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**Working Paper**

## Situational analysis of distal factors affecting early childhood care and development in the first 1000 days of life in Zamboanga del Norte

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# Situational Analysis of Distal Factors Affecting Early Childhood Care and Development in the First 1000 Days of Life in Zamboanga del Norte

*Michael R.M. Abrigo and Zhandra C. Tam*



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Situational Analysis of Distal Factors Affecting Early Childhood  
Care and Development in the First 1000 Days of Life  
in Zamboanga del Norte

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PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

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## **Abstract**

This study reports on the situational analysis conducted for Zamboanga del Norte as part of a larger study that aims to inform the development of strategies to improve early childhood care and development outcomes in KOICA-UNICEF intervention sites. A critical assessment of several underlying factors that are known to affect child nutrition outcomes highlights some of the key challenges present in Zamboanga del Norte that affect the availability, affordability, and accessibility of important interventions for child health and nutrition. We also highlight some local innovations and opportunities that may address some of the resource limitations that the province faces.

**Keywords:** first 1,000 days, early childhood care and development, Zamboanga del Norte, nurturing care practices, child nutrition

## **Acknowledgement**

It is often said that children are the future. Indeed, a significant part of what defines a person comes from the care and resources invested in them by the family and the state. It is in this breath that the Early Childhood Care and Development Act was created, thus emphasizing the necessity of its effective formulation and implementation across the country, especially in its most vulnerable regions.

In line with this, the research team would like to thank the United Nations Children's Fund (UNICEF) and the Korean International Cooperation Agency (KOICA) for their generous and ever-constant support in the conducting of the various case studies in Northern Samar, Western Samar and Zamboanga del Norte.

We would also like to thank our various local consultants who assisted us in arranging the case studies as well as interviewing the numerous stakeholders for the ECCD F1KD situation analysis. Their expertise and dedication proved essential to ensuring that the smooth and productive field studies in the various provinces.

Furthermore, we would like to thank the local government units for their warm welcome and complete cooperation with us during the conduct of the research, including the provincial office of Northern Samar, Western Samar, and Zamboanga del Norte. We would also like to extend our thanks to the local offices of Catarman, Lope de Vega, Catbalogan, Calbayog, Dipolog, Leon Postigo and Sindangan for extending us the same graces. Their patience and vigor in providing data, accommodating logistical requests and making time in their busy schedules for interviews were invaluable in our research.

Finally, we would like to extend our most heartfelt gratitude to the various program managers, doctors, nurses, midwives, and barangay workers, not only for their valuable insights but perhaps more so for their untiring service dedicate to the health and nutrition of children and their parents.

It is our hope that this research will prove beneficial to the effective formulation and implementation of ECCD F1KD strategies towards the achievement of health and nutrition for all.

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# **Situational analysis of distal factors affecting Early Childhood Care and Development in the first 1000 days of life in Zamboanga del Norte**

*Michael R.M. Abrigo and Zhandra C. Tam<sup>1</sup>*

## **1. Background**

Undernutrition, particularly in the early years of life, has important long-term implications, including poor cognitive development among children that eventually affects adult productivity (Kolb, et. al. 2017; Perkins, et. al. 2017). Recently, the Philippines enacted Republic Act (R.A.) 11148 or the “Kalusugan at Nutrisyon ng Mag-nanay Act” that aims to address the many challenges surrounding health and nutrition in the first one thousand days (F1KD) of life that has ultimately stunted the progress in improving child nutrition outcomes at least over the last three decades. The new law complements R.A. 8980, or the Early childhood care and Development (ECCD) Act, as amended, that ensures adequate health and nutrition programs for young children by strengthening the country’s ECCD system.

The United Nations Children’s Fund (UNICEF), with funding support from the Korea International Cooperation Agency (KOICA), has collaborated with the Philippine Institute for Development Studies (PIDS) to conduct situational analyses in KOICA-UNICEF intervention sites that will inform the development of strategies to improve ECDD-F1KD outcomes. This study reports on the analyses conducted for Zamboanga del Norte, one of the three KOICA-UNICEF intervention sites. The other sites include Western Samar, and Northern Samar, which are analyzed in separate reports accompanying this study.

The result of the situational analysis in Zamboanga del Norte highlights some of the key challenges faced by different stakeholders in the province. First, Zamboanga del Norte has particularly high poverty incidence. While there has been substantial progress in reducing poverty rates from two-thirds of the population a decade ago to about half of the population more recently, there are still great space and much desire for improvement. Second, although the province is well endowed in terms of natural resources, particularly of forest and aquatic resources, its topography limits the different local governments’ ability to raise local revenues and to extend needed services to their constituencies. All cities and municipalities of Zamboanga del Norte has geographically isolated and displaced areas even in city and municipality centers, i.e., poblaciones. Third, these two challenges cascade to other distal and proximal factors that ultimately influence child nutrition outcomes.

The rest of the report is organized as follows. The next section provides a brief overview of Zamboanga del Norte’s geography, demography, and child nutritional and health status. We then present the methodology wherein we explain the larger study in which this particular case study is contextualized in. The succeeding sections then critically describe and assess the four distal factors that are known to underly child nutrition outcomes: resource access, nurturing

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<sup>1</sup> Fellow II and Research Analyst II, respectively, at the Philippine Institute for Development Studies (PIDS). The authors are grateful for the able research assistance provided by Ma. Blesila D. Mondez, Sherryl A. Yee, Carthenie S. Insi, and Cherizza Mae D. Espinosa, as well as for comments by participants in the PIDS research seminar series. All remaining errors are by the authors.



care practices, environmental health, and service provision. The report finally concludes with a short summary of learnings, and several implications for policy.

## 2. Objectives

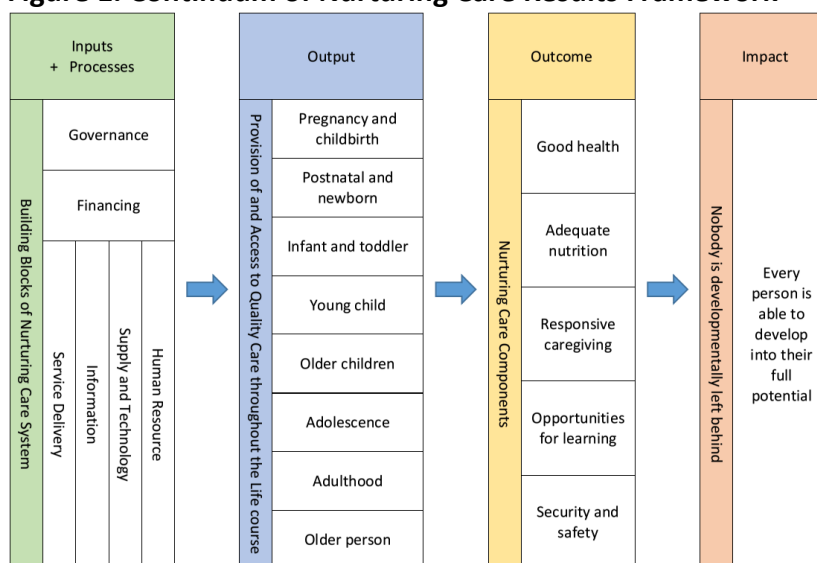
This study aims to undertake a situation analysis that will inform the design of strategies to improve ECCD-F1KD outcomes in UNICEF-KOICA intervention sites. Specifically, it seeks to understand the different contextual factors surrounding the local mobilization of ECCD-F1KD interventions by specifically focusing on the following key aspects: (1) policy and governance, (2) programs and service delivery, and (3) nurturing care practices among parents and caregivers.

## 3. Methodology

This study is part of a larger set of situational analyses that seek to critically describe and assess the different inputs, processes, and outputs that affect ECCD-F1KD practices in select UNICEF-KOICA project sites. The study employs both primary and secondary data to generate insights on the various factors that affect the delivery of services by local government units and access to services among households, which ultimately influences the nurturing care outcomes among the population. Information from official administrative plans, and monitoring and statistical reports are triangulated with narratives by local field experts, including local government chief executives, and public ECCD-F1KD program managers and frontline workers, and by household child caregivers.

The situational analysis is guided by a results framework that the study team developed based on the frameworks elaborated in World Health Organization [WHO] (2007), and in WHO, UNICEF, and World Bank (2018). The proposed framework integrates the building blocks of health systems as inputs and process that are necessary in the provision and accessibility of the continuum of quality care throughout the life course. This then results in components of nurturing care, which contributes to the long-term goal of attaining full potential for all. A schematic diagram of the framework is depicted in Figure 1.

**Figure 1. Continuum of Nurturing Care Results Framework**



Source: Based on WHO, UNICEF and WB (2018), and WHO (2007)

The provision of the continuum of care necessitates the mobilization of resources. This requires ensuring that a cadre of human resources are available to provide the services. The human resources, in turn, need to be supported by other resources, such as health and education supplies and technology, information systems, and finances, which are all governed by strategic policy frameworks to ensure that services are delivered efficiently and effectively.

The continuum of care highlights the need for age-appropriate interventions to allow each child to remain developmentally on track. In the situational analysis, the focus is on services relevant to the first 1,000 days of life, i.e., from prenatal to immediate postpartum to postpartum period and from infancy up to age two of children, as well as adolescence of women.

The provision of these nurturing care environment is expected to contribute to good health and adequate nutrition among children and child caregivers, opportunities for early learning among infants and toddlers, responsive caregiving among child caregivers, and security and safety among families.

The analyses in this report are organized by themes corresponding with the study focus areas: policy and governance, programs and services delivery, and nurturing care practices. Other nutrition-sensitive interventions, including access to resources and environmental health, are also discussed. Together, these distal factors have been documented (e.g. Smith and Haddad, 2000, 2015; Engle, et. al., 1999; UNICEF, 1990) to have important implications on nurturing care components (c.f. World Health Organization, UNICEF, and World Bank, 2018) good health, adequate nutrition, responsive caregiving, opportunities for learning, and security and safety that ultimately affect early child development and future adult outcomes.

This report presents the results of the situational analyses conducted for Zamboanga del Norte. Measures of nutrition-sensitive factors for the province were collated from national surveys and population census, and complemented with local government administrative records, including economy-wide and sectoral local development plans, field health monitoring information systems, income and expenditure accounts, and staffing reports. Qualitative appraisals from key informants were sought to nuance the results from the documents review.

The Zamboanga del Norte study team conducted field visits in September 2-4, 2019 in three locations: Dipolog City (provincial government), Sindangan, and Leon B. Postigo. These locations were purposively selected to contribute to the overall design of the study. Fieldwork sites for the study were identified based on two criteria: (1) LGU capacity, proxied in the study by the LGU income class, and (2) child nutrition outcomes, captured by the 2017 OPT stunting prevalence rate. While only two criteria are used, these variables are known to correlate well with other distal factors, in the case of LGU capacity, and child health measures, in the case of stunting prevalence rate.

Each set of fieldwork sites are selected to highlight commonalities and contrasts in different locations. The study sites in Northern Samar, for example, are selected to highlight the conventional wisdom that health outcomes are directly related to the availability of resources. In this case, high-income LGU Catarman has significantly lower child stunting prevalence rate (3.3%) compared to its low-income LGU neighbor, Lope de Vega, with 41.2 percent stunting prevalence rate. The study sites in Samar (Western Samar), on the other hand, are selected to compare and contrast two cities, i.e., Calbayog and Catbalogan, in order to understand why the availability of resources may not be enough to improve health outcomes. In the case of these two cities, high-income Calbayog City has higher stunting prevalence (22.9%) relative to the

low-income Catbalogan City (10.6%). Finally, the fieldwork sites in Zamboanga del Norte are selected to probe into how two different municipalities in one of the poorest provinces in the Philippines are able to achieve low stunting prevalence. In both Sindangan and Leon B. Postigo (Bacungan) municipalities, stunting prevalence rate are both below ten percent among children below five years of age.

## 4. Study site

Zamboanga del Norte is a province in the northwestern side of Mindanao in southern Philippines. It was created in June 6, 1952 through Republic Act 711, which divided the whole province of Zamboanga into two independent provinces.<sup>2</sup> It has a relatively young population with high literacy rate. Relative to the rest of the Philippines, Zamboanga del Norte has higher prevalence of undernutrition among children.

### 4.1. Geography

Zamboanga del Norte is one of the three provinces of Region IX, the Zamboanga Peninsula, located in the south-western portion of the Philippines. It is bounded in the north and west by the Sulu Sea, in the south by Zamboanga del Sur and Zamboanga Sibugay, and in the northeast by Misamis Occidental (see Annex A for location map of the province). With a land area of more than 7,300 km<sup>2</sup>, Zamboanga del Norte is the largest province in the Zamboanga Peninsula and ninth in the whole of the Philippines.

Zamboanga del Norte is composed of 25 municipalities, 2 cities, and 691 barangays. Its provincial capital is the City of Dipolog in the northern-most side of the province. More than 97 percent of the province's land feature is made up of strongly sloping to very steep hills and mountainous regions. Only less than three percent of the province's land mass is categorized as suitable for agricultural cultivation (National Statistics Office, 1990). Much of the province's plains are close to the coastline that covers around 400 kilometers from north to south on the northwestern side of the province.

All cities and municipalities of Zamboanga del Norte have identified geographically isolated and displaced areas (GIDAs). Based on a Department of Health (DOH) report<sup>3</sup>, 596 of 691 barangays in Zamboanga del Norte are considered GIDAs in 2017. This is more than fivefold the reported 105 GIDA-barangays in 2010. Based on the same report, GIDAs are present even in municipality- and city-centers, i.e., poblaciones, in Zamboanga del Norte.

### 4.2. Population

In 2015, Zamboanga del Norte has a total population of 1,011,393 individuals who are living in 224,828 households (Philippine Statistics Authority [PSA], 2016a). About a third of the province's population reside in only three cities/municipality: Dipolog City (12.9%), Sindangan (9.8%), and Dapitan City (8.1%). The rest of the population are spread over the

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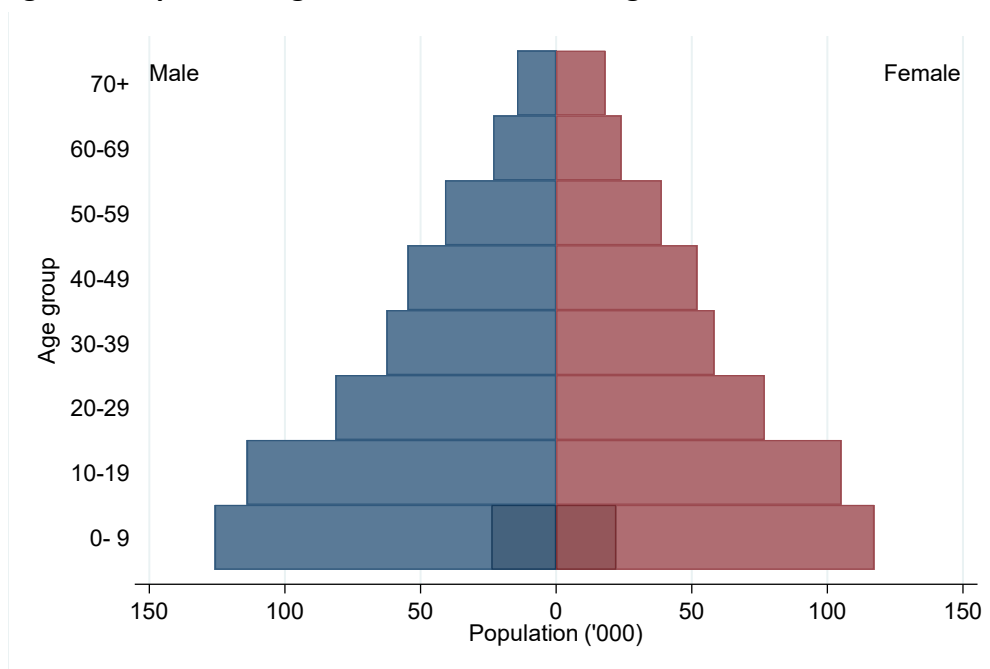
<sup>2</sup> Zamboanga has since been divided into three provinces. Zamboanga Sibugay, the newest province in the region, was culled from Zamboanga del Sur by virtue of Republic Act 8973 in 2000.

<sup>3</sup> Department of Health, Department Memorandum No. 2019-0277. "Consolidated list of geographically-isolated and disadvantaged areas based on submission of the Centers for Health Development, and Ministry of Health-Bangsamoro Autonomous Region in Muslim Mindanao as of April 30, 2019"

remaining 23 municipalities of Zamboanga del Norte, ranging from 8,406 (or 0.8%) in La Libertad to 46,907 (or 4.6%) in Siocon.

Zamboanga del Norte has a young population. The median age in 2015 was 22.4 years, which is slightly higher by 0.7 years relative to the median age of 21.7 years in 2010. The young population aged below 20 years comprise 46 percent of the total population, which is roughly equal the population size of prime-age adults aged 20 to 59 years. Senior citizens aged 60 years or older represent 8 percent of the Zamboanga del Norte population. Figure 2 presents the population age pyramid of Zamboanga del Norte in 2015.

**Figure 2. Population age distribution: Zamboanga del Norte, 2015**



Source: PSA (2016a). Note: Darker region in age 0-9 years represent the population aged 0 to 23 months.

In terms of population age groups with high nutritionally needs, about seven percent of the population are aged below two years. Women of reproductive age, i.e., between 15 and 49 years, comprise about 24 percent of the total population. Young adult women aged 15 to 19 years old represent more than five percent of the population.

Zamboanga del Norte exhibit close to perfect sex parity, with men comprising 51 percent of the whole population. When disaggregated by age group, however, it can be observed that there are slightly more men than women among younger generations, while the relationship reverse, i.e., more women than men, among the elderly population.

A large majority of the Zamboanga del Norte population identifies themselves as Roman Catholics (73%), while a far second identifies as Moslems (7%). The rest of the population identifies as part of one of several Christian and evangelical groups, Buddhists, other religious groups, and agnostics.

In terms of ethnolinguistic group affiliation, 60 percent of the population identifies as Bisaya, 23 percent as Subanon, and 7 percent as Cebuano. There are also a substantial number who reported as being Kalibugan (2.8%), Tausug (1.5%), Boholano (1.2%), and Samal (1.0%).

Zamboanga del Norte has a high literacy rate. Among those aged 15 years or older, 95 percent reported being literate. Even among those who are aged 80 year or older, literacy rate is at 72 percent, although the rates are highest among younger cohorts. This is despite a plurality of the population receiving only limited formal education.

Among those aged 25 to 59 years, about a third (31%) has not reached high school, while 17 percent were able to reach high school but were not able to graduate. More than half (52%) of the population aged 25 to 59 have received a high school diploma or better.

School enrollment rate are high particularly among the young. Of the population aged 7 to 12 years, coinciding with primary school, 97 percent of children reported attending school. School participation rates decline with age and school level. Among junior high school-level adolescents aged 13 to 16 years, only 86 percent reported attending school. The participation rate is much lower among senior high school-level young adults aged 17 to 18 years, wherein only 52 percent reported attending school.

#### 4.3. *Child nutritional and health status*

Zamboanga del Norte has higher undernutrition rates compared to the rest of the Zamboanga Peninsula and to the Philippines (see Table 1, Panel A). In 2015, for instance, results from the National Nutrition Survey [NNS] (Department of Science and Technology-Food and Nutrition Research Institute [DOST-FNRI], 2016) show that 26.9 percent of children aged below 5 years in Zamboanga del Norte are underweight, compared to only 21.2 percent for the whole of Zamboanga Peninsula, and 21.5 percent for the whole Philippines. Similar patterns may be observed using stunting and wasting as metrics of child undernutrition.

**Table 1. Malnutrition prevalence, and infant and maternal mortality: 2008 and 2015**

	2008			2015		
	Philippines	Zamboanga Peninsula	Zamboanga del Norte	Philippines	Zamboanga Peninsula	Zamboanga del Norte
<b>A. Malnutrition prevalence among aged 0-59 months</b>						
% Underweight	20.7	25.4	a	21.5	21.2	26.9
% Stunted	32.2	40.3	a	33.4	38.0	41.4
% Wasted	6.9	8.0	a	7.1	7.1	7.3
<b>B. Deaths per 1,000 live births</b>						
Infant deaths	12.5	11.5	9.7	11.9	9.1	7.7
Fetal deaths	4.7	3.3	1.0	4.4	2.3	0.3
Maternal deaths	1.0	1.3	0.9	1.0	1.1	0.9

Source: Undernutrition rates are from the 2008 and 2015 National Nutrition Survey (DOST-FNRI, 2010, 2016). Vital statistics are from administrative reports of the Department of Health, Epidemiology Bureau (DOH-National Epidemiology Center, n.d.; DOH-Epidemiology Bureau, n.d.)

Stunting prevalence among children in Zamboanga del Norte is estimated at 41.4 percent, compared to only 33.4 percent and 38.0 percent, respectively, for the whole Philippines and for Zamboanga Peninsula. Prevalence of wasting are slightly higher in Zamboanga del Norte at 7.3 percent relative to both the Philippines and Zamboanga Peninsula, which both have 7.1 percent child wasting prevalence rates.

Despite poorer child nutrition outcomes, official health statistics reports from DOH show that Zamboanga del Norte have lower fetal death rates, infant mortality rates, and maternal mortality rates compared to the rest of Zamboanga Peninsula and the Philippines, as a whole. This observation must be interpreted with caution, however, as the statistic may capture geographic differences in data quality and reporting patterns. In 2017, for example, only 68 percent of births in Zamboanga del Norte are delivered by skilled birth attendants, who are more likely to report maternal and infant deaths, if any, compared with 84 percent for the whole Philippines, and 77 percent for the whole of Zamboanga Peninsula (PSA and ICF, 2018).

Child undernutrition statistics from local government administrative data, particularly from *Operation Timbang* [OPT] (weighing) conducted by municipal and city government nutrition offices, through barangay nutrition scholars and barangay health workers, are generally lower than those reported from nationally representative surveys. Figure 3 presents the 95 percent confidence bands of provincial underweight, stunting, and wasting prevalence in Zamboanga del Norte based on the 2015 NNS (DOST-FNRI, 2016) with municipal- and city-level OPT results in 2015 and 2017 (DOH-National Nutrition Council [NNC], 2019). Note that NNS and 2017 OPT results are for children aged 0 to 59 months, while those for 2015 OPT results are for children aged 0 to 71 months.

Based on 2017 OPT results, Zamboanga del Norte has underweight prevalence of 7.1 percent, stunting prevalence of 13.4 percent, and wasting prevalence of 4.4 percent among children below 5 years old. Except for the OPT-based wasting prevalence, these estimates based on local government administrative data are markedly below the official provincial estimates based on sample surveys presented in Table 1.

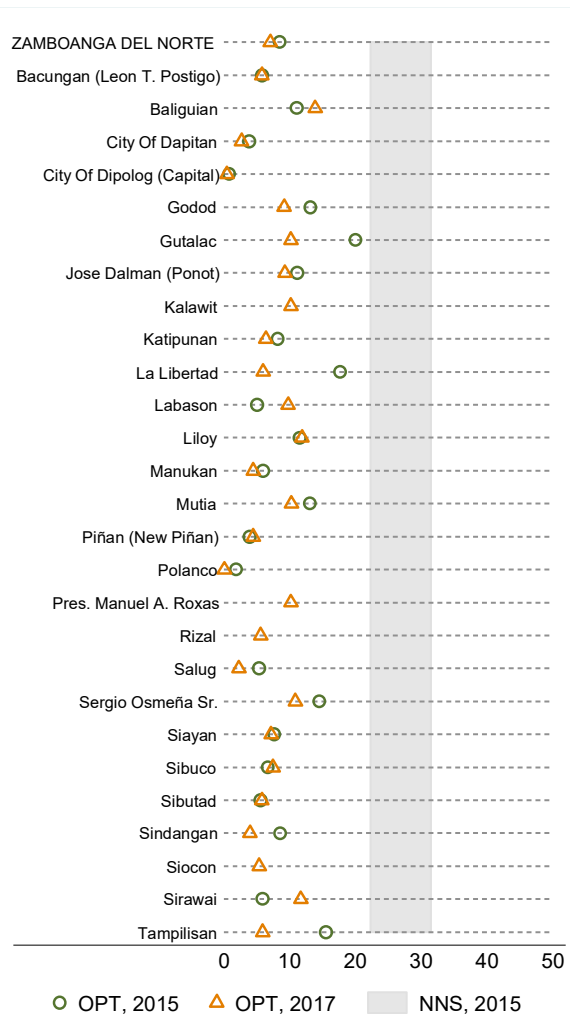
Taking the OPT results at face value, the data suggests that there is wide discrepancy in child nutritional outcomes among residents of different local government units (LGUs) in Zamboanga del Norte. Underweight prevalence in 2017, for example, ranges from 0.1 percent in Polanco to 13.9 percent in Baliguian. Child stunting prevalence, on the other hand, swings from 1.7 percent in Salug to 28.9 percent in Sirawai. Extremes in wasting prevalence are also observed in Salug (0.6%) and Sirawai (11.8%).

## 5. Results

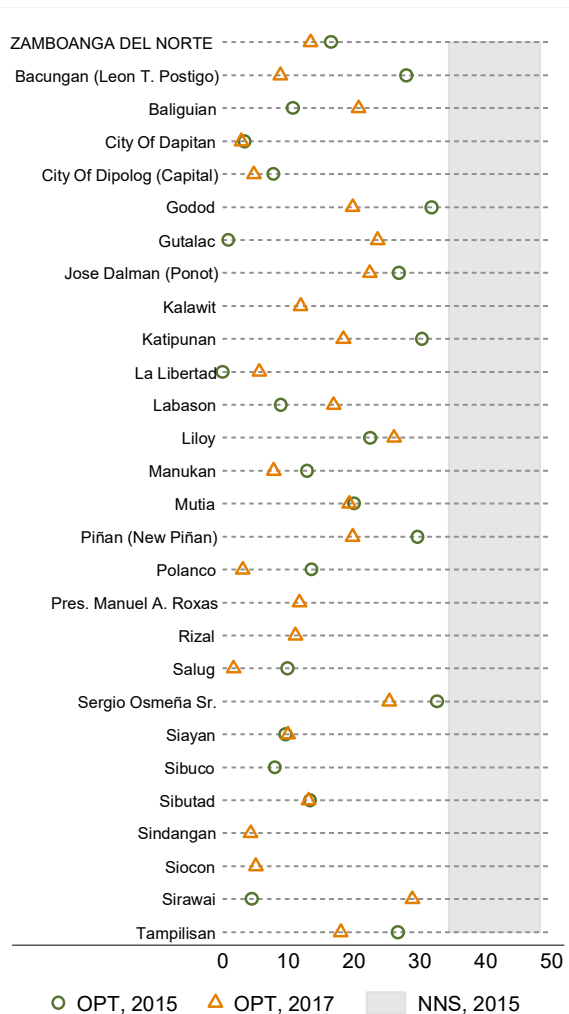
The government plays an important role in the direct provision of many of the services in the continuum of care that are critical in the first 1,000 days of life. With the current devolved setting of government health and nutrition services, however, ensuring sustained and substantial impact nationally continues to be a concern among different local government units with varying resource and technical capacity (Herrin, et. al. 2018). This is particularly true for Zamboanga del Norte despite individual policies and governance structures related to ECCD-FIKD being more or less similar across local governments. Several contextual factors, including household nurturing care practices, access to resources, and environmental health concerns, relevant to Zamboanga del Norte are highlighted, as well.

**Figure 3. Undernutrition prevalence among children (%): OPT 2015 and 2017, and NNS 2015**

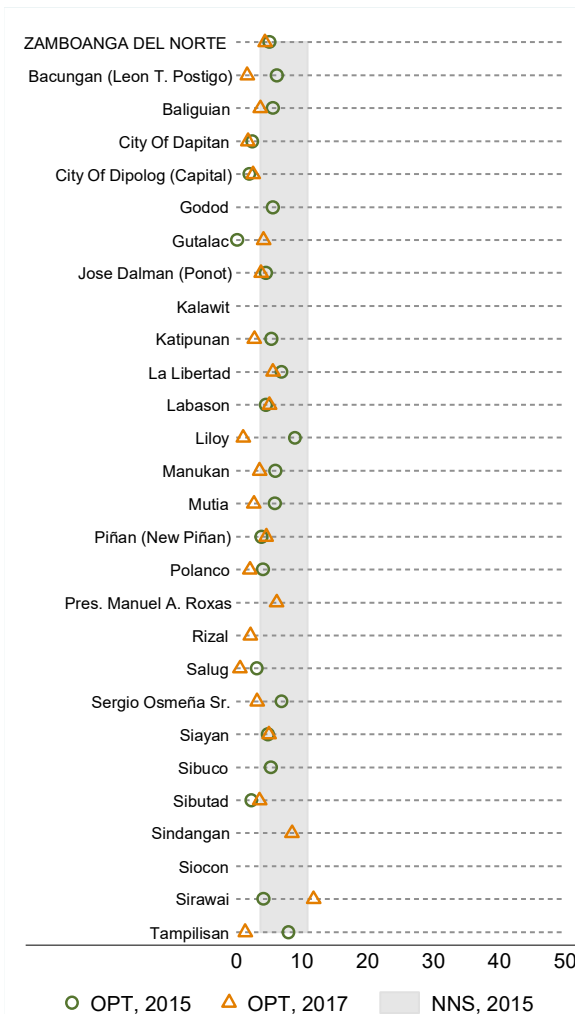
**A. Underweight**



**B. Stunting**



**C. Wasting**



Source: 2015 NNS 95-percent confidence bands are from DOST-FNRI (2016); OPT plus results are from DOH-NNC (2019)

## 5.1. Policy and governance

Local nutrition committees (LNCs) in provincial, municipal/city and barangay governments, chaired by the local chief executive, coordinate the nutrition plans and actions at the respective local units. A designated nutrition action officer (NAO) effectively serves as the secretariat of the local nutrition committee. In the case of Zamboanga del Norte, NAOs are often designated positions to the provincial/city/municipal health officer, social welfare and development officer, or population and development officer.

One of the key documents produced by the LNCs is the local nutrition action plan (LNAP) which lays out the nutrition and health profile, including problems and causes, in the local government, its longer-term goals, and the plan of action for the incumbent administration. The actions outlined in the LNAP are designed to feed into the annual investment plan of the local government unit for appropriate funding.

There appears to be wide variation in the quality and availability of LNAPs in Zamboanga del Norte. While a template-example of LNAP is provided by the National Nutrition Council, many of the plans do not conform to the suggested format.

For example, the LNAP is supposed to provide a local situational analysis that include a description of the nutritional status of the population, and a root-cause analysis of the issues faced by the local government and its constituents. Among ten LNAPS obtained by the study team, four LNAPs reported statistics on weight only, three reported statistics on both weight and height, while three did not report any nutrition statistics. Among the seven reporting nutrition statistics, only four provided disaggregation by age group or location.

Based on the LNAPs obtained by the study team, there appears to be a robust understanding among LNCs of the underlying causes of malnutrition: resource availability, health-seeking behavior and environment, and service provision. However, the factors identified in the LNAPs mainly pertain to household and community issues, and rarely on government capacity or services. There is also a tendency to put emphasis on household limitations, including their reported poor health and nutrition, knowledge, discontentment with available food, parental neglect, laziness, and low priority on health.

Common interventions in these plans include nutrition education, supplemental feeding, food production, livelihood programs, nutrition month celebration, vitamin and micronutrient supplementation, organizing of breastfeeding support groups, food fortification, nutrition profiling (e.g. conduct of OPT), and deworming. The packages of interventions in LNAPs vary significantly however with some more elaborate than others.

A key weakness in many of the LNAPs are on monitoring and evaluation. For the most part, LNAPs have elaborate designs regarding the monitoring of programs to be implemented, including the identification of key responsible officer(s), service providers, and timelines. However, the LNAPs are often silent on how the effectiveness of the different planned interventions will be evaluated, if at all.

The LNAP is one of 33 legally-mandated action plans that covers different sectoral or thematic issues. As such, the LNAP is intimately linked with the local government's Comprehensive Development Plan (CDP), a longer term plan (i.e., six years) that provides a mechanism for the harmonization and synchronization of different sectoral and cross-sectoral programs and



projects of the local government. The LNAP may be integrated with the CDP, or may be culled from the CDP when the LNAP is yet to be developed. The CDP is particularly important because the plans outlined in the CDP feed into the Local Development Investment Program that allows access to the Local Development Fund from 20% of internal revenue allotments received by the local government. This may be an important resource to finance early childhood care and development programs.

Among the few local government units where the study team obtained other local government plans (e.g., CDP, Annual Investment Plan, and Annual Procurement Plan), the LNAPs appear to be not sufficiently linked, particularly in terms of activities, projects and programs to be funded, and the actual resource requirements. A concordance of the CDP and LNAP of Labason is provided as an example as Annex 2. This may be a lost opportunity to ramp up financial support for early childhood care and development programs, and to integrate specific sectoral or thematic concerns with the greater development plan of the local government unit.

Ideally, the priority areas, targets, and plans of action in the LNAP, like other local government development plans, are arrived at through a consultative and consensus-building process through the LNC. However, as expressed by many program manager and planning officer-key informants, the local development priorities of the incumbent local chief executives take precedence. In the case of the municipal governments of Sindangan and Leon B. Postigo, and the provincial government of Zamboanga del Norte, the priority is infrastructure development in line with the national government's "Build, Build, Build" program. This observation is not universally shared though as some program managers expressed that the LNAP has been consulted with key stakeholders, including the local chief executive. Frontline workers appear to have minor role in crafting the LNAP other than their roles in collecting data during OPT.

## 5.2. *Programs and service delivery*

### 5.2.1. *Service Delivery*

Republic Act (R.A.) 11148 or the "Kalusugan at Nutrisyon ng Mag-Nanay Act", together with R.A. 8980 or the "Early childhood care and Development Act", as amended, provides a comprehensive framework and guaranteed services for the first 1000 days of life that are particularly relevant in early childhood care and development. Many of these services are publicly provided in the community, particularly as part of separate programs on maternal and child health, family planning, early childhood care and development, and nutrition, among others. However, several service gaps remain.

As part of the study design, the Zamboanga del Norte study team conducted a survey among municipal and city health officers, nutrition action officers, social work and development officers, and population officers regarding the R.A. 11148 package of services available in their jurisdictions. We have identified services that are not available in at least three of the ten respondent local government units, and have summarized them as Annex 3.

By and large, much of the services that are not available in local government units include those that are (1) not necessarily facility-based, e.g., nutrition counselling, organization of breastfeeding support groups, support for home kitchen gardens, identification, management and social welfare support for malnutrition, and provision of age-appropriate complementary and supplementary feeding; (2) require inter-office/agency coordination, e.g., enrollment to social health insurance, availability of lactation breaks in workplaces, and micronutrient

supplementation in schools; (3) psychosocial in nature, e.g., counselling and psychosocial support; or (4) related to oral care.

There appears to be no formal mechanisms in identifying beneficiaries of the many nutrition intervention programs in local government units, at least in the study fieldwork sites of Leon B. Postigo and Sindangan. Instead, program managers rely heavily on the interpersonal interaction of frontline workers, e.g. barangay nutrition scholars (BNS), barangay health workers (BHW), and ECCD workers, with household-patrons. In these fieldwork sites, the frontline workers reported having intimate knowledge of the demographic characteristics and health status of households within their duty station. At the time of fieldwork, the provincial government of Zamboanga del Norte was fielding a census to profile all households within the province.

Alternatively, frontline workers are able to identify at-risk patients at point-of-care when individuals avail of government services in designated facilities, e.g. barangay health stations, rural health units, or ECCD centers. At the time of fieldwork, the local governments in Zamboanga del Norte introduced an innovation in the local service delivery system wherein clusters of government services, including health and nutrition services, business registration, birth registration, etc., are directly provided in barangays on scheduled days. This was reported to be well accepted among residents who can access the services more conveniently within their own barangay.

Despite these mechanisms, however, program managers and frontline workers accede that there is much room for growth. In these two fieldwork sites, the program managers and frontline workers disclose that even if they provide services in barangays, uptake among households are often low. The key informants cited several cultural factors as potential reasons. In one feeding session in Leon B. Postigo, for example, the key informants narrated that they had a hard time convincing parents to bring their children in the session hall where the activity is being conducted. Some key informants surmised that the parents are “nahihiya” (ashamed) or “tamad” (lazy). Another key informant suggested that parents with children who are not all eligible for the feeding program would rather not bring any child at all for the program.

Other challenges mentioned by program managers and frontline workers include the limited transportation and communication infrastructure in their municipalities. As noted in the earlier section of this study, all cities and municipalities in Zamboanga del Norte have reported GIDAs, even in city and municipality centers. Some roads are reported to be unpaved, which require as much as eight hours to traverse during the rainy season. In Leon B. Postigo, one of the program managers reported that communicating with fieldwork staff are particularly difficult because mobile phone signal is not available in many areas.

On the part of parent and child caregiver-respondents, many reported having no problem in accessing government health and nutrition services. However, there are some indications of quality issues in the delivery of care. Some parent and child caregiver-respondents narrated that some health workers are “masungit” (grouchy) or appear annoyed. Also, in some local government units, they reported that there are set quotas on how many patients that can be seen by health workers in a day. Some of the key informants narrated that there are instances when they have to return home without being seen by a government health worker, or had to rely on the expertise of private health practitioners.

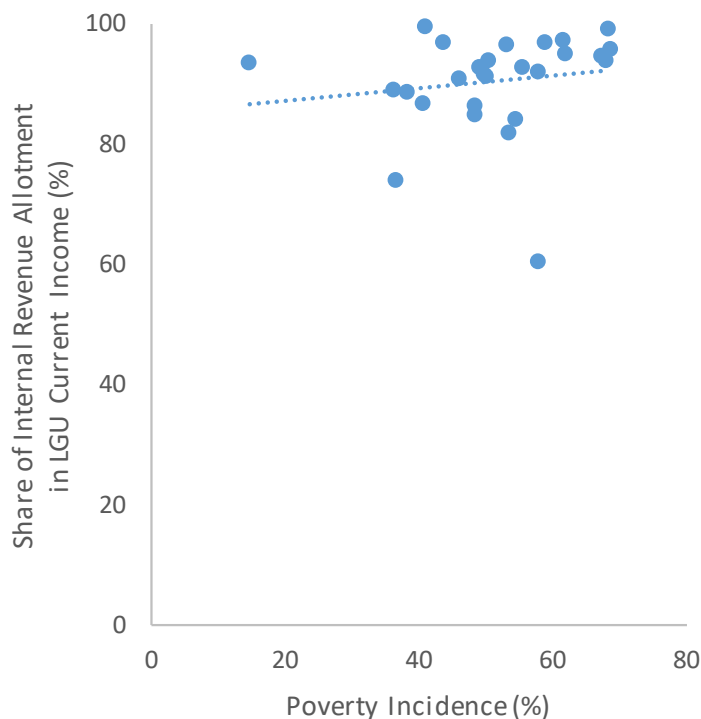
### 5.2.2. Financing

The local governments in Zamboanga del Norte, like many local government units in the country, rely heavily on national transfers, particular its internal revenue allotments (IRA), for financing. Per capita income of local government units in Zamboanga del Norte and its distribution by source are provided as Table 2.

In 2017, data from the Department of Finance-Bureau of Local Government Finance (DOF-BLGF, 2019) shows that more than 80 percent of all incomes of each local government in Zamboanga del Norte are from IRA. This may be expected if we consider that Zamboanga del Norte historically has particularly high poverty incidence, and geographically rather poorly endowed. This effectively limits the ability of local government units to generate resources locally. This is supported by Figure 4 that shows the positive correlation between city and municipal poverty incidence and the share of IRA in local government income. A few exceptions include Dipolog City and Pres. Manual A. Roxas, which respectively source only 60.7- and 74.3-percent of their income from IRA.

That said, when incomes from all sources are combined, local government incomes per capita ranges from PhP2,600 in Sindangan to PhP7,400 in Dapitan City in 2017, suggesting wide variation in the financial capacity of local government units to afford the different demands from and services for their constituencies. Table 3 presents the average spending per person of local government units in Zamboanga del Norte in 2017 by type of service. For population, health, and nutrition (PHN) services, in particular, local government spending per person per year only ranges between PhP150 in Katipunan and PhP670 in Dipolog City.

**Figure 4. Poverty incidence and reliance on internal revenue allotment**



Source: City and municipal poverty incidence are from PSA (2019c); share of IRA in local government incomes are calculated from DOF-BLGF (2019)

**Table 2. LGU income per capita and distribution by source, 2017**

	LGU income per capita (PhP/person)	Distribution by source (%)			
		Local Taxes	Other local sources	Internal Revenue Allotment	Other external sources
Zamboanga del Norte	1,873.5	2.7	8.0	89.2	0.1
Dapitan City	7,350.9	3.2	3.0	93.7	0.1
Dipolog City (Capital)	6,634.4	9.2	24.1	60.7	5.9
Bacungan (Leon T. Postigo)	3,987.2	1.1	6.0	93.0	0.0
Baliguian	5,208.9	0.3	0.3	99.4	0.0
Godod	4,668.9	1.7	0.6	97.3	0.3
Gutalac	4,144.4	1.3	1.6	97.2	0.0
Jose Dalman (Ponot)	3,240.2	1.6	2.9	95.3	0.2
Kalawit	3,862.6	2.0	1.5	96.5	0.0
Katipunan	2,912.4	3.0	3.8	93.0	0.2
La Libertad	5,996.7	2.2	0.9	96.9	0.0
Labason	2,963.3	5.1	6.2	88.7	0.1
Liloy	3,102.3	7.2	10.7	81.9	0.2
Manukan	3,350.8	2.7	5.6	91.6	0.2
Mutia	4,837.6	1.8	2.6	91.1	4.5
Piñan (New Piñan)	3,988.3	4.9	8.1	86.9	0.0
Polanco	3,042.4	5.6	2.2	92.0	0.2
Pres. Manuel A. Roxas	3,755.4	12.3	13.3	74.3	0.0
Rizal	4,640.5	3.3	4.6	91.9	0.2
Salug	3,331.5	2.0	4.0	93.9	0.1
Sergio Osmeña Sr.	5,019.5	1.1	2.8	96.0	0.0
Siayan	4,367.3	0.6	2.2	94.7	2.5
Sibuco	5,143.7	0.1	0.1	99.8	0.0
Sibutad	4,115.4	2.4	1.9	85.0	10.7
Sindangan	2,588.6	5.4	4.3	86.6	3.7
Siocon	3,917.1	2.7	12.8	84.5	0.0
Sirawai	3,414.0	5.2	0.7	94.1	0.0
Tampilisan	3,520.0	3.1	4.1	92.8	0.0
All LGUs	6,242.8	3.9	8.1	86.7	1.3

Source: DOF-BLGF (2019).

**Table 3. LGU expenditure per capita by type, 2017**

	LGU expenditure per capita (PhP/person)	By Type of Service				
		General Public Services	Education	Population, Health, and Nutrition	Social Services and Welfare	Others, N.E.C.
Zamboanga del Norte	1,025.6	481.0	10.8	120.3	6.2	407.3
Dapitan City	6,192.6	4,497.2	34.8	310.5	154.9	1,195.2
Dipolog City (Capital)	3,540.5	1,638.2	93.1	666.9	116.2	1,026.1
Bacungan (Leon T. Postigo)	3,006.6	1,725.4	2.8	241.6	188.2	848.6
Baliguian	4,192.0	3,425.3	0.8	309.1	110.3	346.6
Godod	3,383.9	2,382.2	39.9	294.2	159.3	508.2
Gutalac	3,430.9	2,855.7	9.3	206.0	98.0	261.8
Jose Dalman (Ponot)	2,430.3	1,749.2	14.5	172.2	282.6	211.7
Kalawit	2,734.4	2,028.7	32.5	243.8	88.9	340.5
Katipunan	2,019.1	1,132.0	14.6	148.1	197.3	527.2
La Libertad	4,408.3	3,384.6	30.3	324.3	262.6	406.5
Labason	2,089.7	1,686.7	18.6	169.0	39.2	176.2
Liloy	2,219.0	1,613.8	21.1	201.4	71.2	311.6
Manukan	2,528.0	1,854.2	9.0	171.3	79.0	414.6
Mutia	3,052.2	2,006.3	0.0	315.9	138.2	591.8
Piñan (New Piñan)	2,608.6	1,845.4	10.9	345.2	81.1	326.0
Polanco	1,973.0	1,241.7	26.1	326.1	164.3	214.8
Pres. Manuel A. Roxas	2,978.0	2,035.3	31.7	210.1	127.5	573.4
Rizal	2,894.5	1,862.8	19.3	352.4	275.5	384.5
Salug	2,314.1	1,515.9	10.7	326.9	112.8	347.8
Sergio Osmeña Sr.	3,514.3	2,587.1	16.7	224.4	73.9	612.2
Siayan	2,523.8	2,121.9	5.6	187.1	53.4	155.8
Sibuco	3,167.4	1,996.2	0.0	168.3	47.4	955.5
Sibutad	2,392.0	1,657.8	0.1	351.4	116.5	266.3
Sindangan	1,887.9	999.3	12.2	212.6	272.9	390.8
Siocon	3,042.3	1,314.6	16.9	183.4	562.7	964.7
Sirawai	2,618.0	1,527.4	7.2	186.6	63.8	832.8
Tampilisan	2,815.2	1,978.2	25.4	209.3	92.7	509.6
All LGUs	4,068.1	2,453.9	37.4	410.2	162.6	1,004.0

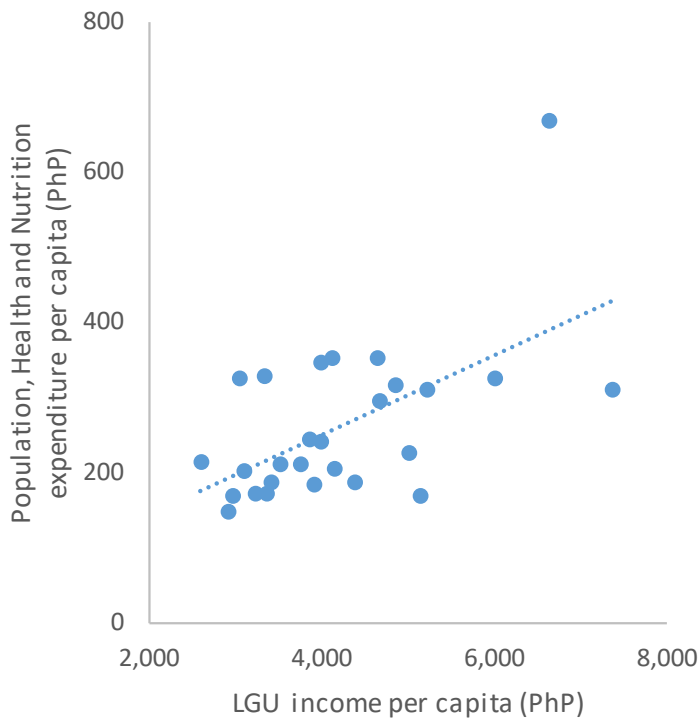
Source: DOF-BLGF (2019).

Expanding local government incomes are critical in expanding local government programs. This is particularly true for population, health and nutrition (PHN) services in local governments. As shown in Figure 5, there is a tendency for local governments in Zamboanga del Norte to allocate more resources per capita for PHN services as financial constraints eases with greater local government incomes. This tendency is true also for other government programs, such as in education and in social services and welfare.

The actual health and nutrition needs of the local population appear to be inconsequential to the level of resources available for PHN services. Figure 6 plots per capita local government spending on PHN services vis-à-vis several child undernutrition measures with the jurisdiction of local government units. It shows cities and municipalities with high child stunting, underweight and wasting prevalence actually tend to spend less on PHN services than those with lower child undernutrition rates.

It is important to note that some ECCD-F1KD interventions may be recorded as expenditures under social services and welfare programs, including child development services and parenting programs. Other F1KD programs that are not necessarily related to ECCD, such as those geared towards adolescent females, may be recorded as part of education expenditures.

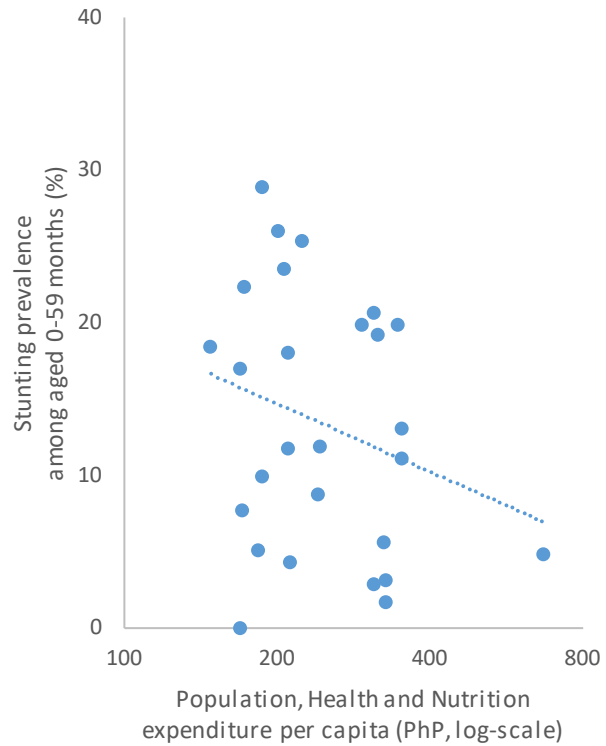
**Figure 5. LGU income and expenditures on population, health and nutrition services**



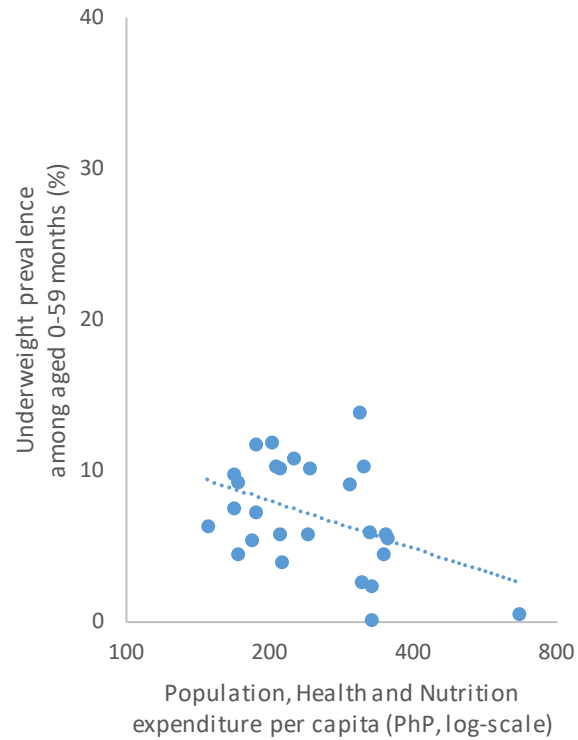
Source: DOF-BLGF (2019)

**Figure 6. LGU expenditure on population, health and nutrition, and child malnutrition**

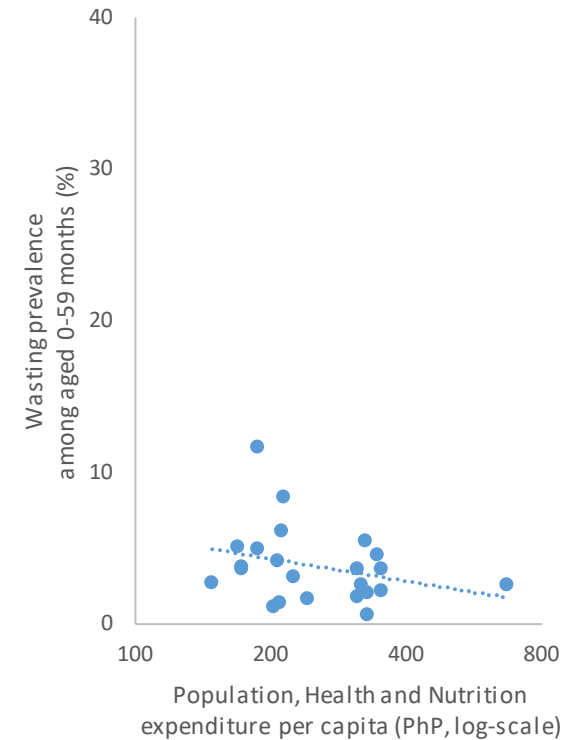
**A. Stunting**



**B. Underweight**



**C. Wasting**



Source: Local government finance data are from DOF-BLGF (2019); child undernutrition statistics are from NNC (2019)

It is interesting to note that the current expenditures presented in Table 3 are below the income receipts presented in Table 2 in all local governments in Zamboanga del Norte in 2017. This may be indicative that there may be unused resources available to local governments in Zamboanga del Norte. Indeed, in the 2018 Annual Financial Report for local governments by the Commission on Audit (2018), the constitutional body notes that 499 local government units nationwide have unutilized local development funds amounting to PhP16.0 billion. As an example from Zamboanga del Norte, Annex 4 presents an abridged statement of allotment, obligations and balances for Leon B. Postigo, which shows unobligated funds totaling to as much as PhP69.1 million between fiscal years 2016 and 2018.

Other than local government incomes, program managers and planning officers identified several financing sources for local development programs, including national government agencies, e.g. Department of Public Works and Highways and Department of Trade and Industry, and non-government organizations. These resources, however, are not consistently available to all local government units or across time. Several program managers identified having personal contacts, such as from previous employment or from school, that allow them to obtain additional resources that they are able to use in their local government programs.

### 5.2.3. Physical and human resource

A direct implication of the limited resources available to local governments is the limited human resource that it may hire, facilities it may invest on, or supplies it may procure. As pointed by one planning officer-key informant, this challenge is not unique to the population, health and nutrition sector, but rather a common and, indeed, an enduring feature of a local government with limited resource at its disposal.

Table 4 summarizes the available health human resource (HHR) and barangay health stations in local governments of Zamboanga del Norte based on the 2019 Local Government Support Fund-Assistance for Municipalities baseline survey (Diokno-Sicat, et. al., forthcoming). In Sindangan and Leon B. Postigo, the rural health unit has one physician each. Other municipalities, such as Piñan, Labason and Tampilisan, are more fortunate for having more than one government physician. The local government of Katipunan, on the other hand, does not employ any government physician. The available nurses and midwives employed by local governments are more plentiful than physicians.

Frontline worker-key informants expressed of the heavy workload that they perform because of the limited supply of HHR. The municipal health officers of Sindangan and Leon B. Postigo expressed that they at times work outside their regular office hours to perform some of their required administrative and clerical tasks. As shown in Table 15, the population-to-physician ratio ranges from 4.3 thousand-to-one in Pres. Manuel A. Roxas to as high as 50.8 thousand-to-one. For reference, the target ratio by the DOH is twenty-thousand-to-one based on the National Objectives for Health (DOH, 2018). The workload among nurses and midwives are not as heavy as physicians. However, in the case of Leon B. Postigo, the number of government-employed midwives are not enough to have continuous 24/7 operation of all public birthing facilities in the municipality.

Many local governments in Zamboanga del Norte is benefitting from the HHR deployment program of the DOH. Program managers, however, are concerned about the sustainability of local services if ever the national HHR deployment program is discontinued.



**Table 4. Local government facilities and human resources for health, 2019**

	Barangay Health Stations		Public Sector Health Human Resource (HHR)					
	Existing	Target	Count			Population ('000) per HHR		
			Physician	Nurse	Midwife	Physician	Nurse	Midwife
Katipunan	12	12	0	6	18	a	4.5	1.5
La Libertad	12	13	1	18	8	23.2	1.3	2.9
Labason	11	b	2	13	17	8.6	1.3	1.0
Liloy	28	37	1	15	13	35.7	2.4	2.7
Manukan	15	22	1	8	15	27.5	3.4	1.8
Mutia	4	10	1	1	7	24.3	24.3	3.5
Piñan (New Piñan)	19	b	3	38	36	15.5	1.2	1.3
Polanco	12	12	2	20	28	4.3	0.4	0.3
Pres. Manuel A. Roxas	12	31	2	26	31	20.9	1.6	1.3
Salug	23	23	1	18	28	36.9	2.1	1.3
Sergio Osmeña Sr.	10	10	1	12	13	13.0	1.1	1.0
Siayan	23	23	2	3	8	10.1	6.7	2.5
Sibutad	7	7	1	11	19	40.0	3.6	2.1
Sindangan	19	52	1	47	47	14.0	0.3	0.3
Siocon	26	b	1	14	16	32.6	2.3	2.0
Tampilisan	4	5	2	1	8	17.5	35.0	4.4
Jose Dalman (Ponot)	14	b	1	18	22	35.7	2.0	1.6
Baliguian	7	17	2	19	24	50.8	5.3	4.2
Godod	12	17	2	9	11	24.6	5.5	4.5
Bacungan (Leon T. Postigo)	3	50	1	4	5	30.7	7.7	6.1

Notes: a – not available, b – no information provided. Source: Diokno-Sicat, et. al. (forthcoming).

Community volunteers, including BHWs and BNSs, who perform frontline services, including health monitoring and promotion, do not enjoy the same level of compensation or security of tenure as the professional HHR cadres, despite the former working (volunteering) virtually full-time. Each BHWs and BNSs could be in charge of monitoring as much as 150 young children and 110 pregnant women at any given time in Leon B. Postigo and Sindangan. However, they only receive between PhP350 to PhP1,200 per month as allowance, depending on the local government, including the barangay government, which they receive on a quarterly basis. The BHWs and BNSs, being volunteers, have no security of tenure and may be replaced at will.

With the important function that BHWs and BNSs perform the community, it is therefore essential that they are capacitated for the tasks that they are required to do. However, many of the BHW- and BNS-key informants expressed that it has been a while since they received trainings. A program manager-key informant narrated that they at times send a BHW/BNS for trainings, but the trainings are seldom cascaded to other BHWs and BNSs in the local government. The BHW/BNS trainings are funded externally, i.e., national government or other funding agencies, but travel to the training site are often financed by the local government. As alternative sources of information, the BHWs/BNSs get information from midwives and other professional HHRs, as well as from social and traditional media.

An additional challenge among frontline workers is the limited availability of measuring tools that they use during OPTs. In some cases, according to program manager-key informants, the measuring tools are not properly calibrated, which raises doubt on the accuracy of OPT results.

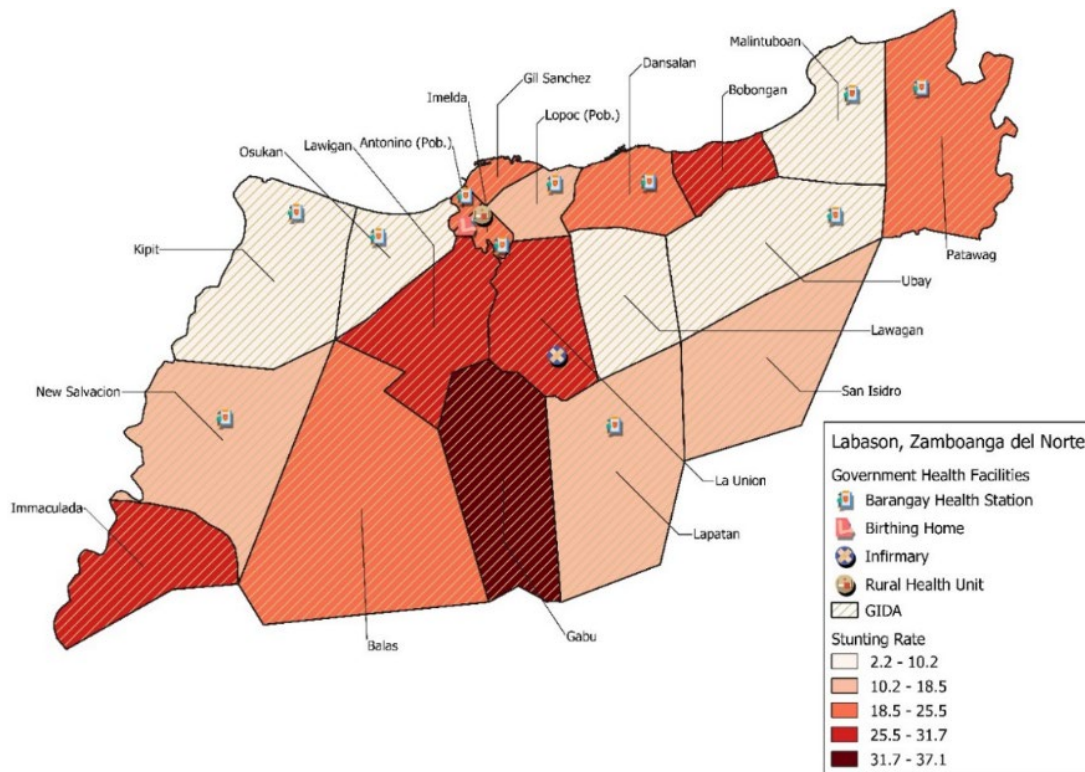
Table 4 also shows the existing and target number of barangay health stations in Zamboanga del Norte municipalities. While a number of the municipalities have already attained their target figure, including Katipunan, Polanco and Siayan, there are still many local government units magnitudes away from their target number of health stations.

The location of barangay health stations is particularly important as health facilities are often the center of health service delivery in the community. Indeed, having a barangay health station in the community appear to be positively correlated with better nutrition outcomes, as in the case of Labason, wherein barangays without any health station have higher child stunting rates on average (see Figure 7).

In terms of critical health supplies, like vaccines, iron supplements, and micro-nutrient powders (MNP), the program manager-key informants expressed that they rely heavily on the supply provided by the national government, although they also receive supplies from non-government organizations and their personal networks. There appears to be some miscommunication between national government program implementers and local government program managers, wherein the latter had the impression that the national government will provide some of the key supply requirements related to local government nutrition interventions. As narrated by some program manager-key informants, however, some of their supplies, including MNP and some vaccines, are already fully utilized. When asked about the continuity of services in cases of stock-out, some program managers expressed that they discontinue the program until the supplies are again replenished.

Despite these challenges faced by the local government HHR, including both professionals and community volunteers, the key informants expressed that they find fulfillment in their work and are looking forward to being employed in the same position until at least the near future.

**Figure 7. Child stunting prevalence and barangay health stations: Labason, 2017**



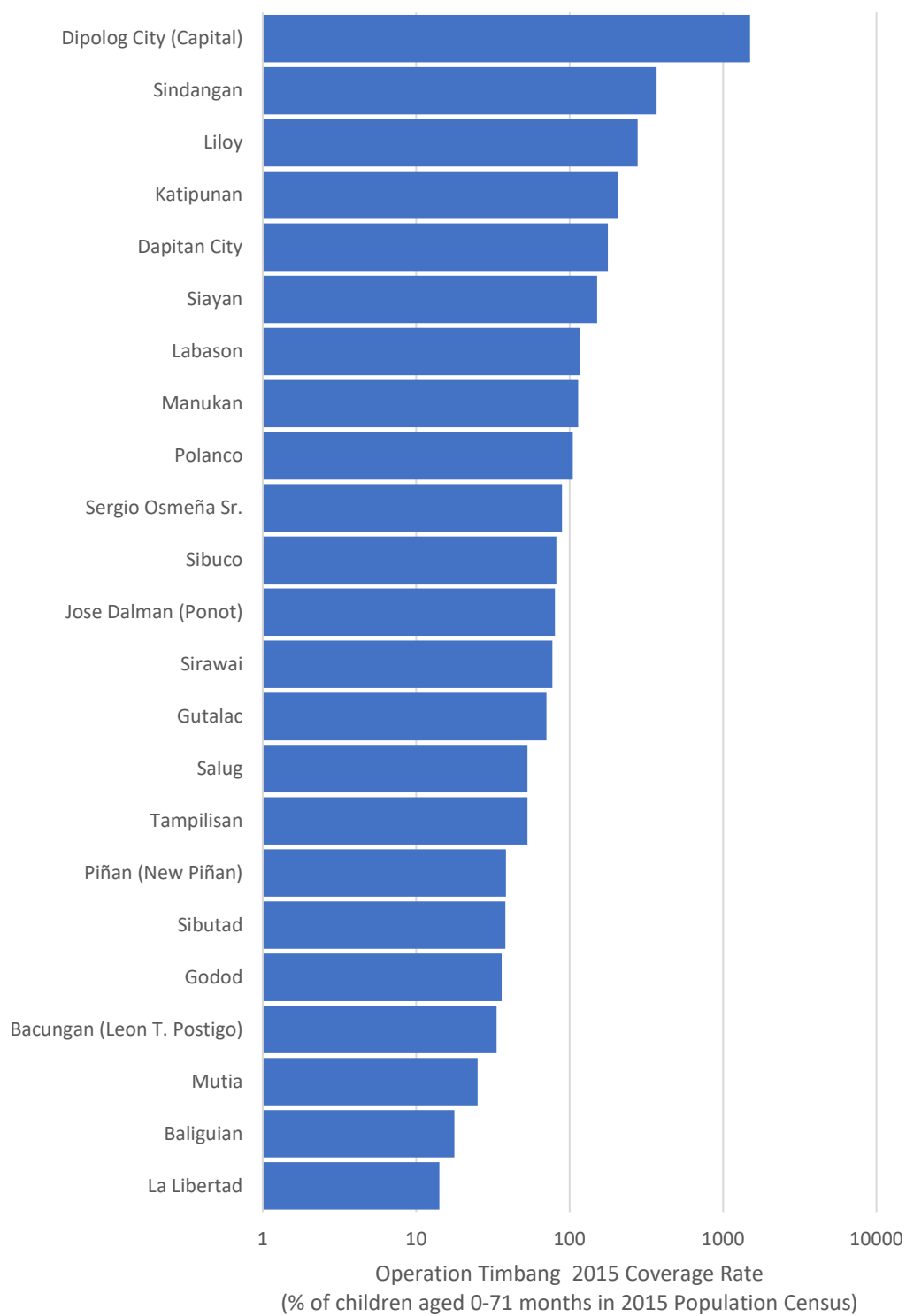
Note: Authors' rendition based on data from Labason local government statistics.

#### 5.2.4. Information and Communication

Program manager-key informants expressed that they use different sources of information, mainly administrative reports, such as OPT results, community-based monitoring system, and field health service information system, in developing local government policies, particularly on health and nutrition. But the quality of some of these information sources may be suspect. For example, as noted in the previous section, some of the data collection tools used for OPT are not properly calibrated. In addition, in one of the focus group discussions with community volunteers, there was a lively discussion on how to properly measure the height of infants for the OPT report. They also expressed having difficulty in calculating the different standardized scores to measure child undernutrition.

Such indications of potential data quality issues may be best represented by the actual coverage rate of children measured for the 2015 OPT shown in Figure 8. The 2015 OPT is chosen as reference to allow direct comparison with the actual number of target children from the census of population for that year. As shown in the figure, a few municipalities, like Sirawai, Sergio Osmeña, Sr., and Polanco have actual coverage rates very close to 100 percent. In many of the municipalities and cities, however, the deviations are quite substantial. In La Libertad and Baliguian, for example, the actual coverage rates are below 20 percent. In other locations, on the other hand, the coverage rates are above 200 percent, even going as high as 1500 percent, of the actual number of children living in the jurisdiction.

**Figure 8. Operation Timbang coverage rate, 2015**



Note: Authors' calculations based on data from DOH-NNC (2019) and PSA (2016a).

That said, the parent- and child caregiver-key informants expressed that they trust the information that they receive from local government HHR, including BNSs/BHWs, and are the key source of information for some of the key respondents. As mentioned by program managers, the BNSs and BHWs are integral in the dissemination and gathering of information in the communities as these workers have intimate knowledge of their constituents.

Other than coursing information through the BNSs/BHWs, program managers also rely on other forms of dissemination channels, including monthly meetings, in the case of the provincial government, with media practitioners, who then disseminate the information through mass media; radio guestings; and information blasts through the barangay captains. The program managers admitted that they are yet to fully utilize social media in their information campaigns. In any case, this may be of limited importance in some instances as some areas in Zamboanga del Norte are yet to have reliable mobile phone signals.

### *5.3. Nurturing care practices*

Many child health interventions are inexpensive but require considerable time investments on the part of parents. Antenatal care services, immunization, and vitamin supplementation, for example, are generally available at rural health units at no, or, at worst, minimal cost to patients. However, the opportunity costs to households of traveling and availing of these critical health services are often overlooked (e.g., Miller and Urdinola 2010; Abrigo 2016).

Results of focus group discussions with mothers and child caregivers in the municipalities of Leon B. Postigo (Bacungan) and Sindangan suggest that households generally have good knowledge of nurturing care practices at home. They are aware, for example, of the ideal timing of first antenatal care visit during pregnancy, optimal breastfeeding duration, child immunization schedule, complementary feeding practices, and, even, the importance of child psycho-social stimulation. They reported receiving information from a variety of sources, including their parents, health workers, and social media.

Child caregivers with more experience in child caregiving, such as mothers with multiple children and grandmothers, appear to be more confident with their child caregiving knowledge and practices. Some first-time parents and even fathers with multiple children, on the other hand, express that they need guidance in some finer details of child caregiving, such as on the potential reasons and remedies for persistent crying of infants like those related to gastrointestinal discomfort and teething. Some caregivers reported engaging their child(ren) through playing and storytelling, but many stated being unable to do so regularly because of housework or other more important activities.

The primary child caregiver in the household are predominantly the mothers. There are however some exceptions, especially when the mother is employed outside the home. In such cases, it is either the father, or the grandparents (mainly the grandmother) who takes on the responsibility as primary child caregiver. Some parent-respondents acknowledge that they sometimes leave their children either alone unattended at home or with neighbors if they have to run some short errand outside the home. Parents who said that they leave their children unattended at times confess that they seldom do this, and only when the errand is of utmost importance. All the parents in the focus group discussion agree that accidents may happen when children are left unattended.

The key informants recognize that their household incomes are often insufficient to provide the best quality of care for children. Socio-cultural norms also play an important role in the health-seeking behavior of households according to the respondents. Despite these limitations, they appear to be open and appreciative of information that they sometimes receive from healthcare and social workers.

For example, a number of parent-respondents reported not visiting a health professional for antenatal care until past the first trimester of their pregnancy, or not giving birth in a health facility. When probed for the reasons in the delay, many of the respondents replied that they did not go for earlier antenatal care check-up because of (1) lack of money, (2) lack of time, (3) “nahihiya” (ashamed), or (4) “hindi sigurado” (unsure). One key informant reported seeking antenatal advice from a traditional birth attendant (“hilot”) with the insistence of her mother. On the reason for not having their child delivered in a health facility, one respondent narrated that doing so would entail leaving the rest of their children and their farm animals without a caregiver for days.

These behaviors by the respondents appear to be representative of Zamboanga del Norte. Table 5 presents some of the key interventions that have been documented to have significant effects in improving maternal and child nutrition (e.g. Bhutta, et. al., 2013). The interventions are organized by lifecycle stages where the interventions are most critical or should have been met for optimal effectivity.

By and large, the statistics for Zamboanga del Norte suggest that women and children in the province are not faring as well as others in the rest of Zamboanga Peninsula, or the rest of the Philippines in terms of critical healthcare interventions. For example, the proportion of early reproductive-aged women, i.e., aged 15 to 24 years, who have begun childbearing increased from 26.9 percent in 2013 to 31.5 percent in 2017 in Zamboanga del Norte, while the trend is decreasing for the whole of Zamboanga Peninsula and for the Philippines. Among pregnant women in Zamboanga del Norte, the proportion who received antenatal care from a skilled provider decreased from 93.6 percent in 2013 to 72.5 percent in 2017. This rate is lower compared to those for the whole of the region (88.7%), and for the country (93.8%). Similar trends may be observed for iron supplementation and birth delivery by skilled provider.

The only bright spot is the higher rate of children who were ever breastfed. In 2017, among children aged 0 to 2 years in Zamboanga del Norte, 95.8 percent of them were ever breastfed, compared to 94.8 percent for the whole of Zamboanga Peninsula, and 93.2 percent for the whole of the Philippines. Children in Zamboanga del Norte also have higher chance (88.1%) of being breastfed within one hour from birth, which is associated with greater probability of neonatal survival (e.g. Smith, et. al., 2017), compared with children from the rest of the region (65.9%) and the country (56.9%). This observation may be related with the time available to women. As shown in the earlier section, only about a third of women in Zamboanga del Norte are gainfully employed.

#### **5.4. Other contextual factors**

There are many other factors that may affect ECCD-F1KD outcomes. In this sub-section, we report on the situation of two important health-sensitive factors, namely, household resource access and environmental health, in Zamboanga del Norte.

**Table 5. Maternal and child health-seeking behaviors**

	2013			2017		
	Philippines	Zamboanga Peninsula	Zamboanga del Norte	Philippines	Zamboanga Peninsula	Zamboanga del Norte
Early reproductive age (age 15 to 24 years)						
% Have begun childbearing	26.8	26.4	26.9	24.7	24.5	31.5
Pregnant women						
% With ante-natal care from skilled provider	95.4	94.0	93.6	93.8	88.7	72.5
% Took iron tablets	92.4	89.9	94.9	91.9	92.6	88.6
% Delivered by a skilled provider	72.8	52.0	57.1	84.4	77.1	68.0
Age 0 to 2 years						
% Ever breastfed	93.7	93.1	91.8	93.2	94.8	95.8
% Breastfed within 1 hour from birth	49.7	59.1	66.7	56.9	65.9	88.1
Age 6 to 59 months						
% Given vitamin A supplement in past 6 months	86.3	87.1	93.9	75.5	77.4	70.3
% Given deworming medication in past 6 months	40.9	48.5	46.9	43.2	48.0	41.8
Age 12 to 23 months						
% with BCG vaccination	95.4	87.9	95.5	90.0	87.0	77.5
% with DPT vaccination, third dose	86.1	84.6	95.5	79.8	75.5	64.6
% with Hepatitis-B vaccination, third dose	77.6	79.1	63.6	81.2	75.5	64.6
% with Polio vaccination, third dose	84.6	83.5	95.5	79.0	84.5	75.0
% with Measles/MMR vaccination	83.9	76.9	77.2	80.4	71.8	54.8

Source: PSA and ICF (2018), and PSA and ICF International (2014)

#### 5.4.1. Resource Access

The ability of households to access nutritious food and complementary child development services play an important role in addressing the more proximal causes of child malnutrition, i.e., poor energy intake, and high risks from infections. The socio-economic status of households, often proxied by general economic development, is intimately linked with health and nutrition outcomes, mainly through its impacts on the ability of household to afford and access resources, and the capacity of communities to sustain infrastructures and provide nutrition-relevant resources (e.g., Smith and Haddad 2015; Headey 2013; Ruel, et. al. 2013).

##### 5.4.1.1. *Food Prices*

Food prices – and the many factors that determine it – play a crucial role in the ability of households to meet daily caloric requirements. In a study by Mapa, et. al. (2011), for example, an increase in food prices increases hunger incidence among households up to 1.5 years after the initial increase in food prices. This highlights the significance of issues surrounding food environments in addressing child undernutrition.

As presented in the earlier section, Zamboanga del Norte faces the Sulu Sea, a rich source of aquatic resources, on its northwestern side. However, much of the province have strongly sloping to very steep slopes that are not ideal for agriculture. These, together, affect the locally produced supply of food products available in markets.

Annex 5 presents the average nominal prices of select food commodities in the Philippines, Zamboanga Peninsula, and Zamboanga del Norte in 2015 and 2018. The prices of the same commodities are also expressed relative to the median daily basic wage to provide indications of the real cost of these commodities to households.

As may be expected, except for a few commodities, average food prices in Zamboanga del Norte are generally higher compared to the average prices in the Philippines and in Zamboanga Peninsula. For example, a kilogram of well-milled rice in Zamboanga del Norte sells for PhP49.6 in 2015, which is about 10 percent higher than the average for the whole Philippines, and about seven percent higher than the average for Zamboanga Peninsula. Vegetables are cheaper in Zamboanga del Norte compared to the average for the Philippines, but higher relative to the rest of Zamboanga Peninsula. Meat from poultry and beef are generally more expensive in Zamboanga del Norte. The price of fish in Zamboanga del Norte is cheaper relative to the average price for the whole Philippines, but generally more expensive when compared with the rest of the region.

The prices of food commodities are not only nominally higher in Zamboanga del Norte, but also in real terms. A worker with median wages in Zamboanga del Norte, for example, need to spend 18.4 percent of his (her) daily wage for a kilogram of well-milled rice. Compare this with a median earner in the whole of the Philippines and in Zamboanga Peninsula who only need to pay 12.9- and 17.2-percent of their daily basic wage, respectively, to afford the same kilogram of well-milled rice. Even sweet potatoes, often used as alternative to rice as staple food, which is nominally cheaper in Zamboanga del Norte, are relatively more expensive when locational purchasing power is taken into account. Similar patterns may be observed of the relative prices of salt- and brackish-water fish galunggong, and bangus and tilapia.



#### 5.4.1.2. *Employment*

About six in every ten persons aged 15 to 64 years in Zamboanga del Norte reported being employed in the 2015 Census of Population (PSA, 2016a). This figure is comparable to the national average for recent years. Within Zamboanga del Norte, however, the employment-to-population ratio (EPR) varies. It ranges from a low of 53.2 percent in Salug to as high as 62.8 percent in Mutia. The twin cities of Dapitan and Dipolog have EPRs of 61.6- and 56.7-percent respectively. The EPR is particularly higher among men (80%), compared with women (35%).

When disaggregated by type of work (see Annex 6), a large majority of employment positions by Zamboanga del Norte residents may be classified as skilled (61.5%), which includes technicians and associate professionals; clerks and sales workers; skilled farmers, fishermen and foresters; and trades workers. About a quarter of those employed are in low-skilled elementary occupations, while about a tenth are high-skilled managers and professionals.

In terms of specific occupations, more than a third of workers (36%) in Zamboanga del Norte are employed as agriculture, forestry and fishing workers. Among these types of workers, many of them are employed as corn farmers (40%), rice farmers (18%), coconut farmers (14%), and inland and coastal water fisher workers (13%). Elementary occupation workers, on the other hand, are largely concentrated as agricultural laborers (50%), cleaners or helpers (18%), and construction workers (15%).

#### 5.4.1.3. *Income*

Zamboanga del Norte has made important progress in reducing poverty (see Annex 7). However, the province's poverty incidence remains high. In 2015, official estimates peg the proportion of poor individuals at 51.6 percent, i.e., more than half of the residents of Zamboanga del Norte are living below the poverty threshold, from 65.5 percent in 2006. Historically, the poverty incidence in Zamboanga del Norte are magnitudes higher compared to the whole of Zamboanga Peninsula and of the Philippines. In 2015, for example, the poverty incidence among the population in the whole of Zamboanga Peninsula is at 33.9 percent, while at 21.6 percent for the whole Philippines.

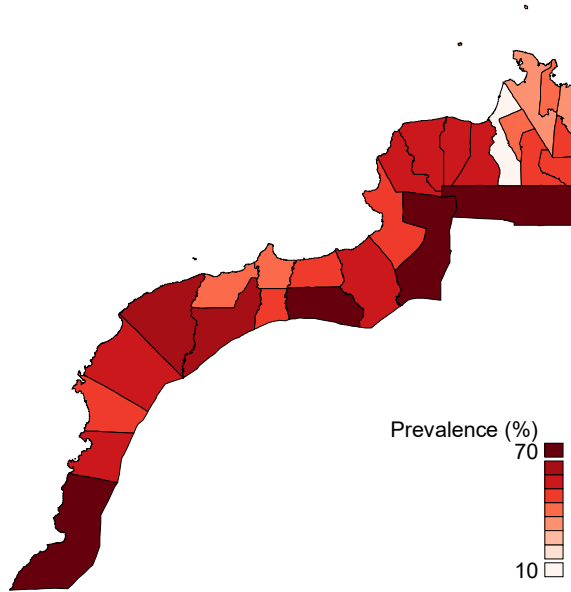
When disaggregated further, there are municipalities where more than two in three persons are considered poor: Godod (68.2%), Sergio Osmeña, Sr. (67.9), and Siayan (68.4%). The poverty incidence is lowest in Dipolog City (14.5%), although having a city status is no guarantee of having low poverty incidence like the case of Dapitan City (36.1%).

The poverty incidence in Zamboanga del Norte is generally on the downtrend. Over the last decade, poverty incidence among the population has declined by 13.9 percentage points, or roughly 1.5 percentage points per year. This is faster compared to the national figure of five percentage points decline between 2006 and 2015. Large drops in poverty incidences are reported in Dipolog City (18.5%-points), Baliguian (15.1%-points), Liloy (12.7%-points), Siocon (11.6%-points), Sirawai (11.1%-points), Labason (11.0%-points), Dapitan (10.6%-points), and Rizal (10.5%-points).

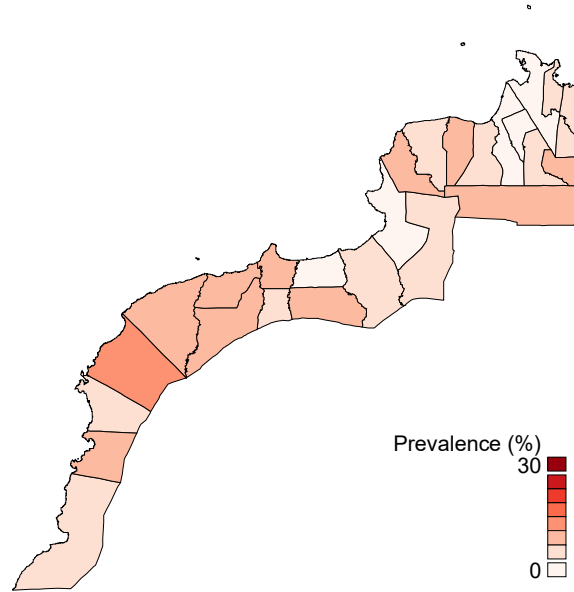
However, there are municipalities in Zamboanga del Norte where poverty incidence has been rising. In La Libertad, for example, poverty incidence increased from 43.0 percent in 2006 to 49.0 percent in 2015. Similar stories may be observed in Sergio Osmeña, Sr. (from 59.3% to 67.9%), Sibutad (from 33.0% to 40.8%), and Godod (from 60.9% to 68.2%).

**Figure 9. Spatial distribution of poverty and child malnutrition prevalence (%)**

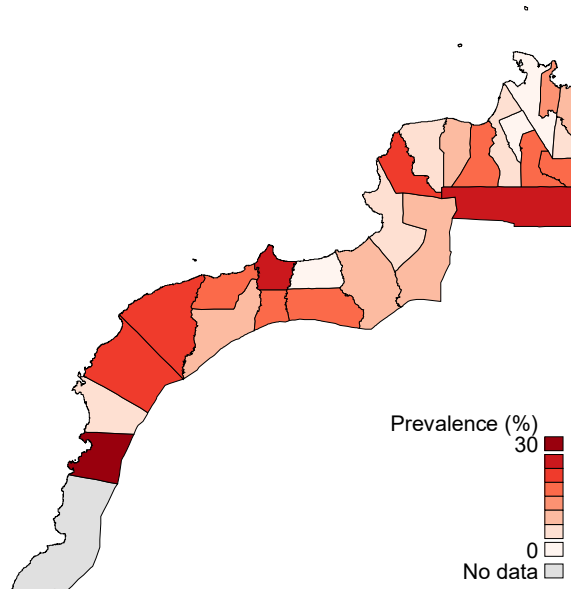
A. Poverty incidence, 2015



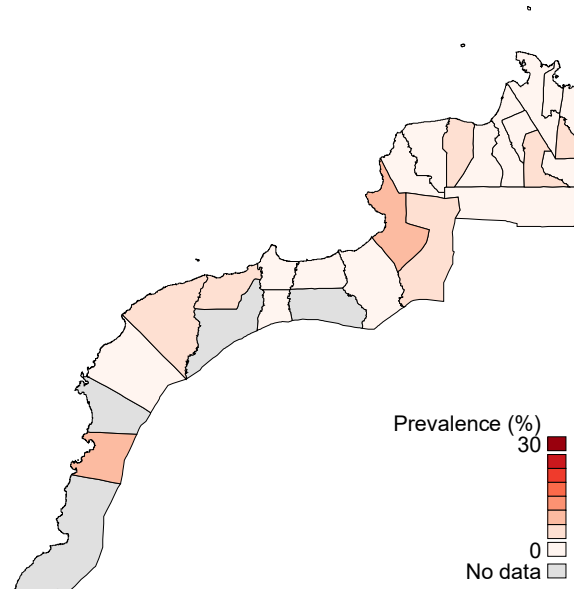
B. Underweight, 2017



C. Stunting, 2017



D. Wasting, 2017



Source: Municipal and city level headcount poverty rates are from PSA (2019c). Child underweight, stunting and wasting prevalence are from DOH-NNC (2019)

Zamboanga del Norte has also made important progress in reducing food poverty over the last decade. In 2006, almost half (47.6%) of the population had incomes below the provincial food poverty threshold. This has since declined to 34.4 percent in 2012 to 27.9 percent in 2015. The food poverty threshold is the minimum money-equivalent required to meet basic food needs that satisfy the nutritional requirements set by the Food and Nutrition Research Institute. It is estimated at PhP15,412 per person per year for Zamboanga del Norte in 2015 from PhP9,398 per person per year in 2009 (PSA, 2016b).

Despite the decline in food poverty incidence, the figures for Zamboanga del Norte are also magnitudes above what are reported for the whole of Zamboanga Peninsula and the Philippines, similar to what is observed for the trend in poverty incidence. In 2015, food poverty for the whole of Zamboanga Peninsula is estimated at only 13.3 percent, while that for the whole Philippines is at only 8.1 percent.

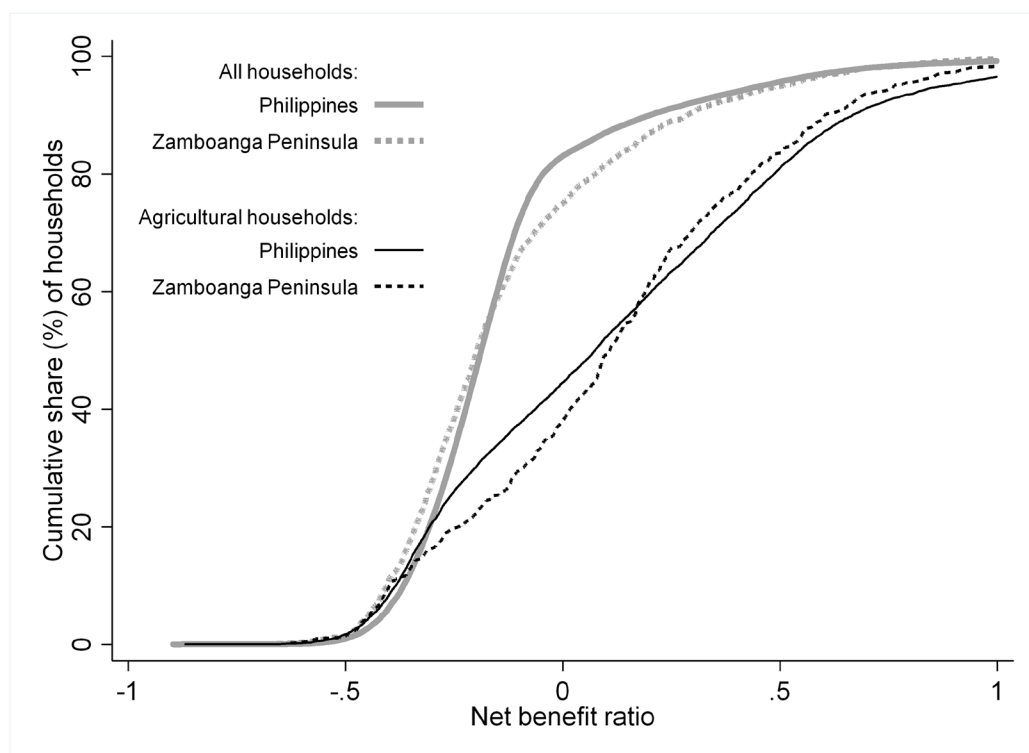
Poverty incidence appears to correlate well with child undernutrition measures. Figure 9 plots municipal and city level headcount poverty rate estimates in 2015 (Panel A), and child undernutrition measures from the 2017 OPT (Panels B, C and D). It is apparent from the choropleth map that municipalities with relatively high poverty incidence are more likely to also have higher child undernutrition outcomes. This is confirmed by the positive Pearson correlation coefficients estimated between poverty incidence, and stunting prevalence ( $\rho=0.34$ ), underweight prevalence ( $\rho=0.54$ ) and wasting prevalence ( $\rho=0.36$ ).

In the previous subsection, we have shown that a substantial proportion of the population are employed directly in food production, particularly in agriculture, fishing and forestry. How does an increase in food commodity prices may affect household welfare? While more than half of Zamboanga del Norte residents may be considered poor, an increase in food prices may actually increase welfare if households are net producers of food commodities.

In order to provide some indication of the potential impact of food price inflation, we calculated food commodity net benefit ratio for households in Zamboanga Peninsula and for the whole Philippines using the 2015 Family Income and Expenditure Survey (PSA, 2016c). The net benefit ratio is calculated as the net income on food commodities, i.e., total value of household production of food commodities minus the total household expenditures on food commodities, as a proportion of total household income. It is used to approximate the first order impact of price changes on household welfare (Deaton, 1989). A positive (negative) net benefit ratio indicates that households will benefit (suffer) from commodity price increases. Estimates are presented as Figure 10.

The distribution of the net benefit ratio suggests that as much as 75 percent of all households in Zamboanga Peninsula will be negatively affected by food price inflation. This figure is slightly lower than the 83 percent who will be negatively affected for the whole Philippines. Even among agricultural producer households, a food commodity price increase will negatively impact 37 percent of households in Zamboanga Peninsula.

**Figure 10. Food commodity net benefit ratio, 2015**



Note: Authors' estimates based on PSA (2016c).

#### 5.4.2. Environmental Health

Water, sanitation and hygiene are important components of child health and nutrition. Several studies have shown that poor sanitation and hygiene practices are risk factors for poor early child development through its effect on risks of infections (e.g., Ngure, et. al. 2014; Dewey and Mayers 2011). Indeed, nutrition interventions are known to better enhance child growth and development when combined with the prevention and control of infectious diseases.

##### 5.4.2.1. Household drinking water sources

Annex 8 presents the sources of drinking water among households in different municipalities and cities in Zamboanga del Norte from the 2010 Census of Population and Housing (PSA, 2012).<sup>4</sup> It shows that about only a fifth of households in Zamboanga del Norte have their own piped water connection. Compare this with the whole of Zamboanga Peninsula where 31.0 percent of households have their own piped water, and the whole Philippines where almost two in every five households have their own water connection.

<sup>4</sup> The information from the 2010 Census of Population (PSA, 2012) is quite dated but remains the best available, comparable, and comprehensive data on local water sources and sanitation to date. Other potential sources of information on the topic include national surveys (not statistically representative at the local level), community-based monitoring system surveys (not available for all municipalities and cities for the same year), and other administrative data (if available).

City-status appears not to be the best indicator of piped water connectivity. In the twin cities of Dapitan and Dipolog the proportion of households with piped water in their own premises are only 17.5- and 31.9-percent, respectively. The rates are higher in the poorer municipalities of Liloy (46.1%) and Rizal (36.4%).

A large plurality of households (61.5%) in Zamboanga del Norte rely on other improved water sources, including shared community water supply and protected springs, for drinking water, although the rates vary widely among the different local government jurisdictions. It ranges from a low of 34.9 percent in Dipolog City to as high as 85.6 percent in Sibutad.

A worrying statistic is that 11.9 percent of households in Zamboanga del Norte rely on unimproved water sources, including rainwater and unprotected bodies of water, for drinking. The rates are relatively low in the cities of Dapitan (8.0%) and Dipolog (2.5%), but not necessarily the lowest in the province. As much as 44.4 percent of households in Sibuco are exposed to water contamination from relying on unimproved water sources. Other municipalities with high reliance on unimproved water sources for drinking include Sirawai (34.4%), Siayan (27.9%), Sergio Osmeña, Sr. (24.3%), and Katipunan (20.9%).

Interestingly, 7.7 percent of households in Zamboanga del Norte rely on bottled water for drinking. The rates are highest in Dipolog (30.8%) and Dapitan (17.2%), although there are also substantial shares of households in Labason (9.6%), Polanco (9.2%), Katipunan (6.2%) and Sindangan (5.1%) that rely on bottled water for drinking.

#### 5.4.2.2. *Household toilet facility*

Annex 9 summarizes the distribution by type of toilet facilities used by households in Zamboanga del Norte from the 2010 Census of Population and Housing (PSA, 2012). More than half (55.8%) of households use water-sealed-type toilet that are exclusively used by the household, i.e., improved toilet facility, which is comparable with the rates for the whole Zamboanga Peninsula (55.6%), but relatively lower compared with the whole Philippines (69.8%). Unimproved toilet facilities, including water-sealed-type toilets but shared with other households, and pit-type toilets, are used in about a third of households in Zamboanga del Norte. More than a tenth of households in the province (12.4%) have no toilet facility, and rely on open defecation.

Only two of the 27 jurisdictions in Zamboanga del Norte have more than 80 percent of households having access to sanitary (improved) toilet facilities: La Libertad (82.3%) and Mutia (82.7%). Even in the twin cities of Dipolog and Dapitan, as much as 21.7- and 34.7-percent of households respectively rely on unsanitary (unimproved) toilet facilities or open defecation. The rates, however, could go as high as 80.1 percent in Sibuco, 79.0 in Sirawai, 78.4 percent Siayan, and 75.1 percent in Baliguian.

Open defecation is practiced in more than a quarter of all households in some municipalities for Zamboanga del Norte. But even in cities Dapitan and Dipolog, and first-class municipalities Sibuco, Sindangan, and Siocon, open defecation has not been totally eliminated as of 2010.

#### 5.4.2.3. *Handwashing practices*

Handwashing with soap and water is prevalent among Zamboanga del Norte households (see Table 6). Similar to observations in other indicators, however, the rates are much lower in Zamboanga del Norte compared to the whole of Zamboanga Peninsula and the Philippines. In

2017, about 84.0 percent of households practice handwashing with soap and water in Zamboanga del Norte. This rate is lower relative to that observed for the whole Zamboanga Peninsula (88.0%) and the Philippines (89.0%).

Handwashing with soap and water has been documented to effectively reduce transmission of infectious diseases (e.g., Aeillo, et. al., 2008; Wong, et. al., 2014; Curtis and Cairncross, 2003). However, a significant proportion of households in Zamboanga del Norte have been observed to use only water in handwashing (13.9%), or to neither have water or soap (2.2%).

**Table 6. Handwashing practices, 2017**

	Philippines	Zamboanga Peninsula	Zamboanga del Norte
% Households in which place for washing hands was observed	92.6	98.0	99.7
And place for hand-washing was a fixed place	79.7	88.2	87.9
And place for hand-washing was mobile	12.9	9.9	11.8
Among households in which place for handwashing was observed			
% with soap and water	89.0	88.0	84.0
% with water only	5.5	9.3	13.9
% with soap but no water	2.4	1.2	0.0
% with no water or soap	3.0	1.6	2.2

Source: PSA and ICF (2018)

## 6. Recommendations

The situational analysis of the distal factors that have been documented to affect child undernutrition highlights some key challenges faced by local governments in Zamboanga del Norte with regards improving early childhood care and development in the first 1,000 days of life. One, Zamboanga del Norte has particularly high poverty incidence. While there has been important progress in reducing poverty rates over the last decade, there are still much room to be desired. Second, the geography of Zamboanga del Norte limits the ability of local governments to raise local resources and to provide services to households. Third, combining the first two challenges, these cascade to other distal and proximal factors, including the affordability, availability, and, ultimately, access to nutritious food, water and sanitation facilities, health services, and knowledge resources, among others.

That said, different local governments in Zamboanga del Norte has introduced several innovations aimed at improving early childhood care and development outcomes despite the challenges that these local governments face. One of these innovations include the profiling of residents to allow better monitoring and targeting of government programs. The introduction of public service caravans where several government services, including on maternal and child health and nutrition, are provided directly in barangays is expected to directly benefit households and improve their health-seeking behaviors. The peer-to-peer learning among frontline workers, although still largely informal, shows some promise in distilling early childhood care and development information that can be easily understood by the general public, especially by child caregivers.

Improving child nutrition outcomes in Zamboanga del Norte requires concerted effort on the part of the different levels of government, the private sector, and households. Many of the challenges that Zamboanga del Norte faces cannot be addressed by any one stakeholder alone, or in a short span of time. Reducing poverty incidence, revitalizing the local economy, or investing in infrastructures, for example, may need sustained and substantial assistance from the different national government agencies and other external stakeholders, but requires support from local actors as well.

### *6.1. Policy and governance*

**Local governments may benefit from having closer coordination among its different offices in order to provide more holistic services at scale.** While many of the critical ECCD-F1KD interventions are available in local governments, they are often provided as separate programs by different government offices. Further, many of the ECCD-F1KD interventions that are not available in local governments require inter-office coordination. Adopting a whole-of-government, whole-of-society approach may lead to a more streamlined use of resources and thereby freeing resources that will allow the scaling up ECCD-F1KD interventions. Better coordination admittedly may be difficult to implement in practice, however, because of the many and different formal and informal rules that are already entrenched in existing governance systems.

**Local governments may need to invest on properly calibrated measuring equipment to capture a more accurate picture of the health and nutrition status of their constituents.** It is needless to say that frontline workers who are in charge of monitoring are well-trained to properly operationalize the monitoring of children's health and nutrition outcomes. These may be inexpensive investments that may benefit the local governments in the long run by allowing proper targeting of populations that require critical interventions.

**There is a need to strengthen the culture of and technical capacity in monitoring and evaluation among government workers and volunteers at the local level.** Local government plans need to go beyond program monitoring – who gets what, when, where and by whom – and instead put more emphasis on the evaluation of the effectiveness of different interventions in improving ECCD-F1KD outcomes. This will allow local governments to identify interventions that work. In addition, by benchmarking these interventions with each other, local governments may also be able to single out more cost-effective programs.

**Corollary to the above recommendation is the use of objective metrics in all aspects of policymaking.** While the use of different objective ECCD-F1KD indicators, such as from OPT and other administrative/program data, are widely used in program targeting and service delivery, its use in other aspects of policymaking, such as priority setting, program planning, and advocacy, are yet to be fully maximized. Leveraging on available, up-to-date, and vetted data in crafting informed policies and programs cannot be overemphasized.

### *6.2. Programs and service delivery*

**Exploiting additional resources may require local governments to invest on careful and thoughtful planning of development programs and resources.** There appears to be substantial untapped resources that local governments may use to finance early childhood care and development, and other local development programs. Some of these resources include the local development fund, unobligated local government balances, and national government

grants. The local development fund, for example, requires the development of Comprehensive Development Plans that feed into the Local Development Investment Plan, which, in turn, allows local governments to appropriate 20 percent of its IRA on development projects. National grants, such as the Local Government Support Fund-Assistance to Municipalities, require good local housekeeping, which include good development planning practices, among others. Substantial unobligated balances by local governments may be avoided with good local planning. Being able to tap on these resources may allow local governments to rely less on the national government for critical ECCD-F1KD supplies, and, instead, use local resources to augment the centrally provided stocks; and to expand the resources available to compensate current and additional ECCD-F1KD personnel.

**Local governments may tap the expertise of professional HHRs deployed under the national government’s HHR deployment program to capacitate community volunteers, rather than waiting for training programs provided by national government agencies.** In addition to being cost-effective, community volunteers are in a unique position to cascade proper information to households with the volunteers’ roles as frontline workers for government health and nutrition programs. Local government executives, planning officers, and program managers may also benefit from being capacitated on the importance of early childhood care and development in the context of the first one thousand days of life to better equip them in their roles.

**There may be a need to scale down rather than scale up the number of services that local governments provide in light of the limited resources available to them.** Local governments may instead focus their resources on critical interventions that are known to have substantial impacts on improving child nutrition, including optimum maternal nutrition during pregnancy (e.g. micronutrient supplementation), infant and young child feeding (e.g. exclusive and continued breastfeeding, complementary feeding education), micronutrient supplementation among at risk children (e.g., vitamin A and zinc), prevention and control of infections (e.g., immunization, proper handwashing), and management of acute malnutrition. Other extraneous interventions may need to be assessed on the basis of its implied costs vis-à-vis its potential then, subsequently, if provided, actual effects on improving child nutrition.

**The ECCD-F1KD program delivery channels may need to be localized and adopted to local sensibilities to gain wider acceptance among the target population.** A first step in this direction is in recognizing the specific needs, resources, and limitations of potential government program recipients. This entails acknowledging households not merely as passive receivers of government interventions, but as active partners in development.

### *6.3. Nurturing care practices*

**Local governments may leverage on existing programs to intensify communicating the importance of ECCD-F1KD and the availability of different interventions.** This may include opening up the Family Development Sessions (FDS) targeted to poor families in the Pantawid Pamilyang Pilipino Program (4Ps) to other households. The 4Ps-FDS include topics on health, and maternal and child health, among others, from which non-4Ps households may also benefit. Everyday interactions between frontline workers and child caregivers, e.g. physician during antenatal care visits of expectant mothers, BNS during field visits to households, counselor during marriage counseling, etc., are great opportunities to regularly communicate ECCD-F1KD programs to the general public. These information and education campaigns need not be confined to women or expectant mothers.



**There is a need to mainstream the ECCD checklist.** While many child caregivers have a general understanding of the importance of ECCD-F1KD and its related critical interventions, knowledge and appreciation of the finer details concerning ECCD-F1KD appears to be lacking. Mainstreaming the ECCD checklist as a tool available to child caregivers – as a phone or computer application, printed pamphlet, as part of a baby book, or other accessible forms – may be important in communicating the importance of targeted interventions across the different life stages.

**Improving household incomes, i.e., reducing poverty, may improve nurturing care practices.** Many of the critical ECCD-F1KD interventions are often available at minimal or even no cost to households. However, many of these interventions require child caregivers to travel to or wait in line at program delivery centers, which may have very high opportunity cost for some. Improving household incomes, or, alternatively, reducing the transaction costs to avail of the programs, may increase the uptake in some of the critical ECCD-F1KD interventions.

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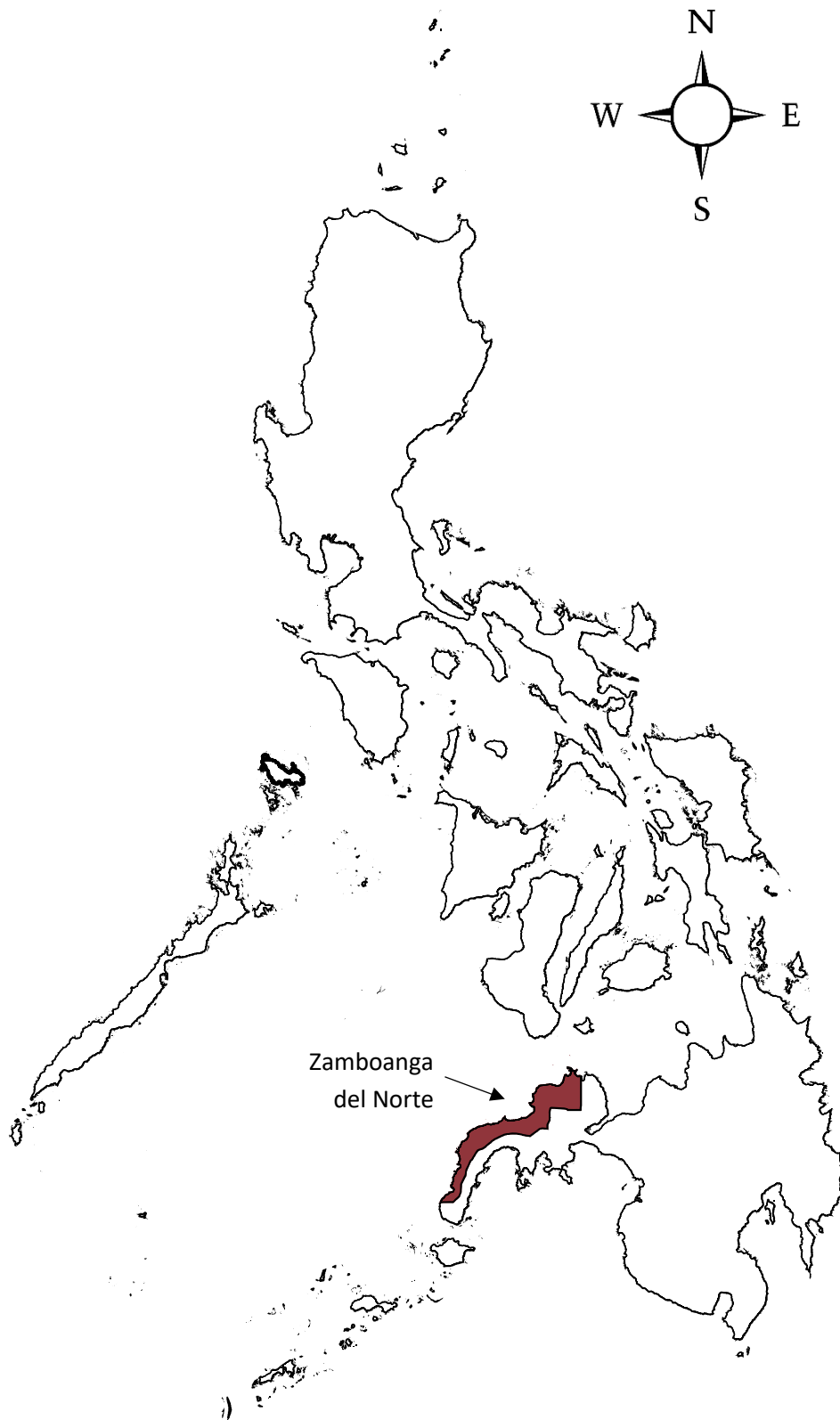
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**Annex**

**Annex 1. Location map of Zamboanga del Norte**



## Annex 2. Comparison of Municipal Nutrition Action Plan, and Comprehensive Development Plan (Health): Labason

	Comprehensive Development Plan, 2017-2022 (Health)	Municipal Nutrition Action Plan, 2017-2019
Objectives	Provide affordable and quality over-the-counter medicines to the community Strengthen quality assurance in every health facility Maintain zero maternal mortality rate Reduce teenage pregnancy Expand PhilHealth coverage among indigent families Establish DENR-accredited waste disposal facilities Provide health and nutrition (services) to the severely wasted or malnourished children ages 0-5 years old Provide health and nutrition (services) to the TB- and AIDS-diagnosed patients in the community Monitor health condition of the drug surrenderees Improve health and sanitation in rural areas	Reduce the prevalence rate of malnutrition among pre-school and school-aged children by 20 percent each year for three years
Programs, Plans, and Actions (Interventions)	CHT/NHTS program implementation and management BEMONC (Maternal and child care) Tuberculosis control program Laboratory Campaign/IEC programs for blood donation Construction of barangay health centers Immunization program for babies and pregnant women Medical outreach Training of midwives Construction of public communal comfort rooms Establishment of lying-in clinics in barangays Conduct training on Reproductive Health Organize women's health team Expansion of Philhealth programs Physical fitness program for drug surrenderees. Toilet bowls distribution for sanitation in rural and built-up areas	Supplemental feeding Strengthen breastfeeding campaign Counseling of mothers on proper child care Micronutrient supplementation Home and school community food production Advocacy on waste management, water and sanitation Deworming Operation Timbang Nutrition Month celebration Expanded program on immunization Pre- and post-natal care Honorarium for MNAO and BNS Office maintenance and operations Monitoring and evaluation of local level plan implementation
Proposed Budgetary Requirement	Nutrition program – PhP150,000 Livelihood and skills training - PhP166,667 Purchase of ECCD story books – PhP83,333	PhP684,000

### **Annex 3. List of common service gaps**

Republic Act 11148 or the “Kalusugan at Nutrisyon ng Mag-Nanay Act” provides a list of health and nutrition services and interventions integral in the first 1000 days of life (F1KD). The study team surveyed local government nutrition, health and/or social welfare officer(s) to identify F1KD services and interventions that are not commonly provided in local government units. Based on the responses from ten (10) local government units in Zamboanga del Norte, the following provides a run-down of common service and intervention gaps as identified by at least three (3) respondents.

#### **Prenatal Period**

- Early identification and management of nutritionally at-risk pregnant women and pregnant adolescent females and provision of ready-to-use supplementary food (RUSF) in addition to dietary supplementation
- Provision of oral health services including oral health assessment
- Philippine Health Insurance Corporation (PhilHealth) enrollment and linkages to facility and community-based health and nutrition workers and volunteers
- Counselling and support to parents and caregivers on parent/caregiver-infant/child interaction for responsive care and early stimulation for early childhood development
- Provision of counselling and psychosocial support to parents and caregivers with priority to high-risk pregnant women and adolescent females belonging to poorest of the poor families

#### **Immediate Postpartum Period**

- Nutrition counselling and provision of nutritious food and meals at the facility, most especially for women who gave birth to babies who are preterm, small for gestational age (SGA), or low birth weight, until discharged

#### **Postpartum and Lactating Women**

- Identification and management of malnutrition of chronically energy deficient (CED) and nutritionally-at-risk postpartum and lactating women, including adolescent mothers, and provision of RUSF in addition to dietary supplementation, as appropriate
- Lactation breaks for women in the workplaces including micro, small and medium enterprises
- Availability of lactation stations in the workplaces, both in government and in the private sector, informal economy workplaces, and in public places and public means of transportation as stipulated in Republic Act No. 10028, otherwise known as the "Expanded Breastfeeding Promotion Act of 2009" and its implementing rules and regulations
- Organization of breastfeeding support groups in workplaces, in cooperation with occupational health workers and human resource managers trained in lactation management for the workplace
- Provision of oral health services
- Social welfare support to improve access to health and nutrition services, such as, but not limited to, dietary supplementation, healthy food products and commodities

for CED and nutritionally-at-risk postpartum and/or lactating women belonging to poorest of the poor families

### **Birth and Newborn Period**

- Assurance of a child-friendly space where exclusively breastfed infants will be able to continue breastfeeding during calamities, disasters or other emergencies
- Social welfare support to improve access to health and nutrition services for newborns belonging to poorest of the poor families
- Facilitate the prompt birth and death registration, including fetal deaths, including restoration and reconstruction of birth and death registration documents destroyed during disasters

### **First Six Months of Infancy**

- Provision of support to fathers and caregivers to ensure their commitment to support the mother and the child on proper health and nutrition care and provide necessary counselling and positive parenting support interventions
- Assurance of women and child-friendly spaces during calamities, disasters, or other emergencies where health and nutrition services for women and children shall be provided

### **Infants Six Months up to Two Years of Age**

- Timely introduction of safe, appropriate, and nutrient-dense quality complementary food with continued and sustained breastfeeding for all infants from six (6) months up to two (2) years of age, with emphasis on the use of suitable, nutrient-rich, home-prepared, and locally available foods that are prepared and fed safely
- Provision of nutrition counselling on complementary food preparation and feeding to mothers and caregivers
- Dietary supplementation of age-appropriate and nutrient-dense quality complementary food
- Provision of oral health services including application of fluoride varnish to prevent dental caries
- Counselling and support to parents and caregivers on parent/caregiver-infant/child interaction for responsive care, and early stimulation for early childhood development, and referral for development delays and other disabilities for early prevention, treatment and rehabilitation
- Social welfare support to improve access to health and nutrition services such as, but not limited to, dietary supplementation, complementary food, other healthy food products and commodities, assessment and referral for development delays and other disabilities for early prevention, treatment and rehabilitation for infants six (6) months and above who belong to poorest of the poor families
- Support for home kitchen gardens wherever feasible
- Provision of locally available grown crops, vegetables and fruits in addition to other agricultural products to be used in complementary feeding and dietary supplementation
- Protection against child abuse, injuries and accidents including the provision of first aid, counselling and proper referrals



- Provision of center-based ECCD programs, such as child development (daycare) service, community early childhood development programs, and/or workplace related child care and education programs
- Provision of home-based ECCD programs, such as neighborhood-based play groups family childcare programs, parent education and home visiting programs

**Adolescent Females**

- Assessment of health and nutrition status and identification of nutritionally-at-risk adolescent girls, as well as provision of ready to use supplementary food or ready to use therapeutic food for nutritionally-at-risk adolescent females, as appropriate
- Provision of oral health services including oral health assessment
- Provision of micronutrient supplements according to guidelines of the DOH, in partnership with the Department of Education (DepEd)

**Annex 4. Abridged statement of allotments, obligations and balances (in current PHP thousands) of select local government programs: Leon B. Postigo (Bacungan), 2016-2018**

	2016			2017			2018		
	Allotment	Obligations	Balance	Allotment	Obligations	Balance	Allotment	Obligations	Balance
<b>Health</b>									
Maternal and child health care program	250.0	214.6	35.4	200.0	57.9	142.1	500.0	464.6	35.4
Family planning program	100.0	78.8	21.2	100.0	2.0	98.0	100.0	25.7	74.3
Communicable disease prevention	50.0	37.1	12.9	50.0	44.7	5.3	100.0	33.0	67.0
Prenatal sa Martes Pakan-on ang Buntis	100.0	5.9	94.1	110.0	108.6	1.4	110.0	61.6	48.4
Micronutrients supplementation	50.0	30.7	19.3	50.0	37.4	12.7	155.0	110.5	44.5
<b>Early childhood care and development</b>									
Wash in day care program	47.4	0.0	47.4	64.4	23.6	40.7	60.0	30.0	30.0
Early childhood care and development	204.4	62.7	141.6	379.6	152.2	227.4	390.0	326.1	63.9
Support to health and nutrition program	160.0	105.7	54.4	100.0	0.0	100.0	100.0	4.3	95.8
Training/Capability program	100.0	4.4	95.6	81.9	0.0	81.9	15.0	0.0	15.0
<b>Economic development</b>									
Agriculture and fishery development	100.0	84.1	15.9	100.0	66.5	33.5	240.0	152.4	87.6
Livestock dispersal program	150.0	122.6	27.4	132.0	0.0	132.0	100.0	16.7	83.3
<b>Selected Programs Total</b>	<b>1,311.7</b>	<b>746.5</b>	<b>565.2</b>	<b>1,367.8</b>	<b>492.9</b>	<b>875.0</b>	<b>1,870.0</b>	<b>1,224.8</b>	<b>645.2</b>
<b>Local Government Total (General Fund)</b>	<b>99,273.6</b>	<b>80,932.0</b>	<b>18,341.6</b>	<b>155,697.3</b>	<b>86,550.9</b>	<b>69,146.4</b>	<b>117,760.8</b>	<b>96,100.8</b>	<b>21,660.0</b>

Source: Statement of Appropriation, Allotment, Obligation and Balance, Municipality of Leon B. Postigo (2019)

## Annex 5. Nominal and relative prices of food commodities, 2015 and 2018

	2015			2018		
	Philippines	Zamboanga Peninsula	Zamboanga del Norte	Philippines	Zamboanga Peninsula	Zamboanga del Norte
Basic wage per day, median	300.0	210.0	210.0	350.0	269.0	269.0
Price per kilo						
Well-milled rice	42.0	41.6	45.1	45.0	46.4	49.6
Sweet potato	32.3	28.4	26.5	39.8	32.8	35.2
Mongo	87.1	83.4	93.4	85.8	81.2	88.9
Stringbeans	51.0	37.9	42.3	62.6	43.3	52.9
Ampalaya	62.2	55.7	57.5	75.5	65.9	67.6
Eggplant	43.3	37.9	40.1	56.0	41.3	51.7
Squash	26.3	21.9	23.7	33.5	28.4	32.7
Beef	243.7	251.2	249.3	288.7	280.2	291.3
Pork	190.9	186.8	...	217.6	205.3	...
Chicken	137.5	134.4	145.3	152.3	156.3	169.8
Bangus	126.8	112.7	124.8	156.2	135.0	166.5
Galunggong	118.3	92.0	100.9	144.2	114.4	123.4
Tilapia	106.4	101.9	127.8	115.9	105.4	106.1
Price per kilo as % of median basic wage per day						
Well-milled rice	14.0	19.8	21.5	12.9	17.2	18.4
Sweet potato	10.8	13.5	12.6	11.4	12.2	13.1
Mongo	29.0	39.7	44.5	24.5	30.2	33.1
Stringbeans	17.0	18.0	20.2	17.9	16.1	19.7
Ampalaya	20.7	26.5	27.4	21.6	24.5	25.1
Eggplant	14.4	18.0	19.1	16.0	15.4	19.2
Squash	8.8	10.4	11.3	9.6	10.6	12.1
Beef	81.2	119.6	118.7	82.5	104.2	108.3
Pork	63.6	89.0	...	62.2	76.3	...
Bangus	42.3	53.7	59.4	44.6	50.2	61.9
Galunggong	39.4	43.8	48.0	41.2	42.5	45.9
Tilapia	35.5	48.5	60.8	33.1	39.2	39.4

Source: Median basic wage per day are from the October rounds of the Labor Force Survey [LFS] (PSA, 2015, 2018); Commodity prices are from OpenSTAT (PSA, 2019b).

Provincial disaggregation of LFS statistics are not available; values for Zamboanga del Norte refer to region.

### Annex 6. Employment among working age population: Zamboanga del Norte, 2015

	Employed ('000)	By occupation type (%)			Share (%) of working age population
		High-skilled	Skilled	Low-skilled	
Zamboanga del Norte	649.7	11.6	61.5	26.9	58.3
Dapitan City	55.0	10.7	58.0	31.4	61.6
Dipolog City (Capital)	90.2	11.4	53.6	35.1	56.7
Katipunan	29.0	12.2	54.7	33.1	62.3
La Libertad	5.3	14.9	59.5	25.7	60.2
Labason	26.6	9.7	66.5	23.9	60.8
Liloy	26.2	16.1	60.7	23.2	54.6
Manukan	23.1	12.3	67.5	20.3	57.4
Mutia	8.9	9.1	69.3	21.6	62.8
Piñan (New Piñan)	13.7	6.7	69.9	23.4	57.2
Polanco	26.4	11.4	72.2	16.4	56.1
Pres. Manuel A. Roxas	24.2	13.2	53.6	33.2	58.0
Rizal	9.9	14.2	63.4	22.5	58.8
Salug	20.6	12.2	66.4	21.4	53.2
Sergio Osmeña Sr.	18.5	9.5	62.9	27.6	53.8
Siayan	20.5	13.2	71.4	15.4	58.7
Sibuco	21.0	8.5	65.8	25.7	60.0
Sibutad	12.1	8.9	70.0	21.2	55.2
Sindangan	63.6	8.5	55.6	35.9	58.0
Siocon	28.8	8.4	74.9	16.8	57.5
Sirawai	18.1	10.3	65.3	24.4	61.2
Tampilisan	15.2	8.6	68.7	22.8	58.2
Jose Dalman (Ponot)	17.1	11.3	65.3	23.5	59.3
Gutalac	21.0	17.2	60.3	22.6	59.1
Baliguian	14.1	25.1	54.8	20.1	59.5
Godod	10.8	14.8	64.5	20.7	54.6
Bacungan (Leon T. Postigo)	16.0	17.3	57.0	25.7	61.7
Kalawit	13.7	14.0	58.5	27.6	60.6

Source: PSA (2016a). High-skilled occupations include managers and professionals. Low-skilled occupations refer to elementary occupations, including production laborers, farmhands, and domestic workers. Skilled occupations include technicians and associate professionals, clerks and sales workers, skilled farmers, fishers and foresters, and skilled production workers.

**Annex 7. Poverty incidence (%), 2006-2015**

	2006	2009	2012	2015
Food-poverty incidence among population (%)				
Philippines	12.0	10.9	10.4	8.1
Zamboanga Peninsula	26.2	26.4	19.1	13.3
Zamboanga del Norte	47.5	46.4	34.4	27.9
Poverty incidence among population (%)				
Philippines	26.6	26.3	25.2	21.6
Zamboanga Peninsula	45.0	45.8	40.1	33.9
Zamboanga del Norte	65.5	68.5	54.4	51.6
Dapitan City	46.7	40.0	29.0	36.1
Dipolog City	33.0	26.8	11.0	14.5
Katipunan	58.9	57.1	49.9	53.0
La Libertad	43.0	45.0	47.9	49.0
Labason	54.7	48.9	46.7	43.7
Liloy	50.9	51.4	39.1	38.2
Manukan	58.9	68.2	51.7	53.4
Mutia	42.9	57.8	43.8	50.0
Piñan	45.8	55.5	40.2	46.1
Polanco	47.1	47.3	36.8	40.5
Pres. Manuel A. Roxas	59.6	66.3	51.3	57.9
Rizal	47.0	37.3	33.4	36.5
Salug	54.8	60.2	49.5	49.7
Sergio Osmeña Sr.	59.3	65.8	59.9	67.9
Siayan	72.3	79.9	70.5	68.4
Sibuco	66.0	68.2	67.2	67.1
Sibutad	33.0	54.1	40.0	40.8
Sindangan	58.2	56.8	46.9	48.4
Siocon	59.8	63.6	49.2	48.2
Sirawai	65.5	61.7	41.5	54.4
Tampilisan	52.0	45.0	44.2	50.2
Jose Dalman (Ponot)	63.4	68.0	62.8	58.7
Gutalac	71.1	70.4	67.4	61.4
Baliguian	70.4	75.3	62.9	55.3
Godod	60.9	71.1	60.8	68.2
Bacungan (Leon T. Postigo)	63.9	66.0	54.2	57.8
Kalawit	60.4	65.8	52.9	61.9

Source: National, regional and provincial poverty estimates are from PSA (2016b). Municipal and city level poverty estimates are from PSA (2014, 2019c)

**Annex 8. Source of household drinking water, 2010**

	Piped water on premises	Other improved water sources	Unimproved water sources	Bottled water
Philippines	38.9	39.8	4.6	16.6
Zamboanga Peninsula	31.0	55.1	8.6	5.3
Zamboanga del Norte	19.0	61.5	11.9	7.7
Dapitan City	17.5	57.3	8.0	17.2
Dipolog City (Capital)	31.9	34.9	2.5	30.8
Katipunan	5.1	67.8	20.9	6.2
La Libertad	4.4	79.5	15.5	0.5
Labason	20.9	63.2	6.3	9.6
Liloy	46.1	48.5	1.4	3.9
Manukan	24.5	66.2	7.0	2.2
Mutia	17.7	72.5	7.4	2.4
Piñan (New Piñan)	15.5	74.7	7.9	2.0
Polanco	22.1	63.4	5.3	9.2
Pres. Manuel A. Roxas	10.0	75.2	11.4	3.5
Rizal	36.4	60.0	2.4	1.2
Salug	19.2	68.7	10.3	1.7
Sergio Osmeña Sr.	19.1	56.6	24.3	0.0
Siayan	5.8	65.8	27.9	0.5
Sibuco	10.4	45.2	44.4	0.0
Sibutad	10.6	85.6	1.6	2.2
Sindangan	12.5	67.9	14.6	5.1
Siocon	23.7	60.5	13.7	2.1
Sirawai	12.7	52.9	34.4	0.1
Tampilisan	21.3	70.5	6.9	1.4
Jose Dalman (Ponot)	14.6	73.2	11.8	0.4
Gutalac	10.0	80.4	9.6	0.0
Baliguian	5.9	81.5	12.6	0.0
Godod	15.1	65.2	19.7	0.0
Bacungan (Leon T. Postigo)	21.5	66.2	10.8	1.5
Kalawit	16.3	79.7	3.8	0.1

Source: PSA (2010)

**Annex 9. Household toilet facility, 2010**

	Improved toilet facility	Unimproved toilet facility	No toilet facility
Philippines	69.8	24.6	5.6
Zamboanga Peninsula	55.6	35.5	8.9
Zamboanga del Norte	55.8	31.8	12.4
Dapitan City	65.3	27.0	7.8
Dipolog City (Capital)	78.3	19.7	1.9
Katipunan	48.0	35.7	16.4
La Libertad	82.3	9.8	7.9
Labason	60.4	28.8	10.8
Liloy	67.9	18.7	13.4
Manukan	58.7	29.2	12.1
Mutia	82.7	13.3	4.0
Piñan (New Piñan)	73.6	22.7	3.7
Polanco	76.6	21.5	2.0
Pres. Manuel A. Roxas	53.5	37.3	9.2
Rizal	78.6	16.8	4.6
Salug	57.8	34.3	8.0
Sergio Osmeña Sr.	48.5	36.7	14.8
Siayan	21.6	68.8	9.6
Sibuco	19.9	31.3	48.9
Sibutad	72.5	17.3	10.2
Sindangan	52.5	35.8	11.7
Siocon	37.3	36.0	26.8
Sirawai	21.0	48.6	30.4
Tampilisan	60.3	30.6	9.1
Jose Dalman (Ponot)	50.2	43.9	5.9
Gutalac	31.5	42.2	26.4
Baliguian	24.9	56.8	18.3
Godod	43.7	40.5	15.9
Bacungan (Leon T. Postigo)	50.2	34.4	15.5
Kalawit	56.4	30.8	12.8

Source: PSA (2010)