCCIDENTAL	ALORAN	104201000	590349.1909	930483.0896	From CHD	11
1185		MILA P. CUAJOTOR LYING IN CLINIC	PRIVATE	Region 10	MISAMIS OCCIDENTAL	ALORAN	104201000	590420.6302	930331.7651	Google map road	9
1184	1408	DON VICTORIANO RHU AND TB DOTS CENTER	GOVERNMENT	Region 10	MISAMIS OCCIDENTAL	DON VICTORIANO CHIONGBIAN (DON MARIANO MARCOS)	104217000	562746.3985	911658.9477	From CHD	13
1183	1407	LOPEZ JAENA RHU	GOVERNMENT	Region 10	MISAMIS OCCIDENTAL	LOPEZ JAENA	104208000	584533.7369	944932.6827	From CHD	58
1187		GEMS MIDWIVES LYING-IN AND MATERNITY CLINIC	PRIVATE	Region 10	MISAMIS OCCIDENTAL	OZAMIS CITY	104210000	594486.5646	902606.8752	Google map road	56
1186		LA SALLE OPD AND BIRTHING CLINIC	PRIVATE	Region 10	MISAMIS OCCIDENTAL	OZAMIS CITY	104210000	593238.9913	900788.6599	Google maps - precise	139
1182	1385	PLARIDEL MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 10	MISAMIS OCCIDENTAL	PLARIDEL	104212000	577901.1324	952581.3147	NAMRIA 2000	5
1188		CONG. HILARION J. RAMIRO JR., MEMORIAL INFIRMARY & BIRTHING HOME	GOVERNMENT	Region 10	MISAMIS OCCIDENTAL	SINACABAN	104214000	592878.0872	916277.9209	Google map road	26
1181	6830	TANGUB CITY HEALTH OFFICE	GOVERNMENT	Region 10	MISAMIS OCCIDENTAL	TANGUB CITY	104215000	582709.17	891293.6398	Philhealth	No Data
1167	2242	ALUBIJID RHU	GOVERNMENT	Region 10	MISAMIS ORIENTAL	ALUBIJID	104301000	662140.6818	948062.8693	From CHD	252
1175		LIVING WATERS CLINIC & BIRTHING HOME	PRIVATE	Region 10	MISAMIS ORIENTAL	ALUBIJID	104301000	658969.7072	948656.4205	Google map - approximate	11
1180		DE ORO MOTHER'S JOY BIRTHING HOME INC.	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	681620.2628	938192.5305	Google map road	16
1178		INFANT JESUS LYING-IN CLINIC	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	681144.8149	937201.9691	Google map road	79
1174		MAMA' S CHOICE FAMILY PLANNING & BIRTHING HOME CLINIC	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	680350.1706	937948.8096	Google map road	16
1173		MARY'S CHILD LYING-IN CLINIC	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	680045.8443	937342.3262	Google map road	111
1172		MOIRRA'S ANGELS BIRTHING HOME AND FAMILY PLANNING	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	682021.2694	937446.9086	Google map road	84
1168		QUEEN OF ANGELS CLINIC & BIRTHING HOME	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	681488.7517	938227.4745	Google map - approximate	No Data
1171		ST. IGNATIUS MATERNAL & CHILD CARE CENTER	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	681149.771	937929.628	Google maps - precise	171
1170		VAN DAVE MATERNITY CLINIC	PRIVATE	Region 10	MISAMIS ORIENTAL	CAGAYAN DE ORO CITY (Capital)	104305000	682537.1225	938794.3447	Google map road	40
1166	119	CLAVERIA RHU	GOVERNMENT	Region 10	MISAMIS ORIENTAL	CLAVERIA	104306000	708196.4245	952201.3652	From CHD	No Data
1179		GINGOOG PUERICULTURE CENTER	PRIVATE	Region 10	MISAMIS ORIENTAL	GINGOOG CITY	104308000	731106.0312	976491.5191	Google map road	423
1176		LITTLE BETHLEHEM BIRTHING HOME	PRIVATE	Region 10	MISAMIS ORIENTAL	GINGOOG CITY	104308000	730575.5442	976253.8878	Google map road	4
1165	2413	GITAGUM MUNICIPAL HEALTH CENTER & LYING-IN CLINIC	GOVERNMENT	Region 10	MISAMIS ORIENTAL	GITAGUM	104309000	654714.5009	950317.588	From CHD	No Data
1177		LAGUINDINGAN MATERNAL LYING- IN CLINIC	PRIVATE	Region 10	MISAMIS ORIENTAL	LAGUINDINGAN	104314000	658754.9132	947993.2894	Google map - approximate	32
1160	171	LUGAIT MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 10	MISAMIS ORIENTAL	LUGAIT	104316000	638695.6098	922522.6235	From CHD	No Data
1164	4168	OPOL RHU	GOVERNMENT	Region 10	MISAMIS ORIENTAL	OPOL	104321000	673444.1354	942002.7878	From CHD	448

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1163	4328	SALAY MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 10	MISAMIS ORIENTAL	SALAY	104322000	696487.0411	979751.0699	From CHD	237
1169		SUGBONGCOGON FAMILY AND BIRTHING CENTER	PRIVATE	Region 10	MISAMIS ORIENTAL	SUGBONGCOGON	104323000	696459.6004	990605.1003	Philhealth	No Data
1162	5656	TAGOLOAN MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 10	MISAMIS ORIENTAL	TAGOLOAN	103520000	668595.3763	943423.2416	From CHD	324
1161	3336	VILLANUEVA MHO	GOVERNMENT	Region 10	MISAMIS ORIENTAL	VILLANUEVA	104326000	694869.7145	949520.5913	From CHD	48
1307		24-SEVEN FAMILY CARE & MATERNITY CLINIC	PRIVATE	Region 11	COMPOSTELA VALLEY	COMPOSTELA	118201000	840286.1829	849115.9542	Google map road	42
1304	4129	MACO RHU	GOVERNMENT	Region 11	COMPOSTELA VALLEY	MACO	118204000	815074.7354	815946.3537	From CHD	No Data
1306		ANDAN MATERNITY INN	PRIVATE	Region 11	COMPOSTELA VALLEY	NABUNTURAN*	118209000	827669.9421	841560.0169	Google map - approximate	128
1305		NABUNTURAN WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	COMPOSTELA VALLEY	NABUNTURAN*	118209000	827355.6615	841340.8913	Barangay road	125
1299		HURTADO MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	ASUNCION (SAUG)	112301000	804032.3845	834156.6637	Barangay road	29
1303		BLUE STAR MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CARMEN	112303000	798671.3131	813826.5991	Google map - approximate	107
1298		MAGDADARO WELL-CARE MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CARMEN	112303000	799151.5018	814362.0293	Barangay road	No Data
1302		CABILLO DELIVERY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF PANABO	112315000	797883.6407	808483.6749	Barangay road	27
1301		GOOD SHEPHERD MEDICAL & MATERNITY CENTER	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF PANABO	112315000	796190.9462	808913.3961	Barangay road	145
1297		MEDRANO WELL CARE MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF PANABO	112315000	795439.2415	808628.177	Barangay road	74
1289		PANABO EMERGENCY AND SAFE BIRTHING FACILITY	GOVERNMENT	Region 11	DAVAO DEL NORTE	CITY OF PANABO	112315000	796156.5202	807624.9919	Google maps - precise	No Data
1300		GS LYING-IN CENTER & OB GYNE CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF TAGUM (Capital)	112319000	810345.5046	824063.6733	Barangay road	46
1296		MERCY MOM'S PREGNANCY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF TAGUM (Capital)	112319000	809245.2096	822835.8628	Google map road	364
1294		MONTEIRO WELL CARE MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF TAGUM (Capital)	112319000	812005.9691	824738.3748	Barangay road	6
1292		ST. ANNE BIRTHING HOME & MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF TAGUM (Capital)	112319000	808741.7295	824185.2035	Google map road	72
1291		ST. THERESE MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	CITY OF TAGUM (Capital)	112319000	810627.9501	824815.9027	Google map road	No Data
1295		MOM'S CHOICE FAMILY CARE & MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	ISLAND GARDEN CITY OF SAMAL	112317000	796991.1716	789695.8536	Google map road	20
1293		NARCISO FAMILY PLANNING & MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	KAPALONG	112305000	800718.0106	843933.3732	Barangay road	20
1290		WELLNESS MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL NORTE	SANTO TOMAS	112318000	790229.029	832689.0655	Barangay road	189
1242	5729	BANSALAN RHU -	GOVERNMENT	Region 11	DAVAO DEL SUR	BANSALAN	112401000	743844.1479	751087.246	Philhealth	148
1273		DAVAO DEL SUR BIRTHING HOME	PRIVATE	Region 11	DAVAO DEL SUR	CITY OF DIGOS (Capital)	112403000	761063.5708	746656.546	Google map - approximate	No Data
1270		DIGOS MATERNITY LYING-IN CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	CITY OF DIGOS (Capital)	112403000	760566.3842	746089.8765	Google map road	762
1262		KAYDEN BLAISE BIRTHING HOME	PRIVATE	Region 11	DAVAO DEL SUR	CITY OF DIGOS (Capital)	112403000	760473.2024	746123.7243	Google map - approximate	51
1259		LUSICA PANTIL MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	CITY OF DIGOS (Capital)	112403000	759860.8953	747888.7819	Google map road	No Data
1287		ANITA ALOJADO WELL FAMILY MIDWIFE CLINIC-CABANITAN BRANCH	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788172.1273	789037.6282	Barangay road	20
1286		ANITA E. ALOJADO WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	782992.0781	780115.4279	google maps - davao maternity clinics	13
1285		AQUINO WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	762106.8478	793232.7556	Barangay road	No Data
1284		AYUBAN-MEMBRADO MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	771529.9382	794945.6444	Google map road	199
1283		BALIOK LYING-IN CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	776058.0329	779528.205	google maps - davao maternity clinics	45
1282		BELLEZA MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	792769.0312	791686.4871	Barangay road	49
1281		BERATO WELL FAMILY MIDWIFE CLINIC BRANCH I	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	791449.0164	784827.6434	google maps - davao maternity clinics	1
1280		BMCDC- WOMEN'S HEALTH AND BIRTHING CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788698.5346	786373.6311	Google maps - precise	10
1279		CALANOY MEDICAL & MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	791075.6988	789153.7333	Google map road	No Data
1278		CERBAS-PEREZ LYING IN CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	792524.7669	789322.5001	Barangay road	25
1277		CITYWIDE MATERNITY CLINIC & REPRODUCTIVE HEALTH CTR.	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	789642.2849	784527.7887	google maps - davao maternity clinics	72
1275		DALIAON PUERICULTURE CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	776514.1189	775688.8898	google maps - davao maternity clinics	111
1274		DAVAO CITY HEALTH OFFICE BIRTHING HOME (TIBUNGCO LYING- IN)	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	787982.772	781611.7828	Google maps - precise	No Data
1272		DELFIN-GORNEZ WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	780941.5916	783456.6591	Google map - approximate	No Data
1271		DIANITA BRAZA MABINI PAANAKAN AND FAMILY PLANNING CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	789974.5753	783200.3744	Google map road	25
1269		EMILY HOMES MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788985.9338	788815.5996	google maps - davao maternity clinics	4
1268		ESPINO MEDICAL & MATERNITY CLINIC, INC.	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788866.0526	781911.5416	Google map - approximate	44
1266		FGH LYING-IN CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788021.5501	782149.154	Google map road	No Data
1265		GARCIA MATERNITY CLINIC PAANAKAN	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	776472.9123	775040.466	Google map - approximate	40
1264		JAMBO MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	771093.3625	795122.5541	Google map - approximate	89
1263		JUDITH N. PABLO WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	787915.0871	784652.0669	google maps - davao maternity clinics	26
1288		KAPUTIAN RHU	GOVERNMENT	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	801035.203	769882.2087	From CHD	No Data

MCP Code	DOH Code	Name of the facility	Ownership	Region name	Province name	Municipality name	Municipality PSGC	Final Easting	Final Northing	Source original coordinate	Number of MCP sponsored deliveries (Philhealth, 2012)
1261		LAMSEN FAMILY PLANNING REFERRAL CENTER & MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	776277.0711	776169.2967	google maps - davao maternity clinics	130
1260		LOLITA T. DELFIN WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	777001.815	775864.3842	Barangay road	208
1258		M.M. PEREZ LYING-IN CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	784060.7403	779920.5723	Google map - approximate	142
1257		MA. THERESA L. MORALLAS WELL CARE MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	771623.161	795077.8187	Google map road	No Data
1256		MARGAS MATERNITY REPRODUCTIVE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788726.5898	786808.0309	google maps - davao maternity clinics	80
1255		MELINDO WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	792145.4306	791458.8234	Barangay road	No Data
1254		MERCY MATERNITY CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	789206.0893	784485.2649	google maps - davao maternity clinics	128
1253		NERIZZA D. DOLORITO WELL FAMILY MIDWIFE CLINIC (SIR)	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	784996.2019	784769.2027	google maps - davao maternity clinics	52
1252		NURSE MID MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	783726.0282	779451.6388	google maps - davao maternity clinics	1
1251		PORLARES BLUESTAR MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	795178.156	802652.3514	Google map - approximate	9
1250		RUSIANA MATERNITY & REPRODUCTIVE HEALTH CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	781387.1296	780862.0936	google maps - davao maternity clinics	No Data
1249		SACRE COEUR MEDICAL CLINIC AND BIIRTHING CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	772011.7383	795262.5056	Barangay road	32
1248		SAN PEDRO COLLEGE HEALTH CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	788972.0924	783126.3312	Google map - approximate	No Data
1247		SARONA BIRTHING CLINIC SBC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	787431.8587	780985.3442	google maps - davao maternity clinics	69
1245		TALLO MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	785577.3092	784731.8267	Google maps - precise	2
1244		TECARRO POLYCLINIC & MATERNITY CENTER	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	787983.9663	781753.8796	From CHD	No Data
1243		TJ MATERNITY CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	DAVAO CITY	112402000	775888.8723	776281.7527	google maps - davao maternity clinics	7
1267		F. N. RAMIREZ WELL CARE MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO DEL SUR	PADADA	112411000	755945.971	736828.5204	Google map road	63
1241	7350	PADADA RHU	GOVERNMENT	Region 11	DAVAO DEL SUR	PADADA	112411000	758849.7728	734514.3925	Philhealth	No Data
1276		CN ARELLANO FAMILY PLANNING & BIRTHING CENTER	PRIVATE	Region 11	DAVAO DEL SUR	SANTA MARIA	112413000	773339.5922	725347.6766	Barangay road	9
1246		SULOP BIRTHING HOME	PRIVATE	Region 11	DAVAO DEL SUR	SULOP	112414000	759230.5148	730075.1836	From CHD	110
1240	12129	SULOP RHU	GOVERNMENT	Region 11	DAVAO DEL SUR	SULOP	112414000	759233.5546	730028.73	Philhealth	No Data
1236	36	BANAYBANAY MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 11	DAVAO ORIENTAL	BANAYBANAY	112502000	832839.5455	770940.206	From CHD	148
1239	2150	BOSTON RHU PAANAKAN	GOVERNMENT	Region 11	DAVAO ORIENTAL	BOSTON	112503000	872170.2308	871488.9864	Philhealth	6
1238		CITY HEALTH OFFICE CITY OF MATI BALAY PAANAKAN	GOVERNMENT	Region 11	DAVAO ORIENTAL	CITY OF MATI (Capital)	112509000	854453.9277	770516.8139	From CHD	No Data
1237		MANANSALA WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 11	DAVAO ORIENTAL	CITY OF MATI (Capital)	112509000	855464.4944	769653.4117	Google map - approximate	20
1353		KIDAPAWAN CITY MATERNITY CENTER	GOVERNMENT	Region 12	COTABATO (NORTH COTABATO)	CITY OF KIDAPAWAN (Capital)	124704000	730412.6117	775591.9871	From CHD	32
1352		KIDAPAWAN PUERICULTURE AND BIRTHING HOME	PRIVATE	Region 12	COTABATO (NORTH COTABATO)	CITY OF KIDAPAWAN (Capital)	124704000	730784.6211	775196.5145	From CHD	235
1351		MT. APO BIRTHING HOME AND CLINIC	PRIVATE	Region 12	COTABATO (NORTH COTABATO)	CITY OF KIDAPAWAN (Capital)	124704000	730771.6681	775623.4523	From CHD	185
1350		SPRINGSIDE WOMAN CENTER AND BIRTHING HOME	PRIVATE	Region 12	COTABATO (NORTH COTABATO)	CITY OF KIDAPAWAN (Capital)	124704000	730988.7366	776514.9163	From CHD	293
1349	1786	MAGPET RHU	GOVERNMENT	Region 12	COTABATO (NORTH COTABATO)	MAGPET	124706000	730727.3114	785521.6023	From CHD	No Data
1450		BAGUA LYING-IN	PRIVATE	Region 12	COTABATO CITY	COTABATO CITY	129804000	637239.3311	797412.6615	Google map road	69
1354		DOC SWEET'S MATERNAL CARE AND LYING-IN CLINIC	PRIVATE	Region 12	COTABATO CITY	COTABATO CITY	129804000	638253.1606	798497.6227	Google map - approximate	1
1449		MOTHER FRANCISCA BIRTHING HOME	PRIVATE	Region 12	COTABATO CITY	COTABATO CITY	129804000	637281.0749	794935.8139	Google map - approximate	12
1347	4013	MAITUM RHU	GOVERNMENT	Region 12	SARANGANI	MAITUM	128005000	665260.2297	670374.39	Philhealth	125
1348		MALUNGON HEALTH CENTER BIRTHINGHOME	GOVERNMENT	Region 12	SARANGANI	MALUNGON	128007000	751358.0534	698463.3182	NAMRIA 2000	83
1329		RHU-BANGA MATERNITY CARE CLINIC	GOVERNMENT	Region 12	SOUTH COTABATO	BANGA	126302000	696424.3449	710354.3555	Google map road	60
1346		24/7 LYING-IN MATERNITY AND SPECIALTY CLINICS	PRIVATE	Region 12	SOUTH COTABATO	CITY OF KORONADAL (Capital)	126306000	704569.9831	719813.4688	From CHD	3
1328		SUPERIO-COCJIN OB-GYNE, ULTRASOUND AND MATERNITY CLINIC	PRIVATE	Region 12	SOUTH COTABATO	CITY OF KORONADAL (Capital)	126306000	703689.6683	718841.3808	From CHD	194
1345		ALICIA B. BESANA WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	737627.7231	672373.6687	From CHD	243
1325	8687	APOPONG COMMUNITY LYING-IN CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	734083.2235	671811.0351	From CHD	36
1324	8726	BALUAN COMMUNITY LYING-IN CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	745323.5997	677525.5894	From CHD	42
1343		BULA COMMUNITY LYING-IN CENTER	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	742701.1329	675196.1333	From CHD	52
1326	8815	CONEL COMMUNITY LYING-IN CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	742150.8363	686002.9655	From CHD	57
1323		DADIANGAS SOUTH COMMUNITY LYING-IN CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	740925.8608	675539.606	From CHD	41
1340		DOÐA SOLEDAD LYING-IN	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	736876.061	676228.0172	From CHD	No Data
1341		DOLLY'S BIRTHING HOME	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	737455.5529	671950.4149	From CHD	161
1338		EDNA G. DE CASTRO WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	741639.456	678139.9359	From CHD	122
1322	8819	FATIMA COMMUNITY LYING-IN CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	734438.6272	672104.4579	From CHD	46
1337		FPOP-COMMUNITY HEALTH CARE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	740622.3413	676392.3872	From CHD	160

MCP Code	DOH Code	Name of the facility	Ownership	Region name	Province name	Municipality name	Municipality PSGC	Final Easting	Final Northing	Source original coordinate	Number of MCP sponsored deliveries (Philhealth, 2012)
1336		JOSE J. CATOLICO PUERICULTURE, FAMILY PLANNING & MATERNITY CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	740285.3289	676218.454	From CHD	321
1335		JOY EDEL G. ENRIQUEZ WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	740316.5681	678896.7544	From CHD	173
1333		MONICA J. BARELA WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	735765.6252	678150.6017	From CHD	124
1332		NALZARO LYING-IN CLINIC	PRIVATE	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	743901.4794	675729.8203	From CHD	31
1319	9113	TINAGAKAN COMMUNITY LYING-IN CENTER	GOVERNMENT	Region 12	SOUTH COTABATO	GENERAL SANTOS CITY (DADIANGAS)	126303000	747584.155	687142.9885	From CHD	No Data
1344		BRGY. SULIT BIRTHING HOME	GOVERNMENT	Region 12	SOUTH COTABATO	POLOMOLOK	126312000	747316.5911	686009.03	From CHD	1
1342		C.A. ESTIMADA BIRTHING HOME	PRIVATE	Region 12	SOUTH COTABATO	POLOMOLOK	126312000	728535.8732	687829.9097	From CHD	481
1339		EDILLON' S SURGICAL & MATERNITY CARE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	POLOMOLOK	126312000	727942.3495	687878.477	From CHD	1
1321	3479	POLOMOLOK RHU	GOVERNMENT	Region 12	SOUTH COTABATO	POLOMOLOK	126312000	727823.1263	688078.2256	NAMRIA 2000	No Data
1331	20020	RHU- STO. NIÐO, SOUTH COTABATO	GOVERNMENT	Region 12	SOUTH COTABATO	SANTO NIÑO	126318000	685770.8423	710828.34	Google map - approximate	No Data
1334		MATAVIA-TOMINES OB-GYNE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	SURALLAH	126313000	693268.3266	704585.1145	From CHD	428
1327		SUSIE CAMACHO-GEDORIO OB-GYNE CLINIC	PRIVATE	Region 12	SOUTH COTABATO	SURALLAH	126313000	693500.6767	705238.4157	From CHD	406
1330	5627	RHU- TANTANGAN BIRTHING HOME	GOVERNMENT	Region 12	SOUTH COTABATO	TANTANGAN	126315000	693189.1098	732107.7104	Philhealth	29
1320	20306	T'BOLI RHU	GOVERNMENT	Region 12	SOUTH COTABATO	T'BOLI	126316000	701774.7902	687406.6297	Philhealth	1
1315	20407	RHU- BAGUMBAYAN	GOVERNMENT	Region 12	SULTAN KUDARAT	BAGUMBAYAN	126501000	672694.3503	722503.0001	Philhealth	493
1318		GUARDIANO CHILDREN AND MATERNITY CLINIC	PRIVATE	Region 12	SULTAN KUDARAT	CITY OF TACURONG	126511000	685052.9975	739719.3695	Barangay road	25
1313		TACURONG CITY BIRTHING HOME	GOVERNMENT	Region 12	SULTAN KUDARAT	CITY OF TACURONG	126511000	685328.8282	739634.2681	Google map road	241
1312	2627	ESPERANZA RHU	GOVERNMENT	Region 12	SULTAN KUDARAT	ESPERANZA	126503000	669411.9184	741975.8357	Google map road	No Data
1316		NENITA S. SIOSON WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 12	SULTAN KUDARAT	ISULAN (Capital)	126504000	676623.7291	732648.0706	Google map road	117
1314	2118	RHU- ISULAN	GOVERNMENT	Region 12	SULTAN KUDARAT	ISULAN (Capital)	126504000	676484.0002	732700	Philhealth	425
1311	3250	KALAMANSIG RHU	GOVERNMENT	Region 12	SULTAN KUDARAT	KALAMANSIG	126505000	616864.0201	724903.1705	Philhealth	No Data
1310	20518	LAMBAYONG RHU	GOVERNMENT	Region 12	SULTAN KUDARAT	LAMBAYONG (MARIANO MARCOS)	126508000	680466.1397	751944.2202	NAMRIA 2000	No Data
1317		LABIAN MEDICAL & MATERNITY CLINIC	PRIVATE	Region 12	SULTAN KUDARAT	LEBAK	126506000	617941.54	733408.2539	Barangay road	95
1309	3614	LEBAK RHU-	GOVERNMENT	Region 12	SULTAN KUDARAT	LEBAK	126506000	617726.0172	733526.1196	NAMRIA 2000	No Data
1308	20595	PRES. QUIRINO RHU-	GOVERNMENT	Region 12	SULTAN KUDARAT	PRESIDENT QUIRINO	126510000	690989.98	740778.1496	Philhealth	116
1151	5517	LEON POSTIGO RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	BACUNGAN (Leon T. Postigo)	097226000	491556.4097	900955.6295	Philhealth	2
1154	43	BALIGUIAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	BALIGUIAN	097224000	405653.9796	863090.7799	Philhealth	8
1159		DIPOLOG CITY BIRTHING HOMES	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	DIPOLOG CITY (Capital)	097202000	538005.1104	948883.8823	Google map - approximate	81
1153	7178	GUTALAC RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	GUTALAC	097223000	432664.93	882910.5695	NAMRIA 2000	19
1157	3712	JOSE DALMAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	JOSE DALMAN (PONOT)	097222000	502429.7997	933262.0497	Philhealth	2
1152	5677	KALAWIT RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	KALAWIT	097227000	446207.0749	871505.3309	NAMRIA 2000	12
1158		DON JOSE AGUIRRE BHS/ LYING-IN	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	MANUKAN	097207000	517611.7151	942384.8925	Barangay road	37
1150	2880	MANUKAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	MANUKAN	097207000	509962.1198	941501.9905	Philhealth	32
1149	1593	MUTIA RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	MUTIA	097208000	552112.2196	930821.5496	Philhealth	27
1148		PIÐAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	PIÑAN (NEW PIÑAN)	097209000	549396.5613	957734.4443	NAMRIA 2000	5
1147	5889	RHU-POLANCO	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	POLANCO	097210000	539701.2296	942538.8505	Philhealth	28
1146	2137	ROXAS RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	PRES. MANUEL A. ROXAS	097211000	526302.6604	941895.2603	Philhealth	No Data
1145	7149	SALUG RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	SALUG	097213000	473074.2498	896267.8201	Philhealth	No Data
1144	4234	SIAYAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	SIAYAN	097215000	512434.6098	912143.1995	Philhealth	20
1143	3932	SIBUTAD RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL NORTE	SIBUTAD	097217000	552627.0702	952189.3097	Philhealth	10
1156		SIOCON BIRTHING CLINIC	PRIVATE	Region 9	ZAMBOANGA DEL NORTE	SIOCON	097219000	405131.2685	852017.4682	Google map road	No Data
1155		TVI RESOURCE DEVELOPMENT PHILIPPINES INC. MINESITE CLINIC	PRIVATE	Region 9	ZAMBOANGA DEL NORTE	SIOCON	097219000	405113.7771	852039.6159	Google map road	6
1142	1874	AURORA RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	AURORA	097302000	564539.3601	878771.7104	Philhealth	59
1130	1915	BAYOG RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	BAYOG	097303000	504592.2397	867831.5802	Philhealth	16
1127	5055	DINAS RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	DINAS	097306000	537216.4397	841951.1305	Philhealth	10
1126	63	DUMALINAO RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	DUMALINAO	097307000	539808.01	864314.09	Philhealth	No Data
1125	7324	DUMINGAG RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	DUMINGAG	097308000	538040.0301	901953.7297	Philhealth	39
1124	66	GUIPOS RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	GUIPOS	097343000	535338.0506	854490.3806	Philhealth	No Data
1135	4272	JOSEFINA RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	JOSEFINA	097337000	558965.4304	908066.0504	Philhealth	No Data
1115	2702	RHU-KUMALARANG	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	KUMALARANG	097311000	515657.2186	857529.0909	Google map road	19

MCP Code	DOH Code	Name of the facility	Ownership	Region name	Province name	Municipality name	Municipality PSGC	Final Easting	Final Northing	Source original coordinate	Number of MCP sponsored deliveries (Philhealth, 2012)
1122	2309	LABANGAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	LABANGAN	097312000	556655.0196	869358.4697	Philhealth	9
1120	6684	LAKEWOOD RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	LAKEWOOD	097333000	517052.4301	867849.8499	Philhealth	No Data
1119	2558	LAPUYAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	LAPUYAN	097313000	521770.0497	844235.3499	Philhealth	53
1118	67	MOLAVE RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	MOLAVE	097319000	553188.2802	894731.9799	Philhealth	182
1117	111	PAGADIAN CITY HEALTH OFFICE	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	PAGADIAN CITY (Capital)	097322000	548047.1177	865129.0761	Google maps - precise	No Data
1134		PARTERA BIRTHING HOME	PRIVATE	Region 9	ZAMBOANGA DEL SUR	PAGADIAN CITY (Capital)	097322000	549377.4494	866303.4517	Google map - approximate	42
1111		SAN PEDRO RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	PAGADIAN CITY (Capital)	097322000	550713.4154	865089.6827	NAMRIA 2000	1
1133	6164	STA. LUCIA MAIN HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	PAGADIAN CITY (Capital)	097322000	547716.2533	864279.6815	Google maps - precise	54
1132		WELL FAMILY MIDWIFE CLINIC	PRIVATE	Region 9	ZAMBOANGA DEL SUR	PAGADIAN CITY (Capital)	097322000	547889.6498	865054.2894	Google map road	No Data
1114	2347	RHU-PITOGO	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	PITOGO	097338000	534306.2604	823905.7303	Philhealth	27
1116	28	RAMON MAGSAYSAY RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	RAMON MAGSAYSAY (LIARGO)	097323000	553503.8998	885061.7797	Philhealth	16
1113	4369	SAN MIGUEL RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	SAN MIGUEL	097324000	532376.6918	848709.2393	Google map road	1
1112	2957	SAN PABLO RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	SAN PABLO	097325000	550506.59	846170.2597	Philhealth	43
1110	5744	SOMINOT RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	SOMINOT (DON MARIANO MARCOS)	097340000	542037.373	889041.5517	Google map road	No Data
1107	27	TAMBULIG RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	TAMBULIG	097328000	559076.2133	891933.4728	Philhealth	85
1105	2292	TIGBAO RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	TIGBAO	097344000	524449.4005	864687.3001	Philhealth	No Data
1104	5141	TUKURAN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	TUKURAN	097330000	563788.4399	868335.9805	Philhealth	40
1102	65	VINCENZO SAGUN RHU	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	VINCENZO A. SAGUN	097341000	514910.2578	830053.2458	Google map road	34
1141		BRENT MATERNITY LYING-IN CENTER	PRIVATE	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	399493.0838	764787.4811	Google map - approximate	2
1129	2893	CANELAR RURAL HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	397467.18	764396.9796	Philhealth	32
1140	3118	CITY GOVERNMENT OF ZAMBOANGA/ CHO- AYALA HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	383829.9504	769452.6605	Philhealth	No Data
1139	2991	CITY GOV'T OF ZAMBOANGA/ CHO- MANICAHAN HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	410502.3552	776486.2648	Philhealth	No Data
1138	6833	CITY GOV'T OF ZAMBOANGA/CHO-CURUAN	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	415133.3906	796636.8397	Philhealth	No Data
1137	4407	CITY GOV'T OF ZAMBOANGA/CHO-MERCEDES HC	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	405133.1297	769191.5899	Philhealth	2
1128		CITY GOV'T OF ZAMBOANGA/CHO-STAR APPLE HEALTH CTR.	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	398257.5251	763181.8671	Google map - approximate	No Data
1136		CITY GOV'T OF ZAMBOANGA/CHO-TUGBUNGAN HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	401075.517	764948.2171	Google map - approximate	No Data
1123		GUIWAN HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	399705.9976	765949.9458	NAMRIA 2000	No Data
1121		LABUAN HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	394385.2578	764569.0789	NAMRIA 2000	No Data
1109	112	STA. MARIA HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	397013.6495	766317.2001	Philhealth	26
1108	113	TALON-TALON HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	401943.8653	763854.9248	Google map - approximate	8
1106	5425	TETUAN HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	399327.9695	764887.8	Philhealth	No Data
1103	7334	TUMAGA HEALTH CENTER	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	398141.0195	766864.7001	Philhealth	1
1101	5554	VITALI HEALTH CENTER & LYING-IN CLINIC	GOVERNMENT	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	421453.6039	814798.4238	Philhealth	No Data
1131		ZAMBOANGA CITY MEDICAL CENTER BIRTHING CLINIC	PRIVATE	Region 9	ZAMBOANGA DEL SUR	ZAMBOANGA CITY	097332000	398491.5101	763568.2664	NAMRIA 2000	No Data
1095	7340	RHU-IMELDA/IMELDA RHU TB DOTS CLINIC	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	IMELDA	098304000	492989.1097	844817.3703	Philhealth	16
1100	7320	IPIL MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	IPIL (Capital)	098305000	454463.8273	860551.6219	NAMRIA 2000	2
1098	7174	MABUHAY RHU	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	MABUHAY	098307000	481738.89	820003.5396	Philhealth	6
1099	7322	NAGA RHU	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	NAGA	098309000	466205.7696	861742.2202	Philhealth	18
1097	7180	OLUTANGA RHU	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	OLUTANGA	098310000	482851.6476	810537.561	NAMRIA 2000	10
1096	7328	R. T. LIM MUNICIPAL HEALTH OFFICE	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	ROSELLER LIM	098312000	441458.4501	846471.2095	Philhealth	No Data
1094	7336	SIAY RHU	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	SIAY	098313000	485526.3302	851833.3299	Philhealth	79
1093	7177	TALUSAN RHU	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	TALUSAN	098314000	478702.8783	820957.3076	NAMRIA 2000	14
1092	7316	TUNGAWAN RHU	GOVERNMENT	Region 9	ZAMBOANGA SIBUGAY	TUNGAWAN	098316000	436419.5199	840311.5596	Philhealth	74

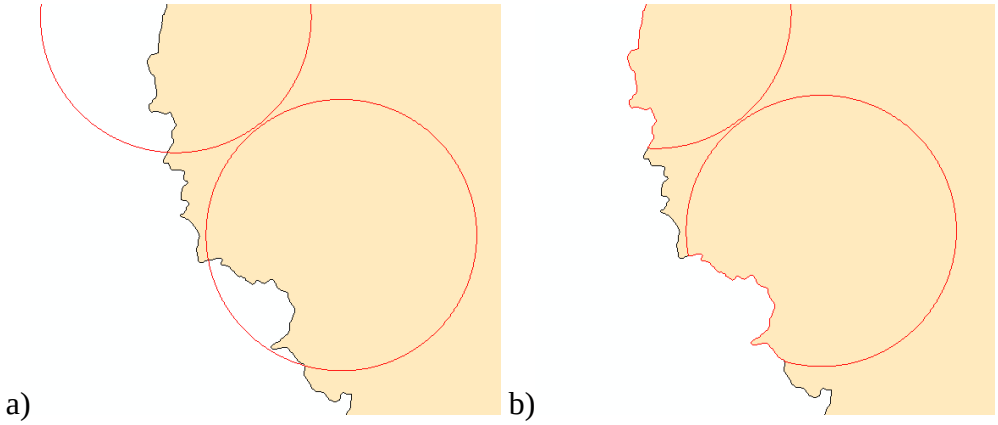
Annex 3 – Process to generate the buffers around the DHS cluster location

This annex describes the process that has been used in order to generate a buffer around the location of the cluster for which non-assisted home deliveries figures were available as part of the most recent DHS survey.

Starting from the excel file generated with the process reported in section the following steps are applied in ArcGIS in order to generate the buffers for which data is available:

1. In the view, add:
    a. the shape file containing the location of the DHS cluster (directly available from MEASURE DHS on request) in the view
    b. The administrative boundaries layers
    c. The water bodies layer (part of the hydrographic network)
    d. the excel file generated under section 6.1.3
2. Project the MEASURE DHS shape file into the country specific coordinate system selected for this project (see Chapter 6)
3. Join the excel file with the attribute table of the shape file using the DHS cluster code
4. Open the attribute table and select all the records for which there is a figure when it comes to non-assisted home deliveries
5. Right click on the shape file name in the table of content, select the Data>Export Data function and save the selected data in a new shape file
6. Add the new shape file created under step 5 in the view and open its attribute table. From there:
    a. Add a new field named BUFFER
    b. Put the shape file in editing mode
    c. Sort the attribute table according to the URBAN_RURAL field and use the field calculator to attribute a value of 5000 to clusters located in urban areas (U) and 10000 to clusters located in rural areas in the BUFFER column. These values corresponds to the radius, expressed in meters, of the buffer we will be creating in the next step
    d. Stop editing saving the changes which have been made
7. Use the Analysis Tools>Proximity>Buffer from ArcGIS Toolbox specifying the layer generated under step 5 as the input layer, BUFFER as the field to be used as the distance value and providing a name for the output file. This step will generate a buffer of 5 km radius around each rural cluster and of 10 km around each rural cluster.
8. Add the buffer layer created under step 7 in the view
9. Use the Data Management Tools>Generalization>Dissolve tool from ArcGIS toolbox to transform the administrative boundaries layer into a unique polygon containing the border of the country.

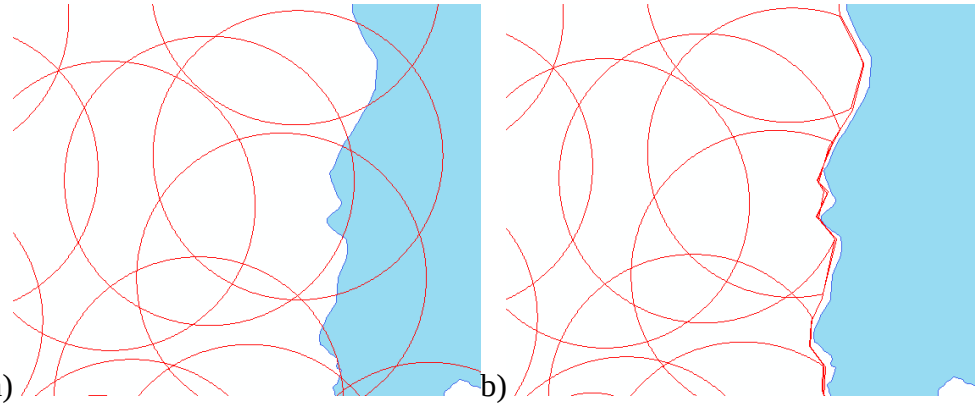
10. Use the Analysis Tools>Extract>Clip tool from ArcGIS toolbox to remove the part of the buffer located outside of the country from the buffer layer generated under step 7. Figure A shows an example of two buffers before and after the application of this step.



a) b)

Figure A - Example of two buffers before (a) and after (b) the application of the clip tool on the cluster buffer layer

11. Put the cluster buffer layer in the editing mode and, using the water bodies' layer as a reference; manually cut the parts of the buffers falling on large water bodies. This step is performed in order to avoid having some of the random points located on water bodies when creating the maps. Figure B shows an example for few buffers before and after applying this step.



a) b)

Figure B - Example of buffers before (a) and after (b) having manually cut the parts located on large water bodies

12. Stop the editing mode saving the file under a new name
13. Use the Tools>Generalization>Dissolve tool from ArcGIS toolbox on the cluster ID column to merge together part of buffer which might have been generated during the above editing process and save the resulting shape file under a final name.

Annex 4 – Protocol used to spatially distribute the number of births on a raster format GIS layer

This annex describes the steps (Figure C) followed to generated the birth distribution grid used in the context of the present project.

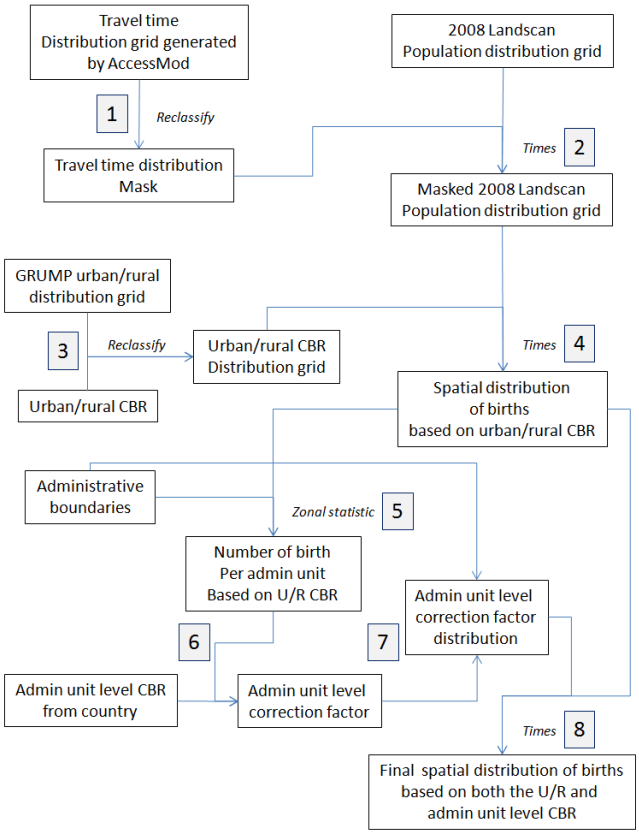


Figure C – Process used to generate total number of births spatial distribution grid

Before applying the process described in Figure C, the following layers, projected according to the country specific UTM projection and resampled to match the resolution used in the context of this project for raster GRIDs (See Chapter 6) have to be added in ArcGIS:

1. 2008 Landscan population distribution grid [14]
2. Travel time distribution grid resulting from the application of the second module of AccessMod (see section 7.1);
3. NAMRIA's Municipality boundaries adjusted to match the NHTS-PR head count dataset from PhilHealth (see Section 6.2.1) in both vector and raster format.
4. NAMRIA's landcover distribution map (see Section 6.2.3)

In addition to that, the following data is to be available in an excel file for use during the process:

1. National level urban/rural Crude Birth Rate (CBR) (Section 6.1.1);
2. Municipality level number of birth among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth (Section 6.1.2).

From there, the following steps have been applied in ArcGIS:

1. Reclassify the travel time distribution grid resulting from the application of the second module of AccessMod in order to obtain a mask in which any cell located outside of the country, corresponding to water areas or being inaccessible by feet or vehicle are attributed a value of "0" while all the other cells containing a travel time are attributed a value of "1";
2. Apply the mask generated under point 1 to the resampled 2008 landscan population distribution grid using the Spatial Analyst > Math > Times tool in ArcGIS;
3. Reclassify the NAMRIA's landcover distribution map to obtain the spatial distribution of the urban/rural CBR figures identified for the country (Section 6.1.1);
4. Multiply the grid resulting from step 3 with the resampled 2008 Landscan population distribution grid on which the travel time mask has been applied in step 2 to obtain the spatial distribution of births based on the urban/rural CBR;
5. Use the raster version of the NHTS-PR adjusted Municipality boundaries map as the input layer for the Spatial Analyst>Zonal>Zonal Statistics tool in ArcGIS to extract the total number of birth per Municipality from the grid generated in step 4 and save the result as a dbf file;
6. Import the dbf resulting from step 5 in Excel and calculate a Municipality level specific correction factor to be applied to the spatial distribution of births obtained under step 4;
7. Join the resulting correction factor table to the attribute table of the Municipality boundaries layer, in vector format this time, using the common code and convert the shape file into a raster grid presenting the same resolution than the population distribution grid using the Conversion Tools>To Raster>Polygon to Raster tool in ArcGIS (please set the extent of the resulting grid to match the combined landcover and snap it to this grid as well by specifying it in the Environment settings>General Settings window that can be opened from the bottom of the Polygon to Raster tool data input window);
8. Multiply the grid obtained under point 7 with the spatial distribution of births obtained under step 4 to obtain the final spatial distribution of births based on the Municipality level number of births among the NHTS-PR registered beneficiaries (members and dependents) of PhilHealth.

Annex 5 – List of the 72 Municipalities presenting a poverty incidence above 25% and a mean travel time to the nearest MCP accredited facility above 2 hours

PSGC code	Region	Province	Municipality/City	Birth weigthed travel time to the nearest MCP accredited facility (hours)	Poverty Incidence
153637000	ARMM	Lanao del Sur	Bumbaran	4.0	47.1
153607000	ARMM	Lanao del Sur	Butig	3.3	39.3
153632000	ARMM	Lanao del Sur	Calanogas	2.6	53.7
153610000	ARMM	Lanao del Sur	Kapai	5.6	36.2
153639000	ARMM	Lanao del Sur	Kapatagan	3.5	44.2
153611000	ARMM	Lanao del Sur	Lumba-Bayabao (Maguing)	3.6	37.5
153614000	ARMM	Lanao del Sur	Madamba	3.3	37.8
153631000	ARMM	Lanao del Sur	Marogong	2.1	52.1
153620000	ARMM	Lanao del Sur	Pagayawan (Tatarikan)	2.4	39.2
153640000	ARMM	Lanao del Sur	Sultan Dumalondong	2.7	57.2
153638000	ARMM	Lanao del Sur	Tagoloan II	12.0	67.1
160207000	Caraga	Agusan del Norte	Las Nieves	4.1	53.0
160210000	Caraga	Agusan del Norte	Santiago	2.0	47.7
160303000	Caraga	Agusan del Sur	Esperanza	9.7	61.9
160304000	Caraga	Agusan del Sur	La Paz	8.7	66.7
160305000	Caraga	Agusan del Sur	Loreto	6.1	56.9
160309000	Caraga	Agusan del Sur	San Luis	13.3	62.0
160314000	Caraga	Agusan del Sur	Sibagat	6.2	59.4
160313000	Caraga	Agusan del Sur	Veruela	5.6	58.5
168502000	Caraga	Dinagat Islands	Cagdiano	2.2	55.6
166810000	Caraga	Surigao del Sur	Lanuza	2.1	35.1
166814000	Caraga	Surigao del Sur	Marihatag	2.9	50.3
166815000	Caraga	Surigao del Sur	San Agustin	2.4	49.9
166816000	Caraga	Surigao del Sur	San Miguel	4.6	50.5
097226000	Region IX	Zamboanga del Norte	Bacungan (Leon T. Postigo)	3.7	66.0
097224000	Region IX	Zamboanga del Norte	Baliguian	4.9	75.3
097225000	Region IX	Zamboanga del Norte	Godod	5.9	71.1
097227000	Region IX	Zamboanga del Norte	Kalawit	4.4	65.8
097203000	Region IX	Zamboanga del Norte	Katipunan	3.4	57.1
097204000	Region IX	Zamboanga del Norte	La Libertad	3.4	45.0
097208000	Region IX	Zamboanga del Norte	Mutia	5.3	57.8
097209000	Region IX	Zamboanga del Norte	Piñan	2.5	55.5
097211000	Region IX	Zamboanga del Norte	Pres. Manuel A. Roxas	2.4	66.3
097213000	Region IX	Zamboanga del Norte	Salug	2.9	60.2
097214000	Region IX	Zamboanga del Norte	Sergio Osmeña Sr.	4.3	65.8
097215000	Region IX	Zamboanga del Norte	Siayan	5.1	79.9
097216000	Region IX	Zamboanga del Norte	Sibuco	3.7	68.2
097219000	Region IX	Zamboanga del Norte	Siocon	3.1	63.6
097308000	Region IX	Zamboanga del Sur	Dumingag	2.5	42.8
097333000	Region IX	Zamboanga del Sur	Lakewood	2.1	48.4
098315000	Region IX	Zamboanga Sibugay	Titay	2.3	45.1
101322000	Region X	Bukidnon	Cabanglasan	2.7	45.2

Geographic Accessibility to MCP Accredited Facilities Analysis - Mindanao islands

PSGC code	Region	Province	Municipality/City	Birth weigthed travel time to the nearest MCP accredited facility (hours)	Poverty Incidence
101313000	Region X	Bukidnon	Malitbog	3.2	61.4
101318000	Region X	Bukidnon	San Fernando	3.1	52.1
103511000	Region X	Lanao del Norte	Magsaysay	5.4	59.2
103514000	Region X	Lanao del Norte	Munai	4.0	67.5
103515000	Region X	Lanao del Norte	Nunungan	7.5	67.9
103517000	Region X	Lanao del Norte	Poona Piagapo	3.8	66.8
103518000	Region X	Lanao del Norte	Salvador	4.6	56.3
103519000	Region X	Lanao del Norte	Sapad	5.8	62.0
103521000	Region X	Lanao del Norte	Tangcal	6.3	67.4
104206000	Region X	Misamis Occidental	Concepcion	8.6	62.3
104303000	Region X	Misamis Oriental	Balingoan	2.4	46.4
118205000	Region XI	Compostela Valley	Maragusan (San Mariano)	4.1	35.6
112322000	Region XI	Davao del Norte	Talaingod	4.9	62.6
112416000	Region XI	Davao del Sur	Don Marcelino	2.5	66.5
112405000	Region XI	Davao del Sur	Jose Abad Santos (Trinidad)	3.6	72.3
112415000	Region XI	Davao del Sur	Sarangani	4.5	72.1
112501000	Region XI	Davao Oriental	Baganga	2.7	44.0
112503000	Region XI	Davao Oriental	Boston	4.4	36.6
112504000	Region XI	Davao Oriental	Caraga	4.9	58.0
112508000	Region XI	Davao Oriental	Manay	4.0	58.7
112511000	Region XI	Davao Oriental	Tarragona	3.1	62.3
124701000	Region XII	North Cotabato	Alamada	7.1	44.6
124706000	Region XII	North Cotabato	Magpet	2.1	36.7
128002000	Region XII	Sarangani	Glan	3.2	47.0
128004000	Region XII	Sarangani	Maasim	2.6	52.2
128006000	Region XII	Sarangani	Malapatan	3.8	54.1
128007000	Region XII	Sarangani	Malungon	4.5	45.3
126319000	Region XII	South Cotabato	Lake Sebu	4.0	52.8
126316000	Region XII	South Cotabato	T'boli	3.6	52.7
126512000	Region XII	Sultan Kudarat	Sen. Ninoy Aquino	2.1	47.6

Annex 6 – Province level number and percentage of births located within 2 hours of travel time of an MCP accredited facility (public, private and all) when considering the combined walking/carried and motor vehicle scenario

Province PSGC	Province name	2013 Estimated number of births among the NHTS-PR sponsored PhilhHealth members	Number of births within 2 hours of a governmental MCP (combined scenario)	Percentage of births within 2 hours of a governmental MCP (combined scenario)	Number of births within 2 hours of a private MCP (combined scenario)	Percentage of births within 2 hours of a private MCP (combined scenario)	Number of births within 2 hours of any MCP (combined scenario)	Percentage of births within 2 hours of any MCP (combined scenario)	Percentage increase gained with the private sector
097200000	Zamboanga del Norte	6'927	4'343	62.7	2'150	31.0	4'372	63.1	0.4
097300000	Zamboanga del Sur	14'961	13'286	88.8	12'311	82.3	13'286	88.8	0.0
098300000	Zamboanga Sibugay	5'746	4'884	85.0	1'411	24.5	4'884	85.0	0.0
101300000	Bukidnon	6'609	5'701	86.3	5'567	84.2	5'714	86.5	0.2
101800000	Camiguin	430	427	99.3	422	98.2	427	99.4	0.1
103500000	Lanao del Norte	5'383	4'277	79.4	4'287	79.6	4'315	80.2	0.7
104200000	Misamis Occidental	2'199	1'827	83.1	1'752	79.7	1'838	83.6	0.5
104300000	Misamis Oriental	5'407	4'981	92.1	4'956	91.7	5'042	93.2	1.1
112300000	Davao del Norte	4'164	3'929	94.4	3'980	95.6	3'981	95.6	1.2
112400000	Davao del Sur	8'775	6'798	77.5	6'948	79.2	6'982	79.6	2.1
112500000	Davao Oriental	2'549	1'936	76.0	1'879	73.7	1'937	76.0	0.0
118200000	Compostela Valley	3'960	3'472	87.7	3'564	90.0	3'580	90.4	2.7
124700000	Cotabato (North Cotabato)	6'825	5'714	83.7	5'671	83.1	5'742	84.1	0.4
126300000	South Cotabato	4'911	4'182	85.2	4'154	84.6	4'185	85.2	0.1
126500000	Sultan Kudarat	3'267	2'784	85.2	2'226	68.1	2'786	85.3	0.0
128000000	Sarangani	2'171	1'381	63.6	1'187	54.7	1'382	63.6	0.0
129800000	Cotabato City (not a province)	21	21	100.0	21	100.0	21	100.0	0.0
153600000	Lanao del Sur	1'965	1'551	78.9	1'532	78.0	1'565	79.6	0.7
153800000	Maguindanao	1'365	1'141	83.6	1'125	82.4	1'145	83.9	0.3
160200000	Agusan del Norte	3'440	3'079	89.5	3'065	89.1	3'087	89.7	0.2
160300000	Agusan del Sur	4'507	2'949	65.4	2'839	63.0	3'037	67.4	2.0
166700000	Surigao del Norte	2'621	2'531	96.6	1'775	67.7	2'531	96.6	0.0
166800000	Surigao del Sur	2'826	2'407	85.2	2'129	75.3	2'424	85.8	0.6
168500000	Dinagat Islands	474	383	80.9	148	31.3	383	80.9	0.0
	Study area total/percentage	101'501	83'984	82.7	75'100	74.0	84'645	83.4	0.7

Annex 7 – Province level number and percentage of births located within 2 hours of travel time of an MCP accredited facility (public, private and all) when considering the walking/carried scenario

Province PSGC	Province name	2013 Estimated number of births among the NHTS-PR sponsored PhilhHealth members	Number of births within 2 hours of a governmental MCP (walking/carried scenario)	Percentage of births within 2 hours of a governmental MCP (walking/carried scenario)	Number of births within 2 hours of a private MCP (walking/carried scenario)	Percentage of births within 2 hours of a private MCP (walking/carried scenario)	Number of births within 2 hours of any MCP (walking/carried scenario)	Percentage of births within 2 hours of any MCP (walking/carried scenario)	Percentage increase gained with the private sector
097200000	Zamboanga del Norte	6'927	1'048	15.1	160	2.3	1'208	17.4	2.3
097300000	Zamboanga del Sur	14'961	8'230	55.0	3'976	26.6	8'245	55.1	0.1
098300000	Zamboanga Sibugay	5'746	1'407	24.5	0	0.0	1'407	24.5	0.0
101300000	Bukidnon	6'609	1'795	27.2	805	12.2	1'889	28.6	1.4
101800000	Camiguin	430	145	33.6	110	25.6	255	59.3	25.6
103500000	Lanao del Norte	5'383	1'601	29.7	917	17.0	1'639	30.4	0.7
104200000	Misamis Occidental	2'199	544	24.7	418	19.0	848	38.6	13.8
104300000	Misamis Oriental	5'407	803	14.9	1'246	23.0	1'889	34.9	20.1
112300000	Davao del Norte	4'164	364	8.8	1'787	42.9	1'802	43.3	34.5
112400000	Davao del Sur	8'775	565	6.4	2'308	26.3	2'703	30.8	24.4
112500000	Davao Oriental	2'549	383	15.0	305	12.0	405	15.9	0.9
118200000	Compostela Valley	3'960	227	5.7	640	16.2	867	21.9	16.2
124700000	Cotabato (North Cotabato)	6'825	555	8.1	150	2.2	606	8.9	0.7
126300000	South Cotabato	4'911	1'818	37.0	1'777	36.2	2'383	48.5	11.5
126500000	Sultan Kudarat	3'267	836	25.6	421	12.9	917	28.1	2.5
128000000	Sarangani	2'171	194	8.9	33	1.5	194	8.9	0.0
129800000	Cotabato City (not a province)	21	3	12.8	21	98.0	21	98.0	85.3
153600000	Lanao del Sur	1'965	353	18.0	310	15.8	646	32.9	14.9
153800000	Maguindanao	1'365	281	20.6	179	13.1	407	29.8	9.3
160200000	Agusan del Norte	3'440	1'329	38.6	851	24.7	1'617	47.0	8.4
160300000	Agusan del Sur	4'507	387	8.6	342	7.6	729	16.2	7.6
166700000	Surigao del Norte	2'621	891	34.0	356	13.6	891	34.0	0.0
166800000	Surigao del Sur	2'826	204	7.2	146	5.2	350	12.4	5.2
168500000	Dinagat Islands	474	71	14.9	0	0.0	71	14.9	0.0
	Study area total/percentage	101'501	24'033	23.7	17'258	17.0	31'988	31.5	7.8

Annex 8 – Health facility level results of the geographic coverage analysis

MCP Code	Province name	Facility name	Ownership	Maximum coverage capacity	2013 Number of births among NHTS sponsored PhilHealth members	AccessMod processing order	Travel time at the catchment area border (min)	Normal deliveries covered	Coverage capacity not used
1137	ZAMBOANGA DEL SUR	CITY GOV'T OF ZAMBOANGA/CHO-MERCEDES HC	GOVERNMENT	400	4840	1	10	400	0
1138	ZAMBOANGA DEL SUR	CITY GOV'T OF ZAMBOANGA/CHO-CURUAN	GOVERNMENT	400	4840	2	30	400	0
1139	ZAMBOANGA DEL SUR	CITY GOV'T OF ZAMBOANGA/ CHO- MANICAHAN HEALTH CENTER	GOVERNMENT	400	4840	3	22	400	0
1140	ZAMBOANGA DEL SUR	CITY GOVERNMENT OF ZAMBOANGA/ CHO- AYALA HEALTH CENTER	GOVERNMENT	400	4840	4	17	400	0
1128	ZAMBOANGA DEL SUR	CITY GOV'T OF ZAMBOANGA/CHO-STAR APPLE HEALTH CTR.	GOVERNMENT	400	4840	5	2	400	0
1288	DAVAO DEL SUR	KAPUTIAN RHU	GOVERNMENT	400	1718	6	32	400	0
1111	ZAMBOANGA DEL SUR	SAN PEDRO RHU	GOVERNMENT	400	1372	7	10	400	0
1117	ZAMBOANGA DEL SUR	PAGADIAN CITY HEALTH OFFICE	GOVERNMENT	400	1372	8	2	400	0
1214	BUKIDNON	VALENCIA CHO MATERNAL CARE & TB DOTS CENTER	GOVERNMENT	400	780	9	9	400	0
1320	SOUTH COTABATO	T'BOLI RHU	GOVERNMENT	400	725	10	27	400	0
1100	ZAMBOANGA SIBUGAY	IPIL MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	677	11	16	400	0
1125	ZAMBOANGA DEL SUR	DUMINGAG RHU	GOVERNMENT	400	548	12	35	400	0
1238	DAVAO ORIENTAL	CITY HEALTH OFFICE CITY OF MATI BALAY PAANAKAN	GOVERNMENT	400	506	13	17	400	0
1122	ZAMBOANGA DEL SUR	LABANGAN RHU	GOVERNMENT	400	495	14	13	400	0
1309	SULTAN KUDARAT	LEBAK RHU-	GOVERNMENT	400	472	15	53	400	0
1092	ZAMBOANGA SIBUGAY	TUNGAWAN RHU	GOVERNMENT	400	456	16	25	400	0
1227	BUKIDNON	KITAOTAO RHU & FAMILY PLANNING CLINIC	GOVERNMENT	400	451	17	11	400	0
1096	ZAMBOANGA SIBUGAY	R. T. LIM MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	449	18	45	400	0
1107	ZAMBOANGA DEL SUR	TAMBULIG RHU	GOVERNMENT	400	445	19	18	400	0
1127	ZAMBOANGA DEL SUR	DINAS RHU	GOVERNMENT	400	438	20	23	400	0
1190	LANAO DEL NORTE	RHU-LALA/LALA RHU TB-DOTS CLINIC	GOVERNMENT	400	437	21	11	400	0
1142	ZAMBOANGA DEL SUR	AURORA RHU	GOVERNMENT	400	420	22	19	400	0
1394	AGUSAN DEL NORTE	BUENAVISTA RURAL HEATH UNIT & REPRODUCTIVE HEALTH CARE CENTER	GOVERNMENT	400	412	23	17	400	0
1216	BUKIDNON	RHU TB DOTS CENTER & BIRTHING HOME	GOVERNMENT	400	408	24	49	400	0
1304	COMPOSTELA VALLEY	MACO RHU	GOVERNMENT	400	406	25	12	400	0
1329	SOUTH COTABATO	RHU-BANGA MATERNITY CARE CLINIC	GOVERNMENT	400	398	26	13	400	0
1104	ZAMBOANGA DEL SUR	TUKURAN RHU	GOVERNMENT	400	388	27	26	400	0
1191	LANAO DEL NORTE	MUNICIPAL HEALTH OFFICE OF KAPATAGAN	GOVERNMENT	400	386	28	24	400	0
1099	ZAMBOANGA SIBUGAY	NAGA RHU	GOVERNMENT	400	384	29	29	400	0
1126	ZAMBOANGA DEL SUR	DUMALINAO RHU	GOVERNMENT	400	383	30	16	400	0
1115	ZAMBOANGA DEL SUR	RHU-KUMALARANG	GOVERNMENT	400	377	31	25	400	0
1144	ZAMBOANGA DEL NORTE	SIAYAN RHU	GOVERNMENT	400	369	32	43	400	0
1166	MISAMIS ORIENTAL	CLAVERIA RHU	GOVERNMENT	400	361	33	26	400	0
1094	ZAMBOANGA SIBUGAY	SIAY RHU	GOVERNMENT	400	353	34	43	400	0
1118	ZAMBOANGA DEL SUR	MOLAVE RHU	GOVERNMENT	400	349	35	36	400	0
1181	MISAMIS OCCIDENTAL	TANGUB CITY HEALTH OFFICE	GOVERNMENT	400	348	36	22	400	0
1310	SULTAN KUDARAT	LAMBAYONG RHU	GOVERNMENT	400	338	37	24	400	0
1405	AGUSAN DEL SUR	TRENTO RHU	GOVERNMENT	400	335	38	27	400	0
1119	ZAMBOANGA DEL SUR	LAPUYAN RHU	GOVERNMENT	400	330	39	41	400	0

MCP Code	Province name	Facility name	Ownership	Maximum coverage capacity	2013 Number of births among NHTS sponsored PhilHealth members	AccessMod processing order	Travel time at the catchment area border (min)	Normal deliveries covered	Coverage capacity not used
1230	BUKIDNON	DON CARLOS RHU & FAMILY PLANNING CENTER	GOVERNMENT	400	330	40	18	400	0
1221	BUKIDNON	MUNICIPAL HEALTH OFFICE- MANOLO FORTICH	GOVERNMENT	400	319	41	21	400	0
1150	ZAMBOANGA DEL NORTE	MANUKAN RHU	GOVERNMENT	400	315	42	34	400	0
1321	SOUTH COTABATO	POLOMOLOK RHU	GOVERNMENT	400	312	43	16	400	0
1146	ZAMBOANGA DEL NORTE	ROXAS RHU	GOVERNMENT	400	310	44	45	400	0
1130	ZAMBOANGA DEL SUR	BAYOG RHU	GOVERNMENT	400	309	45	46	400	0
1097	ZAMBOANGA SIBUGAY	OLUTANGA RHU	GOVERNMENT	400	296	46	32	400	0
1098	ZAMBOANGA SIBUGAY	MABUHAY RHU	GOVERNMENT	400	295	47	62	400	0
1116	ZAMBOANGA DEL SUR	RAMON MAGSAYSAY RHU	GOVERNMENT	400	285	48	54	400	0
1229	BUKIDNON	IMPASUG-ONG MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	283	49	65	400	0
1349	COTABATO (NORTH COTABATO)	MAGPET RHU	GOVERNMENT	400	281	50	58	400	0
1145	ZAMBOANGA DEL NORTE	SALUG RHU	GOVERNMENT	400	278	51	44	400	0
1112	ZAMBOANGA DEL SUR	SAN PABLO RHU	GOVERNMENT	400	278	52	57	400	0
1242	DAVAO DEL SUR	BANSALAN RHU -	GOVERNMENT	400	274	53	10	400	0
1153	ZAMBOANGA DEL NORTE	GUTALAC RHU	GOVERNMENT	400	274	54	84	400	0
1114	ZAMBOANGA DEL SUR	RHU-PITOGO	GOVERNMENT	400	268	55	29	400	0
1403	AGUSAN DEL SUR	RHU TALACOGON	GOVERNMENT	400	262	56	48	400	0
1402	AGUSAN DEL SUR	ROSARIO MUNICIPAL HEALTH OFFICE & REPRODUCTIVE HEALTH CENTER	GOVERNMENT	400	258	57	42	400	0
1120	ZAMBOANGA DEL SUR	LAKEWOOD RHU	GOVERNMENT	400	252	58	66	400	0
1105	ZAMBOANGA DEL SUR	TIGBAO RHU	GOVERNMENT	400	248	59	87	400	0
1315	SULTAN KUDARAT	RHU- BAGUMBAYAN	GOVERNMENT	400	244	60	29	400	0
1102	ZAMBOANGA DEL SUR	VINCENZO SAGUN RHU	GOVERNMENT	400	240	61	83	400	0
1240	DAVAO DEL SUR	SULOP RHU	GOVERNMENT	400	237	62	18	400	0
1311	SULTAN KUDARAT	KALAMANSIG RHU	GOVERNMENT	400	234	63	116	400	0
1314	SULTAN KUDARAT	RHU- ISULAN	GOVERNMENT	400	226	64	28	400	0
1124	ZAMBOANGA DEL SUR	GUIPOS RHU	GOVERNMENT	400	222	65	82	400	0
1211	BUKIDNON	CABANGLASAN RHU & FPC	GOVERNMENT	400	220	66	68	400	0
1147	ZAMBOANGA DEL NORTE	RHU-POLANCO	GOVERNMENT	400	216	67	37	400	0
1113	ZAMBOANGA DEL SUR	SAN MIGUEL RHU	GOVERNMENT	400	213	68	103	400	0
1110	ZAMBOANGA DEL SUR	SOMINOT RHU	GOVERNMENT	400	201	69	74	400	0
1152	ZAMBOANGA DEL NORTE	KALAWIT RHU	GOVERNMENT	400	200	70	120	23	377
1387	AGUSAN DEL NORTE	NASIPIT RHU BIRTHING CLINIC	GOVERNMENT	400	197	71	33	400	0
1218	BUKIDNON	RHU - MALITBOG	GOVERNMENT	400	193	72	38	400	0
1330	SOUTH COTABATO	RHU- TANTANGAN BIRTHING HOME	GOVERNMENT	400	184	73	31	400	0
1093	ZAMBOANGA SIBUGAY	TALUSAN RHU	GOVERNMENT	400	179	74	103	400	0
1312	SULTAN KUDARAT	ESPERANZA RHU	GOVERNMENT	400	174	75	48	400	0
1404	AGUSAN DEL SUR	STA. JOSEFA RHU	GOVERNMENT	400	171	76	45	400	0
1164	MISAMIS ORIENTAL	OPOL RHU	GOVERNMENT	400	171	77	10	400	0
1151	ZAMBOANGA DEL NORTE	LEON POSTIGO RHU	GOVERNMENT	400	171	78	97	400	0
1182	MISAMIS OCCIDENTAL	PLARIDEL MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	166	79	25	400	0
1161	MISAMIS ORIENTAL	VILLANUEVA MHO	GOVERNMENT	400	162	80	26	400	0
1148	ZAMBOANGA DEL NORTE	PIÐAN RHU	GOVERNMENT	400	161	81	120	129	271
1095	ZAMBOANGA SIBUGAY	RHU-IMELDA/IMELDA RHU TB DOTS CLINIC	GOVERNMENT	400	158	82	89	400	0
1167	MISAMIS ORIENTAL	ALUBIJID RHU	GOVERNMENT	400	157	83	25	400	0

MCP Code	Province name	Facility name	Ownership	Maximum coverage capacity	2013 Number of births among NHTS sponsored PhilHealth members	AccessMod processing order	Travel time at the catchment area border (min)	Normal deliveries covered	Coverage capacity not used
1331	SOUTH COTABATO	RHU- STO. NIðO, SOUTH COTABATO	GOVERNMENT	400	154	84	45	400	0
1236	DAVAO ORIENTAL	BANAYBANAY MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	151	85	21	400	0
1407	SURIGAO DEL NORTE	DAPA RHU & BIRTHING CLINIC	GOVERNMENT	400	151	86	33	400	0
1463	MAGUINDANAO	SULTAN MASTURA RHU	GOVERNMENT	400	147	87	27	400	0
1163	MISAMIS ORIENTAL	SALAY MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	142	88	28	400	0
1347	SARANGANI	MAITUM RHU	GOVERNMENT	400	139	89	39	400	0
1217	BUKIDNON	RHU- DANGCAGAN	GOVERNMENT	400	133	90	29	400	0
1143	ZAMBOANGA DEL NORTE	SIBUTAD RHU	GOVERNMENT	400	129	91	120	28	372
1193	LANAO DEL NORTE	BAROY RHU	GOVERNMENT	400	126	92	41	400	0
1417	SURIGAO DEL NORTE	RHU DEL CARMEN	GOVERNMENT	400	124	93	120	358	42
1464	MAGUINDANAO	TALAYAN RHU	GOVERNMENT	400	121	94	68	400	0
1465	MAGUINDANAO	TALITAY RHU	GOVERNMENT	400	121	95	67	400	0
1135	ZAMBOANGA DEL SUR	JOSEFINA RHU	GOVERNMENT	400	119	96	92	400	0
1414	SURIGAO DEL NORTE	CLAVER RHU	GOVERNMENT	400	116	97	48	400	0
1411	SURIGAO DEL NORTE	ALEGRIA RHU	GOVERNMENT	400	111	98	120	0	400
1412	DINAGAT ISLANDS	BASILISA RHU AND REPRODUCTIVE HEALTH CENTER	GOVERNMENT	400	111	99	108	400	0
1396	AGUSAN DEL NORTE	RHU MAGALLANES	GOVERNMENT	400	105	100	23	400	0
1308	SULTAN KUDARAT	PRES. QUIRINO RHU-	GOVERNMENT	400	102	101	47	400	0
1241	DAVAO DEL SUR	PADADA RHU	GOVERNMENT	400	100	102	21	400	0
1192	LANAO DEL NORTE	LINAMON RHU	GOVERNMENT	400	100	103	13	400	0
1149	ZAMBOANGA DEL NORTE	MUTIA RHU	GOVERNMENT	400	97	104	120	18	382
1154	ZAMBOANGA DEL NORTE	BALIGUIAN RHU	GOVERNMENT	400	96	105	102	400	0
1208	CAMIGUIN	SAGAY RURAL HEALTH UNIT	GOVERNMENT	400	95	106	50	400	0
1443	LANAO DEL SUR	LUMBABAYABAO RHU	GOVERNMENT	400	93	107	37	400	0
1162	MISAMIS ORIENTAL	TAGOLOAN MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	90	108	34	400	0
1183	MISAMIS OCCIDENTAL	LOPEZ JAENA RHU	GOVERNMENT	400	87	109	63	400	0
1427	SURIGAO DEL SUR	CARRASCAL RHU & INFIRMARY	GOVERNMENT	400	85	110	61	400	0
1209	CAMIGUIN	CATARMAN MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	84	111	90	400	0
1455	MAGUINDANAO	DATU ODIN SINSUAT RHU	GOVERNMENT	400	82	112	60	400	0
1459	MAGUINDANAO	NORTH UPI RHU	GOVERNMENT	400	81	113	99	400	0
1457	MAGUINDANAO	GEN. SALIPADA K. PENDATUN RHU (BADAK)	GOVERNMENT	400	80	114	78	400	0
1415	DINAGAT ISLANDS	LIBJO RHU AND FAMILY PLANNING CENTER	GOVERNMENT	400	77	115	120	20	380
1239	DAVAO ORIENTAL	BOSTON RHU PAANAKAN	GOVERNMENT	400	76	116	34	400	0
1421	SURIGAO DEL NORTE	TUBO RHU	GOVERNMENT	400	75	117	19	400	0
1160	MISAMIS ORIENTAL	LUGAIT MUNICIPAL HEALTH OFFICE	GOVERNMENT	400	74	118	13	400	0
1418	SURIGAO DEL NORTE	RHU, SISON	GOVERNMENT	400	73	119	16	400	0
1460	MAGUINDANAO	NORTHERN KABUNTALAN RHU	GOVERNMENT	400	71	120	43	400	0
1458	MAGUINDANAO	KABUNTALAN RHU	GOVERNMENT	400	71	121	112	400	0
1439	LANAO DEL SUR	BALINDONG RHU	GOVERNMENT	400	68	122	29	400	0
1446	LANAO DEL SUR	WAO RHU/WAO RHU TB DOTS CLINIC	GOVERNMENT	400	56	123	59	400	0
1184	MISAMIS OCCIDENTAL	DON VICTORIANO RHU AND TB DOTS CENTER	GOVERNMENT	400	55	124	120	26	374
1444	LANAO DEL SUR	MARANTAO RHU	GOVERNMENT	400	51	125	44	400	0
1461	MAGUINDANAO	PAGALUNGAN RHU	GOVERNMENT	400	48	126	24	400	0
1440	LANAO DEL SUR	BUADIPOSO BUNTUNG RHU	GOVERNMENT	400	46	127	59	400	0

MCP Code	Province name	Facility name	Ownership	Maximum coverage capacity	2013 Number of births among NHTS sponsored PhilHealth members	AccessMod processing order	Travel time at the catchment area border (min)	Normal deliveries covered	Coverage capacity not used
1462	MAGUINDANAO	SOUTH UPI RHU	GOVERNMENT	400	44	128	120	11	389
1445	LANAO DEL SUR	TAMPARAN RHU	GOVERNMENT	400	40	129	120	243	157
1454	MAGUINDANAO	DATU MONTAWAL RHU	GOVERNMENT	400	34	130	34	400	0
1453	MAGUINDANAO	BARIRA RHU	GOVERNMENT	400	33	131	120	381	19
1413	SURIGAO DEL NORTE	BURGOS RHU	GOVERNMENT	400	31	132	120	0	400
1456	MAGUINDANAO	DATU PAGLAS RHU	GOVERNMENT	400	25	133	62	400	0
1441	LANAO DEL SUR	BUBONG RHU	GOVERNMENT	400	25	134	120	112	288
1442	LANAO DEL SUR	DITSA-AN RAMAIN RHU	GOVERNMENT	400	0	135	85	400	0
1157	ZAMBOANGA DEL NORTE	JOSE DALMAN RHU	GOVERNMENT	400	0	136	120	266	134
1319	SOUTH COTABATO	TINAGAKAN COMMUNITY LYING-IN CENTER	GOVERNMENT	200	1143	137	12	200	0
1322	SOUTH COTABATO	FATIMA COMMUNITY LYING-IN CENTER	GOVERNMENT	200	1143	138	13	200	0
1323	SOUTH COTABATO	DADIANGAS SOUTH COMMUNITY LYING-IN CENTER	GOVERNMENT	200	1143	139	4	200	0
1324	SOUTH COTABATO	BALUAN COMMUNITY LYING-IN CENTER	GOVERNMENT	200	1143	140	8	200	0
1325	SOUTH COTABATO	APOPONG COMMUNITY LYING-IN CENTER	GOVERNMENT	200	1143	141	20	200	0
1326	SOUTH COTABATO	CONEL COMMUNITY LYING-IN CENTER	GOVERNMENT	200	1143	142	26	200	0
1336	SOUTH COTABATO	JOSE J. CATOLICO PUERICULTURE, FAMILY PLANNING & MATERNITY CENTER	GOVERNMENT	200	1143	143	28	200	0
1206	LANAO DEL NORTE	BARANGAY HINAPLANON MATERNITY CLINIC	GOVERNMENT	200	870	144	61	200	0
1231	BUKIDNON	BUTONG LYING- IN CENTER	GOVERNMENT	200	635	145	50	200	0
1219	BUKIDNON	QUEZON MATERNITY CARE & PPMD DOTS CENTER	GOVERNMENT	200	635	146	75	200	0
1289	DAVAO DEL NORTE	PANABO EMERGENCY AND SAFE BIRTHING FACILITY	GOVERNMENT	200	516	147	4	200	0
1348	SARANGANI	MALUNGON HEALTH CENTER BIRTHINGHOME	GOVERNMENT	200	490	148	20	200	0
1201	LANAO DEL NORTE	LSSTI OPD AND BIRTHING CLINIC	GOVERNMENT	200	437	149	57	200	0
1159	ZAMBOANGA DEL NORTE	DIPOLOG CITY BIRTHING HOMES	GOVERNMENT	200	421	150	96	200	0
1225	BUKIDNON	MARAMAG BIRTHING HOME	GOVERNMENT	200	353	151	52	200	0
1233	BUKIDNON	BRGY. NORTH POBLACION LYING-IN CLINIC	GOVERNMENT	200	353	152	63	200	0
1220	BUKIDNON	PANGANTUCAN MATERNITY CARE & TB DOTS CENTER	GOVERNMENT	200	352	153	89	200	0
1428	SURIGAO DEL SUR	MANGANGOY PRIVATE - PUBLIC MIXED BIRTHING FACILITY	GOVERNMENT	200	344	154	14	200	0
1158	ZAMBOANGA DEL NORTE	DON JOSE AGUIRRE BHS/ LYING-IN	GOVERNMENT	200	315	155	120	43	157
1344	SOUTH COTABATO	BRGY. SULIT BIRTHING HOME	GOVERNMENT	200	312	156	35	200	0
1226	BUKIDNON	LGU KIBAWE BIRTHING HOME & TB DOTS CENTER	GOVERNMENT	200	252	157	78	200	0
1228	BUKIDNON	KADINGILAN MATERNITY CARE PACKAGE AND TB DOTS CENTER	GOVERNMENT	200	244	158	108	200	0
1353	COTABATO (NORTH COTABATO)	KIDAPAWAN CITY MATERNITY CENTER	GOVERNMENT	200	221	159	41	200	0
1224	BUKIDNON	MATERNITY CARE CENTER - LGU KALILANGAN	GOVERNMENT	200	199	160	106	200	0
1202	LANAO DEL NORTE	KAUSWAGAN RHU LYING- IN CLINIC	GOVERNMENT	200	175	161	87	200	0
1313	SULTAN KUDARAT	TACURONG CITY BIRTHING HOME	GOVERNMENT	200	136	162	56	200	0
1189	MISAMIS OCCIDENTAL	ALORAN RHU LYING-IN CLINIC	GOVERNMENT	200	119	163	73	200	0
1188	MISAMIS OCCIDENTAL	CONG. HILARION J. RAMIRO JR., MEMORIAL INFIRMARY & BIRTHING HOME	GOVERNMENT	200	68	164	120	142	58
1108	ZAMBOANGA DEL SUR	TALON-TALON HEALTH CENTER	GOVERNMENT	100	4840	165	2	100	0
1136	ZAMBOANGA DEL SUR	CITY GOV'T OF ZAMBOANGA/CHO-TUGBUNGAN HEALTH CENTER	GOVERNMENT	100	4840	166	2	100	0
1121	ZAMBOANGA DEL SUR	LABUAN HEALTH CENTER	GOVERNMENT	100	4840	167	3	100	0
1123	ZAMBOANGA DEL SUR	GUIWAN HEALTH CENTER	GOVERNMENT	100	4840	168	2	100	0
1101	ZAMBOANGA DEL SUR	VITALI HEALTH CENTER & LYING-IN CLINIC	GOVERNMENT	100	4840	169	37	100	0
1103	ZAMBOANGA DEL SUR	TUMAGA HEALTH CENTER	GOVERNMENT	100	4840	170	2	100	0
1106	ZAMBOANGA DEL SUR	TETUAN HEALTH CENTER	GOVERNMENT	100	4840	171	2	100	0

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1109	ZAMBOANGA DEL SUR	STA. MARIA HEALTH CENTER	GOVERNMENT	100	4840	172	2	100	0
1129	ZAMBOANGA DEL SUR	CANELAR RURAL HEALTH CENTER	GOVERNMENT	100	4840	173	1	100	0
1133	ZAMBOANGA DEL SUR	STA. LUCIA MAIN HEALTH CENTER	GOVERNMENT	100	1372	174	89	100	0
1395	AGUSAN DEL NORTE	J. P. RIZAL HEALTH STATION	GOVERNMENT	100	1122	175	3	100	0
1198	LANAO DEL NORTE	TAMBACAN HEALTH CENTER	GOVERNMENT	100	870	176	89	100	0
1199	LANAO DEL NORTE	SARAY HEALTH CENTER	GOVERNMENT	100	870	177	97	100	0
1200	LANAO DEL NORTE	PUGAAN HEALTH CENTER	GOVERNMENT	100	870	178	111	100	0
1204	LANAO DEL NORTE	BURUUN HEALTH CENTER	GOVERNMENT	100	870	179	108	100	0
1205	LANAO DEL NORTE	BARANGAY SUAREZ HEALTH CENTER LYING-IN	GOVERNMENT	100	870	180	116	100	0
1197	LANAO DEL NORTE	TIBANGA HEALTH CENTER	GOVERNMENT	100	870	181	114	100	0
1196	LANAO DEL NORTE	TIPANOY HEALTH CENTER	GOVERNMENT	100	870	182	120	6	94
1410	SURIGAO DEL NORTE	TAFT DISTRICT HEALTH CENTER AND BIRTHING FACILITY	GOVERNMENT	100	672	183	11	100	0
1416	SURIGAO DEL NORTE	LUNA DISTRICT HEALTH CENTER	GOVERNMENT	100	672	184	17	100	0
1419	SURIGAO DEL NORTE	SAN JUAN DISTRICT HEALTH CENTER	GOVERNMENT	100	672	185	33	100	0
1422	SURIGAO DEL NORTE	WASHINGTON DISTRICT HEALTH CENTER	GOVERNMENT	100	672	186	46	100	0
1383	AGUSAN DEL NORTE	CABADBARAN CITY PUERICULTURE CENTER, INC.	GOVERNMENT	100	345	187	13	100	0
1398	AGUSAN DEL SUR	BIRTHING CLINIC OF BHS- DEL MONTE	GOVERNMENT	100	262	188	46	100	0
1399	AGUSAN DEL SUR	BIRTHING CLINIC OF BHS- LABNIG	GOVERNMENT	100	262	189	63	100	0
1400	AGUSAN DEL SUR	BIRTHING CLINIC OF ZILLOVIA BHS	GOVERNMENT	100	262	190	67	100	0
1424	SURIGAO DEL SUR	REPRODUCTIVE HEALTH & FAMILY PLANNING CENTER - TAGBINA	GOVERNMENT	100	218	191	11	100	0
1423	SURIGAO DEL SUR	MUNICIPAL HEALTH OFFICE & REPRODUCTIVE HEALTH CENTER - SAN MIGUEL	GOVERNMENT	100	217	192	45	100	0
1165	MISAMIS ORIENTAL	GITAGUM MUNICIPAL HEALTH CENTER & LYING-IN CLINIC	GOVERNMENT	100	70	193	82	100	0
1420	SURIGAO DEL NORTE	STA. MONICA HEALTH CENTER	GOVERNMENT	100	62	194	120	0	100
1131	ZAMBOANGA DEL SUR	ZAMBOANGA CITY MEDICAL CENTER BIRTHING CLINIC	PRIVATE	200	4840	195	2	200	0
1141	ZAMBOANGA DEL SUR	BRENT MATERNITY LYING-IN CENTER	PRIVATE	200	4840	196	3	200	0
1249	DAVAO DEL SUR	SACRE COEUR MEDICAL CLINIC AND BIIRTHING CENTER	PRIVATE	200	1718	197	17	200	0
1280	DAVAO DEL SUR	BMCDC- WOMEN'S HEALTH AND BIRTHING CENTER	PRIVATE	200	1718	198	4	200	0
1247	DAVAO DEL SUR	SARONA BIRTHING CLINIC SBC	PRIVATE	200	1718	199	5	200	0
1271	DAVAO DEL SUR	DIANITA BRAZA MABINI PAANAKAN AND FAMILY PLANNING CLINIC	PRIVATE	200	1718	200	8	200	0
1278	DAVAO DEL SUR	CERBAS-PEREZ LYING IN CLINIC	PRIVATE	200	1718	201	10	200	0
1258	DAVAO DEL SUR	M.M. PEREZ LYING-IN CLINIC	PRIVATE	200	1718	202	8	200	0
1266	DAVAO DEL SUR	FGH LYING-IN CLINIC	PRIVATE	200	1718	203	26	200	0
1283	DAVAO DEL SUR	BALIOK LYING-IN CLINIC	PRIVATE	200	1718	204	22	200	0
1274	DAVAO DEL SUR	DAVAO CITY HEALTH OFFICE BIRTHING HOME (TIBUNGCO LYING- IN)	PRIVATE	200	1718	205	34	200	0
1282	DAVAO DEL SUR	BELLEZA MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	200	1718	206	24	200	0
1244	DAVAO DEL SUR	TECARRO POLYCLINIC & MATERNITY CENTER	PRIVATE	200	1718	207	40	200	0
1251	DAVAO DEL SUR	PORLARES BLUESTAR MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	200	1718	208	27	200	0
1268	DAVAO DEL SUR	ESPINO MEDICAL & MATERNITY CLINIC, INC.	PRIVATE	200	1718	209	51	200	0
1279	DAVAO DEL SUR	CALANOY MEDICAL & MATERNITY CLINIC	PRIVATE	200	1718	210	46	200	0
1284	DAVAO DEL SUR	AYUBAN-MEMBRADO MATERNITY CLINIC	PRIVATE	200	1718	211	59	200	0
1243	DAVAO DEL SUR	TJ MATERNITY CLINIC	PRIVATE	200	1718	212	54	200	0
1252	DAVAO DEL SUR	NURSE MID MATERNITY CLINIC	PRIVATE	200	1718	213	66	200	0
1254	DAVAO DEL SUR	MERCY MATERNITY CENTER	PRIVATE	200	1718	214	60	200	0
1256	DAVAO DEL SUR	MARGAS MATERNITY REPRODUCTIVE CLINIC	PRIVATE	200	1718	215	62	200	0

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1261	DAVAO DEL SUR	LAMSEN FAMILY PLANNING REFERRAL CENTER & MATERNITY CLINIC	PRIVATE	200	1718	216	69	200	0
1269	DAVAO DEL SUR	EMILY HOMES MATERNITY CLINIC	PRIVATE	200	1718	217	64	200	0
1277	DAVAO DEL SUR	CITYWIDE MATERNITY CLINIC & REPRODUCTIVE HEALTH CTR.	PRIVATE	200	1718	218	68	200	0
1245	DAVAO DEL SUR	TALLO MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	200	1718	219	73	200	0
1264	DAVAO DEL SUR	JAMBO MATERNITY CLINIC	PRIVATE	200	1718	220	85	200	0
1265	DAVAO DEL SUR	GARCIA MATERNITY CLINIC PAANAKAN	PRIVATE	200	1718	221	75	200	0
1134	ZAMBOANGA DEL SUR	PARTERA BIRTHING HOME	PRIVATE	200	1372	222	110	200	0
1341	SOUTH COTABATO	DOLLY'S BIRTHING HOME	PRIVATE	200	1143	223	47	200	0
1332	SOUTH COTABATO	NALZARO LYING-IN CLINIC	PRIVATE	200	1143	224	53	200	0
1340	SOUTH COTABATO	DOðA SOLEDAD LYING-IN	PRIVATE	200	1143	225	59	200	0
1343	SOUTH COTABATO	BULA COMMUNITY LYING-IN CENTER	PRIVATE	200	1143	226	65	200	0
1391	AGUSAN DEL NORTE	RAINBE BIRTHING HOME	PRIVATE	200	1122	227	11	200	0
1382	AGUSAN DEL NORTE	BUTUAN MATERNITY BIRTHING CLINIC	PRIVATE	200	1122	228	10	200	0
1386	AGUSAN DEL NORTE	MOTHER'S HEALTH FIRST BIRTHING HOME	PRIVATE	200	1122	229	25	200	0
1385	AGUSAN DEL NORTE	MARILYN BIRTHING HOME CLINIC AND FAMILY PLANNING	PRIVATE	200	1122	230	31	200	0
1388	AGUSAN DEL NORTE	PREVIES BIRTHING & FAMILY PLANNING CLINIC	PRIVATE	200	1122	231	46	200	0
1390	AGUSAN DEL NORTE	RAINBE- 2 BIRTHING CLINIC	PRIVATE	200	1122	232	43	200	0
1392	AGUSAN DEL NORTE	KRISTINA FAMILY PLANNING & BIRTHING CLINIC	PRIVATE	200	1122	233	51	200	0
1384	AGUSAN DEL NORTE	MAMA CARE & LYING-IN CLINIC	PRIVATE	200	1122	234	53	200	0
1393	AGUSAN DEL NORTE	IMAP BIRTHING LYING- IN CLINIC	PRIVATE	200	1122	235	57	200	0
1389	AGUSAN DEL NORTE	R & J MATERNITY CLINIC & FAMILY PLANNING	PRIVATE	200	1122	236	62	200	0
1168	MISAMIS ORIENTAL	QUEEN OF ANGELS CLINIC & BIRTHING HOME	PRIVATE	200	1045	237	63	200	0
1172	MISAMIS ORIENTAL	MOIRRA'S ANGELS BIRTHING HOME AND FAMILY PLANNING	PRIVATE	200	1045	238	77	200	0
1174	MISAMIS ORIENTAL	MAMA' S CHOICE FAMILY PLANNING & BIRTHING HOME CLINIC	PRIVATE	200	1045	239	98	200	0
1180	MISAMIS ORIENTAL	DE ORO MOTHER'S JOY BIRTHING HOME INC.	PRIVATE	200	1045	240	114	200	0
1173	MISAMIS ORIENTAL	MARY'S CHILD LYING-IN CLINIC	PRIVATE	200	1045	241	120	67	133
1178	MISAMIS ORIENTAL	INFANT JESUS LYING-IN CLINIC	PRIVATE	200	1045	242	120	19	181
1171	MISAMIS ORIENTAL	ST. IGNATIUS MATERNAL & CHILD CARE CENTER	PRIVATE	200	1045	243	120	5	195
1170	MISAMIS ORIENTAL	VAN DAVE MATERNITY CLINIC	PRIVATE	200	1045	244	120	44	156
1203	LANAO DEL NORTE	JM CLAIRE MATERNITY BIRTHING CLINIC	PRIVATE	200	870	245	120	4	196
1195	LANAO DEL NORTE	TUBOD MATERNITY CLINIC	PRIVATE	200	870	246	120	1	199
1212	BUKIDNON	SAIT BIRTHING CLINIC	PRIVATE	200	780	247	112	200	0
1176	MISAMIS ORIENTAL	LITTLE BETHLEHEM BIRTHING HOME	PRIVATE	200	775	248	39	200	0
1397	AGUSAN DEL SUR	ANGEL'S BIRTHING CLINIC	PRIVATE	200	697	249	46	200	0
1408	SURIGAO DEL NORTE	MADONNA & CHILD BIRTHING HOME	PRIVATE	200	672	250	66	200	0
1409	SURIGAO DEL NORTE	MAMA' S LOVE LYING- IN CLINIC	PRIVATE	200	672	251	120	200	0
1276	DAVAO DEL SUR	CN ARELLANO FAMILY PLANNING & BIRTHING CENTER	PRIVATE	200	653	252	15	200	0
1213	BUKIDNON	SALAWAGAN LYING-IN CENTER	PRIVATE	200	635	253	116	200	0
1295	DAVAO DEL NORTE	MOM'S CHOICE FAMILY CARE & MATERNITY CLINIC	PRIVATE	200	591	254	71	200	0
1300	DAVAO DEL NORTE	GS LYING-IN CENTER & OB GYNE CLINIC	PRIVATE	200	584	255	28	200	0
1291	DAVAO DEL NORTE	ST. THERESE MATERNITY CLINIC	PRIVATE	200	584	256	29	200	0
1292	DAVAO DEL NORTE	ST. ANNE BIRTHING HOME & MATERNITY CLINIC	PRIVATE	200	584	257	33	200	0
1293	DAVAO DEL NORTE	NARCISO FAMILY PLANNING & MATERNITY CLINIC	PRIVATE	200	539	258	22	200	0
1301	DAVAO DEL NORTE	GOOD SHEPHERD MEDICAL & MATERNITY CENTER	PRIVATE	200	516	259	53	200	0

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1317	SULTAN KUDARAT	LABIAN MEDICAL & MATERNITY CLINIC	PRIVATE	200	472	260	120	5	195
1299	DAVAO DEL NORTE	HURTADO MATERNITY & FAMILY PLANNING CLINIC	PRIVATE	200	468	261	28	200	0
1262	DAVAO DEL SUR	KAYDEN BLAISE BIRTHING HOME	PRIVATE	200	441	262	55	200	0
1273	DAVAO DEL SUR	DAVAO DEL SUR BIRTHING HOME	PRIVATE	200	441	263	72	200	0
1270	DAVAO DEL SUR	DIGOS MATERNITY LYING-IN CLINIC	PRIVATE	200	441	264	83	200	0
1259	DAVAO DEL SUR	LUSICA PANTIL MATERNITY CLINIC	PRIVATE	200	441	265	93	200	0
1207	LANAO DEL NORTE	A & M LYING IN AND DIAGNOSTIC CLINIC	PRIVATE	200	437	266	119	200	0
1307	COMPOSTELA VALLEY	24-SEVEN FAMILY CARE & MATERNITY CLINIC	PRIVATE	200	435	267	7	200	0
1346	SOUTH COTABATO	24/7 LYING-IN MATERNITY AND SPECIALTY CLINICS	PRIVATE	200	373	268	71	200	0
1328	SOUTH COTABATO	SUPERIO-COCJIN OB-GYNE, ULTRASOUND AND MATERNITY CLINIC	PRIVATE	200	373	269	93	200	0
1186	MISAMIS OCCIDENTAL	LA SALLE OPD AND BIRTHING CLINIC	PRIVATE	200	360	270	120	77	123
1187	MISAMIS OCCIDENTAL	GEMS MIDWIVES LYING-IN AND MATERNITY CLINIC	PRIVATE	200	360	271	120	0	200
1235	BUKIDNON	AZNAR BIRTHING HOME AND LYING- IN	PRIVATE	200	353	272	120	56	144
1232	BUKIDNON	BUHIA MEDICAL AND MATERNITY CLINIC	PRIVATE	200	353	273	120	2	198
1306	COMPOSTELA VALLEY	ANDAN MATERNITY INN	PRIVATE	200	343	274	33	200	0
1215	BUKIDNON	SIMBULAN SANTO NIðO GEN. HOSP. BIRTHING HOME	PRIVATE	200	330	275	120	56	144
1342	SOUTH COTABATO	C.A. ESTIMADA BIRTHING HOME	PRIVATE	200	312	276	95	200	0
1339	SOUTH COTABATO	EDILLON' S SURGICAL & MATERNITY CARE CLINIC	PRIVATE	200	312	277	114	200	0
1303	DAVAO DEL NORTE	BLUE STAR MATERNITY CLINIC	PRIVATE	200	310	278	52	200	0
1156	ZAMBOANGA DEL NORTE	SIOCON BIRTHING CLINIC	PRIVATE	200	284	279	120	149	51
1425	SURIGAO DEL SUR	ANGELITA M. YMA MATERNITY CARE AND FAMILY PLANNING CLINIC	PRIVATE	200	241	280	26	200	0
1246	DAVAO DEL SUR	SULOP BIRTHING HOME	PRIVATE	200	237	281	79	200	0
1350	COTABATO (NORTH COTABATO)	SPRINGSIDE WOMAN CENTER AND BIRTHING HOME	PRIVATE	200	221	282	91	200	0
1351	COTABATO (NORTH COTABATO)	MT. APO BIRTHING HOME AND CLINIC	PRIVATE	200	221	283	120	191	9
1352	COTABATO (NORTH COTABATO)	KIDAPAWAN PUERICULTURE AND BIRTHING HOME	PRIVATE	200	221	284	120	0	200
1426	SURIGAO DEL SUR	DIATAGON BIRTHING & FAMILY PLANNING CLINIC	PRIVATE	200	179	285	39	200	0
1175	MISAMIS ORIENTAL	LIVING WATERS CLINIC & BIRTHING HOME	PRIVATE	200	157	286	120	31	169
1318	SULTAN KUDARAT	GUARDIANO CHILDREN AND MATERNITY CLINIC	PRIVATE	200	136	287	120	176	24
1185	MISAMIS OCCIDENTAL	MILA P. CUAJOTOR LYING IN CLINIC	PRIVATE	200	119	288	120	19	181
1210	CAMIGUIN	MARYDEL BIRTHING HOME	PRIVATE	200	95	289	120	37	163
1177	MISAMIS ORIENTAL	LAGUINDINGAN MATERNAL LYING- IN CLINIC	PRIVATE	200	77	290	120	1	199
1435	LANAO DEL SUR	GANNABAN MEDICAL CLINIC & BIRTHING HOME	PRIVATE	200	56	291	120	75	125
1169	MISAMIS ORIENTAL	SUGBONGCOGON FAMILY AND BIRTHING CENTER	PRIVATE	200	52	292	101	200	0
1449	COTABATO CITY	MOTHER FRANCISCA BIRTHING HOME	PRIVATE	200	21	293	120	31	169
1354	COTABATO CITY	DOC SWEET'S MATERNAL CARE AND LYING-IN CLINIC	PRIVATE	200	21	294	120	19	181
1450	COTABATO CITY	BAGUA LYING-IN	PRIVATE	200	21	295	120	0	200
1222	BUKIDNON	MOTHER'S ANGEL BIRTHING HOME/ FAMILY PLANNING CLINIC	PRIVATE	200	0	296	120	18	182
1234	BUKIDNON	BLUEISTAR BIRTHING HOME CLINIC	PRIVATE	200	0	297	120	0	200
1223	BUKIDNON	MOTHER & CHILD LYING-IN CLINIC	PRIVATE	200	0	298	120	1	199
1248	DAVAO DEL SUR	SAN PEDRO COLLEGE HEALTH CENTER	PRIVATE	100	1718	299	95	100	0
1250	DAVAO DEL SUR	RUSIANA MATERNITY & REPRODUCTIVE HEALTH CENTER	PRIVATE	100	1718	300	106	100	0
1255	DAVAO DEL SUR	MELINDO WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1718	301	91	100	0
1260	DAVAO DEL SUR	LOLITA T. DELFIN WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1718	302	120	89	11
1285	DAVAO DEL SUR	AQUINO WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1718	303	120	6	94

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1287	DAVAO DEL SUR	ANITA ALOJADO WELL FAMILY MIDWIFE CLINIC-CABANITAN BRANCH	PRIVATE	100	1718	304	104	100	0
1253	DAVAO DEL SUR	NERIZZA D. DOLORITO WELL FAMILY MIDWIFE CLINIC (SIR)	PRIVATE	100	1718	305	111	100	0
1263	DAVAO DEL SUR	JUDITH N. PABLO WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1718	306	111	100	0
1281	DAVAO DEL SUR	BERATO WELL FAMILY MIDWIFE CLINIC BRANCH I	PRIVATE	100	1718	307	112	100	0
1286	DAVAO DEL SUR	ANITA E. ALOJADO WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1718	308	120	6	94
1272	DAVAO DEL SUR	DELFIN-GORNEZ WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1718	309	120	3	97
1257	DAVAO DEL SUR	MA. THERESA L. MORALLAS WELL CARE MIDWIFE CLINIC	PRIVATE	100	1718	310	120	12	88
1275	DAVAO DEL SUR	DALIAON PUERICULTURE CENTER	PRIVATE	100	1718	311	120	0	100
1132	ZAMBOANGA DEL SUR	WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1372	312	120	61	39
1337	SOUTH COTABATO	FPOP-COMMUNITY HEALTH CARE CLINIC	PRIVATE	100	1143	313	111	100	0
1333	SOUTH COTABATO	MONICA J. BARELA WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1143	314	120	36	64
1338	SOUTH COTABATO	EDNA G. DE CASTRO WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1143	315	114	100	0
1345	SOUTH COTABATO	ALICIA B. BESANA WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1143	316	120	15	85
1335	SOUTH COTABATO	JOY EDEL G. ENRIQUEZ WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	1143	317	120	48	52
1179	MISAMIS ORIENTAL	GINGOOG PUERICULTURE CENTER	PRIVATE	100	775	318	91	100	0
1401	AGUSAN DEL SUR	NEKIE' S PAANAKAN CENTER	PRIVATE	100	697	319	62	100	0
1294	DAVAO DEL NORTE	MONTEIRO WELL CARE MIDWIFE CLINIC	PRIVATE	100	584	320	64	100	0
1296	DAVAO DEL NORTE	MERCY MOM'S PREGNANCY CLINIC	PRIVATE	100	584	321	70	100	0
1302	DAVAO DEL NORTE	CABILLO DELIVERY CLINIC	PRIVATE	100	516	322	93	100	0
1297	DAVAO DEL NORTE	MEDRANO WELL CARE MIDWIFE CLINIC	PRIVATE	100	516	323	95	100	0
1237	DAVAO ORIENTAL	MANANSALA WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	506	324	29	100	0
1194	LANAO DEL NORTE	WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	437	325	120	9	91
1290	DAVAO DEL NORTE	WELLNESS MIDWIFE CLINIC	PRIVATE	100	400	326	78	100	0
1327	SOUTH COTABATO	SUSIE CAMACHO-GEDORIO OB-GYNE CLINIC	PRIVATE	100	373	327	120	71	29
1334	SOUTH COTABATO	MATAVIA-TOMINES OB-GYNE CLINIC	PRIVATE	100	373	328	120	0	100
1305	COMPOSTELA VALLEY	NABUNTURAN WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	343	329	53	100	0
1298	DAVAO DEL NORTE	MAGDADARO WELL-CARE MIDWIFE CLINIC	PRIVATE	100	310	330	94	100	0
1155	ZAMBOANGA DEL NORTE	TVI RESOURCE DEVELOPMENT PHILIPPINES INC. MINESITE CLINIC	PRIVATE	100	284	331	120	0	100
1438	LANAO DEL SUR	CLINICA FARIDA	PRIVATE	100	253	332	120	99	1
1434	LANAO DEL SUR	RANAO DOCTORS' POLYMEDIC	PRIVATE	100	253	333	120	1	99
1436	LANAO DEL SUR	THE DATU MAMALINDING SPECIALISTS' CLINIC	PRIVATE	100	253	334	120	0	100
1437	LANAO DEL SUR	SALA'AM CLINIC	PRIVATE	100	253	335	120	0	100
1316	SULTAN KUDARAT	NENITA S. SIOSON WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	226	336	120	19	81
1267	DAVAO DEL SUR	F. N. RAMIREZ WELL CARE MIDWIFE CLINIC	PRIVATE	100	100	337	92	100	0
1448	MAGUINDANAO	MONIB WELL FAMILY MIDWIFE CLINIC	PRIVATE	100	100	338	120	26	74
1452	MAGUINDANAO	WELL- FAMILY MIDWIFE CLINIC BRANCH II	PRIVATE	100	80	339	120	5	95
1447	MAGUINDANAO	PARISA WELL FAILY MIDWIFE CLINIC	PRIVATE	100	74	340	120	15	85
1451	MAGUINDANAO	WELL-FAMILY MIDWIFE CLINIC	PRIVATE	100	25	341	120	19	81
			Total	88'100				77'629	10'471

Annex 9 – Province level number and percentage of births located within 2 hours of travel time of an MCP accredited facility (public and private) when taking both travel time and coverage capacity into account

Province PSGC	Province name	2013 Estimated number of births among the NHTS-PR sponsored PhilhHealth members	Number of births located within 2 hours of travel time to a MCP accredited facility (public and private) and for which there is enough capacity in the facilities	Percentage of births located within 2 hours of travel time to a MCP accredited facility (public and private) and for which there is enough capacity in the facilities	Difference between the accessibility and geographic coverage
097200000	Zamboanga del Norte	6,927	4,145	59.8%	-3.3%
097300000	Zamboanga del Sur	14,961	11,838	79.1%	-9.7%
098300000	Zamboanga Sibugay	5,746	4,064	70.7%	-14.3%
101300000	Bukidnon	6,609	5,704	86.3%	-0.2%
101800000	Camiguin	430	428	99.5%	0.1%
103500000	Lanao del Norte	5,383	4,331	80.5%	0.3%
104200000	Misamis Occidental	2,199	1,824	83.0%	-0.7%
104300000	Misamis Oriental	5,407	5,028	93.0%	-0.3%
112300000	Davao del Norte	4,164	3,937	94.6%	-1.0%
112400000	Davao del Sur	8,775	6,249	71.2%	-8.4%
112500000	Davao Oriental	2,549	1,050	41.2%	-34.8%
118200000	Compostela Valley	3,960	2,962	74.8%	-15.6%
124700000	Cotabato (North Cotabato)	6,825	5,774	84.6%	0.5%
126300000	South Cotabato	4,911	4,230	86.1%	0.9%
126500000	Sultan Kudarat	3,267	2,422	74.1%	-11.1%
128000000	Sarangani	2,171	1,365	62.9%	-0.8%
129800000	Cotabato City (not a province)	21	21	100.0%	0.0%
153600000	Lanao del Sur	1,965	1,565	79.6%	0.0%
153800000	Maguindanao	1,365	1,145	83.9%	0.0%
160200000	Agusan del Norte	3,440	2,879	83.7%	-6.0%
160300000	Agusan del Sur	4,507	2,145	47.6%	-19.8%
166700000	Surigao del Norte	2,621	2,555	97.5%	0.9%
166800000	Surigao del Sur	2,826	1,585	56.1%	-29.7%
168500000	Dinagat Islands	474	385	81.3%	0.4%
	National total/percentage	101,501	77,629	76.5%	-6.9%

Annex 10 – Municipalities presenting the lowest geographic coverage

PSGC	Municipality name	2013 Estimated number of births among the NHTS-PR sponsored PhilhHealth members	Number of births located within 2 hours of travel time to a MCP accredited facility and for which there is enough capacity in the facilities	Percentage of births located within 2 hours of travel time to a MCP accredited facility and for which there is enough capacity in the facilities	Difference between the accessibility and geographic coverage
166802000	BAYABAS	60	0	0.0%	-98%
112506000	GOVERNOR GENEROSO	249	0	0.0%	-83%
118205000	MARAGUSAN (SAN MARIANO)	307	0	0.0%	-62%
112504000	CARAGA	190	0	0.0%	-47%
112508000	MANAY	213	0	0.0%	-42%
097225000	GODOD	155	0	0.0%	-1%
104206000	CONCEPCION	24	0	0.0%	0%
153638000	TAGOLOAN II	35	0	0.0%	0%
112415000	SARANGANI	329	0	0.0%	0%
103515000	NUNUNGAN	145	1	0.6%	0%
153610000	KAPAI	63	1	2.3%	1%
160305000	LORETO	245	11	4.6%	-31%
112416000	DON MARCELINO	656	38	5.8%	-57%
097216000	SIBUCO	247	19	7.6%	-34%
160313000	VERUELA	246	20	8.3%	-11%
112501000	BAGANGA	314	29	9.1%	-63%
103517000	POONA PIAGAPO	220	24	10.9%	0%
097204000	LA LIBERTAD	51	6	11.0%	-8%
166804000	CAGWAIT	103	13	12.2%	-69%
097208000	MUTIA	97	12	12.4%	0%
112405000	JOSE ABAD SANTOS (TRINIDAD)	1085	141	13.0%	-10%
098315000	TITAY	469	65	13.8%	-32%
103514000	MUNAI	182	26	14.0%	1%
160309000	SAN LUIS	233	43	18.6%	-6%
112511000	TARRAGONA	236	45	19.0%	-34%
103521000	TANGCAL	118	24	20.4%	0%
166816000	SAN MIGUEL	217	47	21.5%	-8%
166818000	TAGO	239	53	22.0%	-61%
112503000	BOSTON	76	17	22.6%	-6%
097227000	KALAWIT	200	46	23.0%	-10%
103511000	MAGSAYSAY	116	27	23.1%	0%
104303000	BALINGOAN	64	15	23.8%	5%
097213000	SALUG	278	78	27.9%	-4%
097215000	SIAYAN	369	104	28.1%	-7%
153620000	PAGAYAWAN (TATARIKAN)	39	11	28.5%	-3%
160303000	ESPERANZA	364	105	28.8%	-8%
126509000	PALIMBANG	582	168	28.9%	-59%
166814000	MARIHATAG	122	36	29.4%	-41%
126319000	LAKE SEBU	510	150	29.5%	-2%
128007000	MALUNGON	490	150	30.7%	-4%
153614000	MADAMBA	27	8	30.8%	3%
160304000	LA PAZ	151	52	34.2%	-17%
124701000	ALAMADA	443	153	34.6%	0%
160207000	LAS NIEVES	289	105	36.5%	-22%
097217000	SIBUTAD	129	48	37.3%	-14%
097214000	SERGIO OSMEÐA SR.	276	104	37.7%	-6%
101313000	MALITBOG	193	73	38.0%	-7%
166808000	CORTES	105	43	40.7%	-50%
160302000	BUNAWAN	277	114	41.3%	-43%
166809000	HINATUAN	268	113	42.4%	-57%