Philippine Statistical System in the Wake of the Emerging Data Revolution and Digitization

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Abstract

The Philippine Statistical System (PSS), the government-wide system of providing statistical information and services, consists of the Philippine Statistics Authority (PSA) and other data producers in the public sector across all administrative levels; the Philippine Statistical Research and Training Institute (PSRTI), the research and training arm of the PSS; and the PSA Board (a policy-making body on statistical matters). Data producers release official statistics, i.e. data aggregates, sourced from primary data collections (such as surveys, censuses, administrative reporting systems), and compilations of secondary data. The current PSS structure is a result of Republic Act (RA) 10625, also called the Philippine Statistical Act of 2013, which envisions the PSS to be more responsive to requirements for national development planning. In the wake of the many disruptions from various technologies of the Fourth Industrial Revolution and the concomitant digitization and data revolution, this study looks into how the PSS fares in the production and communication of (official) statistics required for development planning. It also examines how governance and other issues, such as open data and confidentiality, influence various dimensions of data quality (relevance, accuracy, timeliness, accessibility, interpretability, and coherence), as well as trust in data, the data ecosystem and the enabling environment of the PSS. The report points out that RA 10625 defined an inter-agency PSA Board rather than an expert committee as the country's Statistics Policy Council, as was recommended by the Valdepeñas Committee. This effectively eliminated a mechanism for external review of the PSA and the PSS. The conversion of Technical Committees into Inter-Agency Committees further weakened outside expert input to PSA and the PSS. Agriculture and industry statistics remain very weak with PSA still relying on faulty procedures carried out by the former Bureau of Agricultural Statistics. Industry statistics weaknesses have been with the former National Statistics Office (NSO) from the beginning on account of defective sampling frames that do not readily track and deaths of firms. Further emphasis at the former NSO, including on training, had been on household-based info. PSA technical competence in statistics has weakened, as evidenced from the international assessments, as well as from the failure to release results of the recent agriculture census and operational breakdowns with the large discrepancies in the population and household counts. The PSRTI, like its predecessor organization, does more training than research, though in both cases activities are short-term and do not fully address the need for skills to lead and conduct statistics research and development. Finally, the benefits and harms that the Civil Registration System and the PhilSys, i.e., national ID, do and will do to official statistics need critical, objective re-examination with the view to recommend whether these systems should stay with the PSA.

Keywords: Philippine statistical system, official statistics, data revolution, digitization, data quality, trust in data

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1. Introduction

A county's supply of relevant, timely and usable data is crucial as data serve as inputs for setting priorities, making informed choices and implementing better development policies. In its report "A World that Counts -Mobilising the Data Revolution for Sustainable Development", the United Nations (UN) emphasizes the importance of data for development:

> "Data are the lifeblood of decision making and the raw material for accountability. Without high quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible" (UN 2014b).

Official statistics (i.e., those released by government), complemented by publicly available data and statistics from the private sector, help to audit a country's socio-economic performance, and as such, these data form the core evidence upon which policy-makers act, the private sector develops its business strategies, and many academic research undertakings prosper. Behind official statistics are processes and fundamental principles[1] on how data producers collect, compile, process, share and communicate these data aggregates.

Most countries across the world usually have a National Statistical System (NSS), which consists of statistical organizations in a country across the public sector at all administrative levels. Statistical organizations in the Philippine Statistical System (PSS) include data producers led by the Philippine Statistics Authority (PSA) that release official statistics sourced from primary data collections (such as censuses, sample surveys, administrative reporting systems) or compilations of secondary data. The PSA, the country's central authority in statistics, produces a substantial set of socio-economic statistics, including the gross domestic product and other measures of economic performance; income poverty statistics; agricultural statistics, and labor and employment statistics. Other national government agencies (NGAs) produce their own sectoral statistics. For example, the *Bangko Sentral ng Pilipinas* (BSP) releases statistics on banking and finance and the external sector, the Department of Finance together with the Bureau of Treasury on the fiscal sector, the Department of Education (DepED) on the performance of the basic education sector, the Department of Health (DOH) on various communicable and noncommunicable diseases, the

[1] Upon the recommendation of the UN Statistical Commission, the UN General Assembly, in its resolution 68/261 of 29 January 2014, endorsed the UN Fundamental Principles of Official Statistics (FPOS). The FPOS include areas such as (i) relevance, impartiality and equal access; (ii) professional standards, scientific principles, and professional ethics ; (iii) accountability and transparency; (iv) prevention of misuse ; (v) sources of official statistics; (vi) confidentiality ; (vii) legislation (viii) national coordination (ix) use of international standards (x) international cooperation.

Philippine National Police (PNP) on (reported) crime, the Department of Environment and Natural Resources (DENR) on reforestation and forest destruction, mineral reserves, and production of various forest products. Government-owned and controlled corporations (GOCCs) and local government units (LGUs) also collect their own data, and produce their own (official) statistics from their respective data holdings for their own planning and/or monitoring purposes. For instance, the Social Security System and the Government Service Insurance System can provide statistics on coverage of the pension system in the private and public sector, respectively. The PSS also has a research and training arm, called the Philippine Statistical Research and Training Institute (PSRTI) that looks into statistical methodologies and works on statistical capacity development, especially in the public sector. The PSA and all statistical organizations in the PSS are given policy direction by the PSA Board, the highest policy-making body on statistical matters in the country. The PSA and PSRTI are NGAs functionally attached to the National Economic and Development Authority (NEDA).

The PSS does not conduct its statistical work in isolation: international standards on producing official statistics are discussed and developed across governments and international bodies, especially in conjunction with the UN Statistics Division and other international data compilers. These statistical standards enable the generation of comparable statistics across countries, that can further allow the aggregation of country data into regional and global data.

Since accountability and transparency have become mainstreamed in the government as a matter of public policy, official statistics play a basic role in ensuring government accountability toward its citizens. Open Data portals make data more readily accessible but, without addressing the underlying factors of data quality, they fail to realize their full potential. Improving and harmonizing data in the Philippines and the rest of the world is a continuous process amidst overarching challenges, such as the current changes in labor markets and economic activities from the widespread use of emerging technologies, and rapid urbanization.

This study examines how the PSS fares in the production and communication of official statistics required for national development planning, especially as regards the monitoring of the Philippine Development Plan (PDP), and international development commitments, e.g. attaining the Sustainable Development Goals (SDGs) by 2030, and the ASEAN Community Goals by 2025. It also looks into other governance issues and factors (open data, data privacy, and institutional frameworks) that affect trust and credibility of statistical services, the data ecosystem, and the enabling environment in which the PSS operates, in the wake of digitization and the data revolution. This study is relevant not only as it takes account of requirements for national development planning and global development commitments, but also as it identifies specific issues important to ensure trust in data and the PSS, including quality assurance frameworks, the need for more and better use of administrative data, and the need for new partnerships (not only among public institutions, but also with the private sector).

The study includes a desk review of various organizational, human resource and technical information on the PSS (international assessments of statistical capacity and related issues reflecting products and services of PSS), as well as an examination of good practices in official statistics among several member countries of the United Nations (UN). These information are supplemented by results of written and face-to-face interviews of professional statisticians (who have worked either in the PSS or in the academe, or both), and other experts in the use of data and statistics (such as economists, and social scientists). The experts include most of the

members of a committee (henceforth called the Valdepeñas committee[2]) that reviewed the PSS in 2007 (SCRPSS. 2007; Albert et *al*. 2008). Key informants provided views about the overarching policies and practices governing the production of official statistics in the country, aside from issues on statistical standards, methods and data quality.

To carry out the main research objectives of this study, this essay is structured as follows. In the next section, we examine the existing statistical legislation in the country. The third section discusses (human and financial) resources at the PSA, as this is indicative of the support provided by government to the entire PSS. The fourth section describes the statistical production processes in the PSS, and existing plans for improving statistics in the country. The final section provides a summary and recommendations for improving the legal, institutional and organizational environment of the PSS

2. Statistics Legislation

To be able to examine the PSS, it is essential to describe its institutional and governance structures, as well as required legal frameworks that are part of its enabling environment. Data producers in a NSS owe their establishment, the organization of administrative structures, and statistical operations to a legal framework which can vary considerably across countries. In some countries, the operations of a NSS are drawn from a single Statistics Act or Law. In other countries, central statistical authorities and other data producers in a NSS fulfil their responsibilities to produce official statistics owing to specific legal mandates (such as the Central Bank Law for a central bank). Results of the 2012 UNSD Global Survey on the Implementation of the UN Fundamental Principles on Official Statistics (FPOS), indicate that 119 out of 126 NSOs have a Statistics Law, while among the 7 that do not, the majority are governed by government decrees, orders and regulations, with 2 of these pointing out that a Statistics Law was, as of the survey period, in the process of being drafted (UN 2013b).

Institutional frameworks in the PSS, including laws and regulations, influence the processes on collection of primary data and compilation of secondary data, and the quality of resulting official statistics. The current PSS structure is a result of Republic Act (RA) No. 10625, also called the Philippine Statistical Act of 2013, which envisions the PSS to be more responsive to requirements for national development planning. The legal frameworks of the NSS, their contents and the ways these statistical legislations are implemented provide an indication of the statistical capacity of an NSS, i.e., whether there is a sufficient enabling environment for producing timely, reliable, and quality official statistics that are fit for use. While there can be no single approach to the development of statistical legislation, a Statistics Law, if there is one, defines the main actors of the NSS as well their rights, responsibilities, accountabilities and relationships with each other. These main actors in the NSS, include (a) the minister who is politically responsible for the national official statistics; (b) the central statistics authority and its staff, led by the Chief Statistician; (c) the other data producers in a NSS; and, (d) data suppliers (especially respondents in primary data collection activities). Statistical legislation essentially gives guidance to the production of official statistics by indicating what are official statistics, for whom they are produced, the structure and powers of organizations producing official statistics and; the principles on which official statistics are produced. The legal

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[2] The expert committee was chaired by Dr. Vicente B. Valdepeñas (then member of the Monetary Board) with the following as members: Dr. Isidoro P. David (former Data Systems Manager of the Asian Development Bank, Academician Dr. Mercedes B. Concepcion, Dr. Lisa Grace S. Bersales (then Dean, UP School of Statistics), and Dr. Cielito F. Habito (then Director of the Ateneo Center for Economic Research and Development). Drs. Valdepeñas and Habito were also former NEDA Director Generals and Economic Planning Secretaries.

framework for official statistics production provides for an accountability framework, i.e., the obligations of statistics producers, such as publishing the aggregated results of data collections and protecting the confidentiality of information collected from respondents in primary data collections. The 2012 UNSD Global Survey on Implementation of the FPOS also points out that in 20 cases, the Statistics Law only covers the responsibilities and accountabilities of the central statistics authority and not other data producers (UN 2013b).

The Statistics Law defines what data producers are expected to do with the information that data providers submit to these producers; it also asks respondents in statistical inquiries to comply with the NSS's demands for information, and in exchange for intrusion upon their privacy rights, the NSS is required to safeguard the confidentiality of the information provided by respondents. If respondents do not comply, they are subject to certain sanctions. If the data producer breaks this commitment to confidentiality, then sanctions are given. Ideally the governance in a NSS, as provided for by statistical legislation, should be characterized by technical autonomy, objectivity, integrity, professionalism, relevance and responsiveness. As per results of the 2012 UNSD Global Survey on Implementation of the FPOS. this technical independence in many countries is enshrined in their statistical legislation (UN 2013b).

Since the start of the new millennium, more than half the member states of the Association of South East Asian Nations (ASEAN) have either enacted new statistics legislation, or made revisions to their laws. (**Table 1**).

Table 1. Years of Enactment of Statistics Laws in ASEAN member-states.

ASEAN member state	Year	
	Current Law	**Previous Law**
Brunei	1987	1977
Cambodia	2015	2005
Indonesia	1997	1960
Lao PDR	2017	2010
Malaysia	1989	1965
Myanmar	2018	1952
Philippines	2013	1987
Singapore	2012	1973
Thailand	2007	1965
Vietnam	2003	1998

Source: UN Statistics Division and personal communication with NSOs of ASEAN member states

The PSA is a relatively new entity with RA 10625 taking full effect in December 2013. This law established the PSA from the consolidated technical staff of the now defunct National Statistical Coordination Board (NSCB), the National Statistics Office (NSO), the Bureau of Agricultural Statistics (BAS), and the Bureau of Labor and Employment Statistics (BLES). These major statistical agencies (MSAs) were given a legal mandate from various legal instruments that arose out of demand for statistics from various sectors (**Box 1**). The consolidation of the MSAs, as well as the strengthening of statistical research and training through the establishment of the Philippine Statistical Research and Training Institute (PSRTI) from the Statistical Research and Training Center (SRTC) are among a few recommendations made by the Valdepeñas committee in 2007 (SCRPSS. 2007; Albert *et al*. 2008).

Box 1. Major Laws and Other Legal Instruments on the PSS and its statistical operations and on statistical affairs in the country

Republic Act (RA) 10625,	December 11, 2013	Also known as The Philippine Statistical Act of 2013, the law establishes the PSA, as well as the Philippine Statistical Research and Training Institute (PSRTI).
Presidential Proclamation No. 248	February 24, 2000	Adopts the Philippine Statistical Development Program (PSDP) for 1999-2004
Executive Order (EO) No. 352	July 2, 1996	Proclaims "Designated Statistical Activities", i.e., Statistical Activities That Will Generate Critical Data for Decision-making of the Government and the Private Sector
EO No. 135	November 6, 1993	Provides for the Establishment of a Well-Coordinated Local Level Statistical System to meet information needs of Local Governments that were empowered to deliver local services through the Local Government Code of 1991
RA No. 7653[3]	June 30 1993	Establishes the BSP, which authorized the Monetary Board to reorganize the BSP as necessary and appropriate
EO No. 406	March 21, 1987	Institutionalizes the Philippine Economic-Environmental and Natural Resources Accounting (PEENRA) System and Establishes Required Units Within the DENR, National Economic and Development Authority (NEDA), and (the then) National Statistical Coordination Board (NSCB) Technical Staff
Proclamation No. 647	September 20, 1990	Declares the Month of October of Every Year as the National Statistics Month
EO No. 121	February 1, 1987	Reorganizes and Strengthens the Philippine Statistical System (PSS) with the establishment of the then NSCB and the then Statistical Research and Training Center
EO No. 116	January 30, 1987	Renames Ministry of Agriculture and Food as Ministry of Agriculture, and Reorganizes Its Units, Integrating All Offices and Agencies Whose Functions Relate to Agriculture and Fishery into the Ministry, which includes the establishment of the Bureau of Agricultural Statistics within the Ministry
EO No. 126	January 30, 1987	Reorganizes the Ministry of Labor and Employment, which includes the establishment of the BLES within the Ministry
Batas Pambansa Bilang 72	June 11, 1980	Provides for the conduct of an integrated (population) census every ten years beginning in the year 1980
Presidential Decree No. 418	March 20, 1974	Reconstitutes the Bureau of the Census and Statistics of the Department of Trade as a new agency under the administrative supervision of the National Economic and Development Authority to be known as the National Census and Statistics Office.
Commonwealth Act No. 591	August 19, 1940	Establishes a Bureau of the Census and Statistics to consolidate statistical activities of the government.

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[3] In accordance with RA 7653, the Monetary Board established the Department of Economic Statistics of the BSP on 20 March 2005 to assume the statistical functions lodged before at its Department of Economic Research

The committee referred to the consolidated statistics authority as Statistics Philippines (or STATPHIL), but RA10625 referred to the authority as the PSA. The committee also recommended that a Statistics Policy Council (SPC) handle policy matters; RA10625 gives this responsibility to the PSA Board.

RA 10625 has a number of elements of a good statistical legislation (see UN 2003): a definition of the PSS main actors (viz., the National Statistician, the PSA, other data producers, the PSA board, data "suppliers", the PSRTI) and their responsibilities and accountabilities, as well as an identification of processes entailed for carrying out the work program on products and other statistical services in the PSS. However, it also has a number of weaknesses, including the lack of a legal mandate for PSA to examine administrative data of other government agencies (and the private sector) for statistics purposes. Below we discuss in detail the strengths of the statistical legislation, aside from opportunities for further improving it.

2.1. Statistical Coordination and Policy Formulation

According to Section 2 of RA 10625 (on "declaration of policy"), the statistics law was meant to transform the PSS into an integrated national statistical system (NSS) with independence, objectivity, and integrity at its core. RA 10625 gives a mandate for PSS entities to collect information for statistical purposes, and provides data suppliers a right on confidentiality. To protect confidentiality, data producers are also held accountable for breaches on confidentiality.

The PSA is given a duty not only for the conduct of primary data collection, compilation of other data, and the maintenance of the civil registration system (CRS) but also for developing statistics in the entire country, as well as for coordinating with PSS entities and with the international statistical system. In other words, PSA's responsibilities subsumes those of its predecessor statistical organizations.

RA 10625 effectively made the PSS more centralized as PSA currently produces most of the top-of-mind socio-economic statistics. The PSA is, however, still in no capacity to generate all official statistics. Some level of decentralization still persists in the PSS: sectoral statistics are still the responsibility of their respective government departments and LGUs may also collect their own data and produce their own official statistics.

According to RA 10625, the reorganization of the PSS in 2013 was meant to streamline production and coordination of official statistics, i.e., improving timeliness and reducing inefficiency, by putting together the then major statistical agencies. These objectives follow from the recommendation of the Valdepeñas committee, which noted the need for improving the PSS capacity on statistics production through economies of scale to respond to new challenges brought about by a changing economic landscape and to respond to increasing demands for monitoring development plans (SCRPSS. 2007; Albert *et al*. 2008).

The reorganization of the PSS instituted by RA 10625 was also meant to support decentralization through the establishment of the statistical infrastructure necessary to service the statistical needs of local development planning. The law provided a number of mechanisms for the improvement of sectoral statistics, including statistics for local development planning. These include statistical coordination and capacity development including the cross-posting of PSA staff into statistics units of NGAs and LGUs, although this has yet to be implemented by the PSA as the PSA has yet to complete its staffing pattern (c.f. Section 2).

The country's current statistics legislation provides the PSA Board, the highest policy-making body on statistical matters in the country, the responsibility to establish appropriate mechanisms for promoting and maintaining an efficient and effective NSS, including the regular development of the Philippine Statistical Development Program (PSDP). Further, the law provides PSA the mandate for statistical coordination both at the international and national levels. The latter is typically undertaken through Inter-Agency Committees (IACs)[4] on Statistics, and the Regional Statistical Coordination Committees (at the local level) as well as through the PSA Board.

In any NSS, coordination is required to enable effectiveness and efficiency in the production of official statistics. Results of the 2012 UNSD Global Survey on Implementation of the UNFPOS suggest that statistical coordination is implemented through legal frameworks, interagency committees, and through the country statistical programs (UN 2013b). Interagency committees serve as venue for the discussion of specific statistical issues, e.g. definitions, standards, and methods. National accounts compilation can also serve as a framework for coordination. Central statistical authorities like the PSA, even when they do not compile the national accounts, typically play a major role in statistical coordination, in some cases, providing approval of questionnaires and methodologies, as well as serving clearinghouse responsibilities for the conduct of statistical activities. Statistical coordination can be a challenge as this assumes that organizations would want to be coordinated, a task made even more challenging by shortcomings in the current legal framework (particularly regarding sharing of data in government).

Data producers need to coordinate with each other, with their data suppliers and with data users (and re-users). Data producers require the cooperation of all data suppliers, within government agencies, the private sector, and among households. Relationships must also be developed and managed by data producers with their data users (and re-users) including decision makers within government, the development community, the academic and research community, and the public at large, who ultimately judge if the official statistics produced by the NSS are fit for use. Unfortunately, the Philippines does not have a very strong culture for data sharing, unlike in very technological advanced economies such as Estonia, which is built on trust.

Sectoral departments and the BSP are both data users and data suppliers of the PSA, especially for the PSA's production of the national accounts. This type of statistical coordination of the PSA with other data producers in the PSS is called horizontal coordination, to differentiate this with vertical coordination[5] of central offices of the PSA and departments with their field offices.

RA 10625 mentions the provision of accurate and useful data as one of the goals of the reorganization of the PSS. RA 10625 also requires the statistical products and services of the PSS to be useful for the government and the public. The law also points out the importance of

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[4] As per Section 10 of RA 10625, the IACs on Statistics are : a. Committee on Agriculture; b. Committee on Trade and Industry Statistics; c. Committee on Infrastructure; d. Committee on Financial Statistics; e. Committee on Social Statistics; f. Committee on Gender Statistics; g. Committee on Environment and Natural Resources; h. Committee on Information and Communications Technology; i. Committee on Science and Technology; j. Committee on Governance; k. Committee on Migration; l. Committee on Fiscal Matters; and m. Committee on PSS Resources

[5] Should the Philippines decide to shift to a federal system, and consequently adopt a decentralized statistical organization that includes autonomous statistical organizations producing official statistics for states and a coordinating organization at the federal level, then vertical coordination will also be critical between the federal statistics organization and the state statistical offices as in the cases of Switzerland and Germany. However, there are currently no plans at the PSA to prepare it and the entire PSS for such a structure.

timeliness of official statistics. However, the law mentions nothing about equal access to data, nor does it mention anything about the periodicity of sample surveys, and releases nor does it get into definitions of statistical activities. The Census of Population and Housing (CPH) is an exception to non-specification of periodicity of censuses; by law, specifically *Batas Pambansa Bilang* 72, the CPH is to be undertaken every year ending in zero. The mid-decade population censuses are ad-hoc and not covered by the same law. Regarding equal access to data, the current administration upholds the constitutional right of people to information on matters of public concern in EO No. 2, s. 2016, on "Freedom of Information" (FOI), but this falls short of a law for covering all branches of government. In the case of periodicity of statistical releases, this falls into the purview of statistical policy, which is the responsibility of the PSA Board[6]. From 2014 to 2018, the PSA Board has averaged 13 resolutions per year. (**Table 2**).

Table 2. Classification of PSA Board Resolutions by Topic: 2016 - 2019.

Topic	Frequency
Advance Release Calendar (Arc)	1
Budget	10
Census	10
Civil Registration	2
Classification Systems	2
Concepts	1
Coordination	4
Crime	1
Cultural Statistics	1
Designated Statistics	2
Education Statistics	4
IACs	1
Labor Statistics	1
Local Statistics	7
National Accounts	1
Nutrition	2
Overseas Filipino Worker (OFW) /Migration Statistics	2
Policy	1
Population Statistics	5
Price Statistics	3
PSA Board	9
PSDP	4
PSRTI	1
Survey	3
SDDS	1
SDGs	4
World Statistics Day	1

Notes: (i) Authors' counts based on list of PSA board resolutions; (ii) Double classification of some topics made for some resolutions.

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[6] The PSA Board shall be composed of the following: the NEDA Director-General, as Chairperson; the Secretary of the Department of Budget and Management (DBM) or the duly designated Undersecretary, as Vice Chairperson; National Statistician; one (1) representative each from the other departments in the national government; a representative of the BSP; the Executive Director of the PSRTI; a representative of the Philippine Statistical Association; a representative from the GOCCs; a representative each from the Union of Local Authorities of the Philippines (ULAP) and the private sector to be appointed by the Chairperson of the PSA Board for a term of three (3) years, with reappointment, from a list of nominees submitted by the other members of the Board.

The bulk of these resolutions are on the budget of statistical activities (either in the PSA or PSS-wide), the population census, and the PSA board. The high frequency of PSA Board resolutions regarding budgets is a consequence of the PSA legal mandate for it to conduct on a regular basis a review of budgets of statistical activities. Currently, the review is especially focused on activities that are categorized under the government's Tier 2 budget for new and expanded activities, as against Tier 1 budgets for ongoing programs that are considered approved by the Department of Budget and Management (DBM). See, e.g. PSA Board Resolution No. 3, Series of 2016.

Other topics with much attention in PSA Board resolutions include local statistics, statistical coordination, education statistics, population statistics, price statistics, the PSDP, and the SDGs. Surprisingly, issues on sample surveys were only discussed thrice, largely pertaining to the National Nutrition Survey of the Food and Nutrition Research Institute (FNRI). As of the moment of writing, PSA Board resolutions are publicly available in the PSA website, although weblinks are confusing as one webpage (https://psa.gov.ph/article/psa-resolutions) only gives the 2014 and 2015 resolutions, while another (https://psa.gov.ph/psa-board-4) provides websurfers the opportunity to view the entire list by choosing a particular year.

The PSA also develops and standardizes socio-economic classifications, concepts and definitions, and measurements used by the entire PSS, as part of this coordinating role. Statistical coordination in the country has been, in practice, rather strong. RA 10625 provides a list of IACs that the PSA should establish. Some of these IACs, viz., those on Infrastructure, on Fiscal Matters, and on PSS Resources have hitherto not been constituted. The law gives the PSA Board the authority to create or abolish IACs as appropriate.

Many statisticians and other experts interviewed for this report suggest that enshrining processes regarding the establishment of PSS IACs is a major strength of the current and past laws. They also point out that there is wide scope for PSA to improve its committees (cf. Section 3). The committees of the defunct NSCB included technical committees (TCs), which consisted of experts who provided advice on various issues and emerging challenges faced by the PSS. Many interviewees for this study point out that the existing PSA IACs on Poverty Statistics and on Population and Housing Statistics, are better reclassified into TCs, especially given the need for expert advice and insights on methodological matters. Further, there is also a clear need for PSA to also reconstitute the TC on Survey Design that existed under the former NSCB. While PSA has in-house technical capacity on survey operations, the PSA can gain more knowledge for improving its surveys and those of other data producers through feedback and insights from experts. Having PSA conduct the SSRCS on its own can hide the inefficiencies in its surveys. Having experts provide external assessments of the work done by the PSA promotes transparency and can be a helpful way for the PSA to grow as an organization. Reportedly, the setting up of these TCs by the PSA is underway.

Interviewees also expressed concern that there may be too many IACs, and that only a selected set of them that are actually yielding outcomes. This is somewhat validated by the distribution of topics in the PSA Board resolutions (Table 2). Some people interviewed even suggest there may be little need for revisions of laws, but much need to address implementation gaps. As far as IACs, it was pointed out that there is very little guidance on prioritization of issues. IACs (and TCs) could work to ensure that advance release calendars (ARCs) are adopted across various sectoral statistics, and that sectoral statistics are explained better to the public. There is very little in the law or its implementing rules and regulations (IRRs) about ARCs, except as

they pertain to the PSA operations. Rather than having IACs merely meeting for discussions on issues, many interviewees point out that there could be expected outputs from the IACs, such as blogs similar to the Statistically Speaking and Beyond the Numbers blogs of the former NSCB, and workplans toward the establishment of specific designated statistics (i.e. top priority statistics) for the sectoral statistics covered by the IACs. These expectations of IACs, however, could be laid out, not necessarily in laws or IRRs, but in the terms of reference of the IACs that are currently articulated in PSA memorandum orders.

2.2. Statistical Operations

For the conduct of PSA's operations, Sections 12-16 of RA 10625 defines field statistical services and three offices, viz, (a) sectoral statistics; (b) censuses and technical coordination; (c) civil registration and central support. See organizational chart in **Figure 1**.
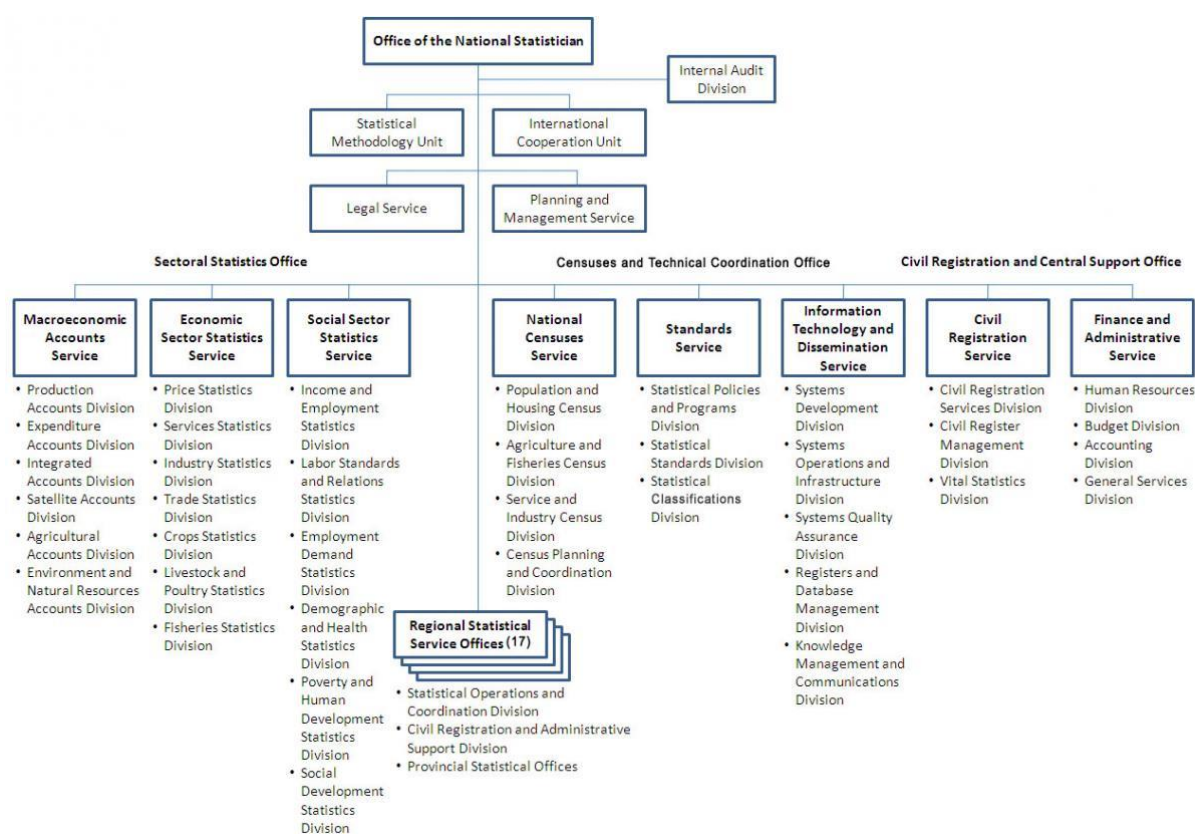
Figure 1 PSA Organizational Chart

Source: PSA https://psa.gov.ph/content/psa-organizational-structure-0 (accessed October 21, 2019)

The law on the national ID, i.e., RA 11025, adds to the PSA a fourth office for the Philippine Identification System ID (PhilSys[7] ID). Although the PSA is an attached agency of the NEDA,

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[7] The PhilSys ID will store 13 sets of information. The identification document shall display the assigned PhilSys number (PSN), full name (Given Name, Middle Name, Surname), sex, blood type, birth date, birthplace, marital status (optional), and photograph of the bearer. It will also store the bearer's mobile number (optional), email address (optional), and biometrics data (full fingerprints set and iris scan) in the PhilSys Registry. The PhilSys, also referred to as *Pambansang Pagkakakilanlan*, is the official national identity card for Filipino citizens worldwide and foreign permanent residents in the Philippines. Such a registry

RA 10625 gives the PSA technical independence to conduct its statistical activities (including the conduct of primary data collection such as censuses and surveys; the definition of methods of estimation; and the dissemination of official statistics to the public).

RA 10625 focuses mainly on the PSA, and the PSRTI. Discussions in the law about other data producers is very terse and limited to their implicit involvement in the PSA Board and IACs, and the conduct of statistical inquiries by these data producers. The law also does not give basic definitions of statistical activities, unlike the draft law prepared by the Valdepeñas committee (SCRPSS 2007) which laid out specific provisions defining

- censuses[8]
- sample surveys[9]
- administrative reporting/registration forms[10]

Further, the draft law of the Valdepeñas committee gave provisions defining

- designated statistics[11]

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of Filipinos, together with the CRS, could make the conduct of a population census unnecessary, if the PhilSys ID and the CRS have complete coverage of all Filipinos.

[8] "In the interest of national patrimony and in compliance with the international commitments of the Republic, the State shall provide the necessary support and appropriation for the conduct every ten years of a comprehensive census of population and housing, henceforth called the CPH, and census of agriculture and fisheries, henceforth called the CAF. The CPH shall be conducted in the month of May of the year 2010 and every tenth year thereafter in a month to be fixed by the SPC. The CPH shall be conducted in such a manner as to ensure that counts of the population are provided for each barangay, as constituted at the time of each census year. The CAF shall be conducted two years after the conduct of each CPH in a month to be fixed by the SPC. Upon recommendation of the SPC to the President of the Republic of the Philippines through the NEDA Director-General, inter-census surveys, and surveys of non-population and agriculture and other important areas of concern may be undertaken by the STATPHIL. Other census-type activities and those included in the PDS such as the Census of Philippine Business and Industry, henceforth called the CPBI, the Mid- Decade Census of Population, and the like may be undertaken by the STATPHIL at any time and Congress will have to provide guaranteed appropriations to support such activities upon certification of urgency by the President of the Republic of the Philippines. Defining the type(s) of census(es), the year(s) it(they) should be conducted and the dissemination arrangements on the results of the census(es) shall be made through a Presidential Executive Order."

[9] "Sample surveys in support of the PDS shall be conducted by STATPHIL, upon authority of the SPC. Sample surveys may also be conducted by other data producers for purposes of generating sectoral statistics that are not part of the PDS through a Survey Clearance System …. The data producer is required to maintain the following core information of these surveys: • Title of the Survey • Statement of Purpose and Objective • Population and Geographic Coverage • Sample Size • Statistical Methodology • Timing and Frequency • Particulars about Executing Agency • Date of Public Dissemination of Survey Results and to provide an effective mechanism for their dissemination."

[10] STATPHIL and other government institutions may generate useful statistical information from data available from administrative reporting/registration forms. Data from administrative reporting/registration forms which are considered public document may be quoted without fear of violation of the confidentiality of information proviso of this Act. Public access to these forms shall be guaranteed under this Act. The originating institution, however, may charge nominal fees to cover the costs of reproducing these forms.

[11] "A core set of priority statistics required for social and economic planning/analysis statistics, and henceforth called the Philippine Designated Statistics (PDS) is to be identified by the SPC. The SPC shall also issue the rules and regulations for the implementation of the PDS, including the types, scope, coverage and dissemination of these statistics. Primary data collection activities for generating the PDS are to be either implemented or outsourced by STATPHIL. There shall be guaranteed appropriations for budgets of these primary data collection and other activities for designated statistics, subject to oversight of the SPC and Congress, with post audit by the Commission on Audit. The PDS is deemed official and shall be made available to the public according to a statistical calendar. The SPC shall periodically review the relevance of the PDS to the requirements of national development vis-a-vis the Medium Term Philippine Development Plan and shall issue modifications/revisions to the PDS as warranted. Respondents of primary data collection activities such as censuses and sample surveys covered by the PDS are obliged to give truthful and complete answers to statistical inquiries under penalties of imprisonment for one month to a year, and/or with fines set by the SPC of at least five thousand pesos for individual respondents, and at least fifty thousand pesos for small and medium enterprises, and at least five hundred thousand pesos for other establishments. Individuals/institutions preventing the conduct of designated statistics or making false representations shall be punished by imprisonment of five to ten years with corresponding fines set by the SPC of at least one hundred thousand pesos for

- survey review clearance[12]
- non-designated sectoral statistics[13]
- statistics for LGUs[14]

which did not get into RA 10625, although its implementing rules and regulations (IRRs) defined the System of Designated Statistics (SDS) in Rule 3 (under a definition of terms), and the Statistical Survey Review and Clearance System (SSRCS) in Rule 28. There is, however, scope to incorporate amendments to RA 10625 at least in as far as defining censuses, sample surveys, administrative data, designated statistics, sectoral non-designated statistics, statistics for LGUs, and to have discussions on advance release calendars (ARCs) as these pertain to operations for the production of official statistics not only by the PSA, but also by other data producers, including LGUs. A careful reading of RA 10625 suggests that the law is PSA-centric, and mentions only very tersely other data producers in the PSS . This needs substantial correction. Further, there is a need to amend the statistics law to provide the PSA a mandate for accessing administrative data of government agencies' and private establishments, particularly for improving estimates of the country's economic performance, subject to the approval of the PSA Board. Currently, the PSA's national accounts team, in particular, is still unable to gain access to administrative records of key government agencies and of vital private firms (that are growing in importance in the digital economy, especially the emerging platform economy) reportedly due to legal barriers.

The Philippines is not alone in having its central statistical authority take charge of special additional functions (viz., CRS and Philsys ID) that are not part of statistics production per se. Examples include economic forecasting and economic analysis for the National Institute of Statistics and Economic Studies (*Institut National de la Statistique et des Études Économiques*: INSEE) of France; national mapping for the INEGI (*Instituto Nacional de Estadística y Geografía*) of Mexico; and a support function in the elections for the Federal Statistics Office (*Statistisches Bundesamt*) of Germany. These extra functions can potentially provide the central statistics authority more clout in society as a relevant institution in public

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individuals and at least one million pesos for institutions, with operations of these institutions suspended for six months. STATPHIL, through its Office for Legal Services, will monitor and work toward the sanctioning, on behalf of the SPC, of any such non-compliance."

[12] "The current system of statistical survey clearance is to be continued. That is, all government institutions, both national and local government instrumentalities, are to request clearance from the STATPHIL for the conduct of surveys that are not within the scope of responsibility of STATPHIL at least 45 days prior to the conduct of the survey. The STATPHIL is expected to expeditiously act on such requests for clearance. This clearance system shall include surveys contracted out by government agencies to private institutions and non-government organizations. Excluded from clearance are all surveys conducted by government agencies for internal use only. Any research, publication or public document utilizing results from surveys that have not undergone survey clearance are to issue appropriate disclaimers. Researches, publications and public documents that do not issue disclaimers will be subjected to fines set forth by the SPC. STATPHIL, through its Office for Legal Services, will sanction parties in violation of such prescribed disclaimers."

[13] "National and local government institutions, including government controlled corporations, may generate special sectoral statistics consistent with their mandated tasks. Sectoral statistics should, however, be undertaken under the direct supervision of a statistical officer duly certified by the PSRTI with a Certificate of Basic Statistical Competence. The executing agency should submit to STATPHIL the resultant statistical reports. Databases should be given to the PSRTI for inclusion in the central data archive."

[14] The generation of provincial, city, municipal and barangay statistics which are by-products of administrative reporting systems inherent in administering the devolved basic services shall be continued by the LGUs consistent with the manner, form and frequency being adopted by STATPHIL and the concerned national line agencies. For the generation of other statistics with sub-national disaggregation, the SPC shall designate which of the statistics are to be generated by STATPHIL and the national agencies or by the local government or jointly by the national and local governments. In cases where these will require the conduct of surveys and other undertakings for the purpose of producing local level statistics, LGUs shall share in the cost of said surveys.

administration, but they can also distract attention from the core function of a statistics authority on statistics production, and expanding statistics development. Many statistics experts in the country expressed strong concerns that CRS and PhilSys ID are eating up too much time and energy of PSA staff that could be put to better use for statistical operations and statistics development, especially in the wake of the extra responsibilities for the implementation of the community based monitoring system (CBMS)[15], under the newly signed RA 11315. There is concern about what would happen if and when CBMS estimates diverge from PSA estimates, including census counts, i.e., which estimates will be official? And which will be used for what? Or will the CBMS implementation effectively stop the conduct of population censuses?

There is suggestion from many experts interviewed that the mandate for the national ID, in particular, has to be removed from the PSA given the large risks that the PhilSys ID system could be hacked. Further, nowhere in the world is the national ID given to the statistical system, except in the Philippines. Typically, National ID systems are lodged with a Department of Interior or Home Affairs, the Department of Finance (for tax purposes), or elections commission. Even in India, a separate authority called the Unique Identification Authority of India issues the National ID. There is also specific concern that the firm that established the Commission on Election COMELEC voters database system (that was hacked very easily) won the bid to provide a similar service to PSA for the national ID system. Although the bidding process was done with due diligence, but given the current absence of cyber security experts in the country, the hacking of the PhilSys ID system, if and when it happens, can erode the public trust in the PSA (as an institution) and all its products and services, and this mistrust could have serious repercussions across the entire PSS. A recent news item published in the Manila Times[16] about the bidding for the second phase of the Philsys implementation gives further cause to worry. The PSA, however, is trying to ensure that this trust is maintained with its partnerships for the PhilSys development with the Department of Information and Communications Technology (DICT), and recently with the BSP. Still, it may be prudent to take note of the words of Martine Duran, Chief Statistician and Director of the Organization for Economic Cooperation and Development (OECD) Statistics and Data Directorate: "Trust can take years to build, seconds to destroy, forever to recover." (Duran, 2018). Many people interviewed suggest that PSA may be losing focus on statistics, and working too much on non-statistical matters. They suggest that new institutions should be established to specifically work on the CRS and the PhilSys so that PSA focus on statistics production, statistical coordination, and plans (and monitoring) of the PSDP.

2.3. Technical Independence

The statistics law identifies integrity as a key characteristic needed by the PSS. Even before enactment of RA10625, the PSS has had a tradition and reputation of professionalism. As per RA 10625, the PSA is an attached agency of NEDA, and the PSA Board is headed by the Secretary of Economic Planning. In other ASEAN member states, the national statistical offices (NSOs) have an independent status and are merely functionally attached to either the

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[15] The CBMS is "an organized technology-based system of collecting, processing, and validating necessary disaggregated data that monitoring at the local level while empowering communities to participate in the process; … It entails a census of households undertaken by the LGUs with the participation of the community using accelerated poverty profiling system in the data collection, processing, mapping and analysis data."

[16] https://www.manilatimes.net/2019/12/09/news/top-stories/banned-firm-joined-bidding-for-id-system/662649/

Office of the President (Indonesia), the Office of the Prime Minister (Malaysia), or some department that has no vested interest in statistics, such as the Department of Information and Communications Technology (Thailand). A 2012 Global Survey on Implementing the UNFPOS (UN 2013b), conducted by the UN Statistics Division, in which 126 NSOs participated, suggests that NSOs can have the status of an autonomous government body, or can be part of a ministry, such as the ministry of national planning, economic affairs, trade, finance or the interior. In addition, there is considerably variation regarding who the chief statistician may report to within a ministry or supervisory body; the chief statistician may report to the minister himself/herself, a permanent secretary, a general director, or advisers in the ministry or a supervisory body to the NSO.

The Valdepeñas committee also recommended that in place of the then NSCB, a Statistics Policy Council (which is referred to in RA10625 as the PSA Board) be established. The council would be an autonomous body, consisting of eminent statisticians, economists, social scientists forming an appointive chair and four appointive members[17], all part-time, serving tenure of three years without prejudice for reappointment (SCRPSS. 2007).

Section 9 of RA 10625 lists the PSA Board responsibilities, including "provide technical assistance and exercise supervision over major government statistical activities". This responsibility, however, according to some experts interviewed gives too much clout to the PSA board and threatens technical independence. The responsibility assumes a required technical competence from PSA board members that experts view is mostly absent. When compared to the functions of the NSCB in Executive Order 121, the functions are exactly the same for the PSA Board in RA 10625 except for the addition of this extra function. Thus, this function of the PSA board should be removed from the law.

The PSA Board composition, according to the statistics law, seems like a weaker version of the now defunct NSCB, with mere "representatives" of national government agencies designated as PSA members, whereas the NSCB had undersecretaries as members (although attendance of actual members in NSCB meetings was typically by a representative). However, the IRRs of RA 10625 correct this by specifying the secretaries (or at least undersecretaries) of the concerned departments as members of the PSA Board. The statistics law prescribes a grouping of the PSA board into five sections (each with at most 7 members): (a) Agriculture, Industry, Trade and Services, Environment and Natural Resources, Prices and National Accounts; (b) Labor and Employment, Population, Women and Gender, Health and Welfare, Education, Science and Technology and other Socioeconomic Sectors; (c) Census and Survey Design; (d) Theoretical Statistics and Statistical Modeling; and (e) Statistical Information

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[17] The chair and members were recommended to be eminent statisticians, economists, social scientists, computer scientists, preferably Ph.D.s or with at least masters degrees, representing some indicative areas such as the following: (a) Agriculture, Environment, Industry, Trade, Finance, Infrastructure and National Accounts; (b) Population & Demography, Health, Education, Welfare, Labor, Employment and other Socio-Economic Sectors; (c) Census and Survey Design, and Analysis; (d) Theoretical Statistics; Statistical Modeling; (e) Statistical Information System and Information Technology. According to the expert committee, " Under EO 121, almost all departments across the government bureaucracy are represented by at least an undersecretary rank in the NSCB. Such composition was originally meant to achieve strong coordination and linkages across the bureaucracy. However, as Annex 8 shows, at NSCB meetings, undersecretaries are routinely being represented by personnel of lower rank. The representation of these departments may even vary with each meeting and, thus, the representatives do not fully participate in the discussion during Board meetings. This leads to instability in the Board composition for such meetings, thereby weakening the functions of the NSCB. The large size of the NSCB membership makes it difficult to arrive at a quorum. The NSCB Secretary-General, who is a member of the NSCB, acted as Chair of the NSCB on two occasions as shown also in the same Annex. These were upon requests of and in the absence of the NEDA Director-General and in lieu of the undersecretary of the DBM who is supposed to be the NSCB Vice-Chair under the provisions of EO 121. For the period 1992 to 2007, it should also be noted that the DBM Undersecretary only attended one NSCB meeting, which may lead one to infer that the PSS is not a priority in the government expenditure program." (p.43)

System and Information Technology. Reportedly, the organization into clusters has been done but only for specific clusters, but this information is not currently available in the PSA website. The only "subcommittee" mentioned in PSA Board resolutions is the subcommittee that reviewed the NNS design. The extent of work of the clusters, relative to the entire Board, will also require monitoring. Given the current structure of the PSA Board of 30 members (including the chair and vice-chair), it is likely that the quality of discussions is not assured. Further, some members may even be dominating discussions. Just like in its predecessor council, i.e., the NSCB, the attendance of "regular members" is likely done by "representatives." A record of attendance, and attendees' ranks, will show whether the old practice of sending lower-level staff, who could change from one meeting to the next, persists in the PSA Board, and even in IACs.

There may be sense in simplifying the PSA Board composition to a few members (e.g., five members). It should be of interest to note that in the case of Malaysia's Department of Statistics (DOS), regular meetings are held by the Chief Statistician, the Economic Planning Unit minister, and the Central Bank Governor. There is also wisdom in considering the original suggestion of the Valdepeñas committee to have statistical policies promulgated instead by experts from several disciplines, especially as experts may have better experience (and time) in assessing the quality of statistical products and services.

In practice, socio-economic statistics, such as national accounts, poverty statistics, and inflation rates are provided to the Secretary of Economic Planning a day before its release in order for the Secretary to be given an opportunity to give a sound reaction to the statistics that would be released. This has been a practice even before RA 10625 came into effect. The statistics law, i.e., RA 10625, makes no explicit mention of separating statistical releases from political statements. A number of statistics experts lament that independence appears to have been lost, with NEDA taking more prominence during releases of official statistics by the PSA, unlike during the times of the former NSCB and NSO when official statistics were attributed to the data producer and not to NEDA by both the media and the public. Many suggests that the PSA is generally still viewed by the public in terms of birth certificates, certificates of no-marriages (CENOMARs), and death certificates, rather than censuses, sample surveys, national accounts. One person even pointed out that up to now, a sign in the Light Railway Transit (LRT) Tayuman station refers to the "National Census and Statistics Office (NCSO)" rather than the PSA, and this has sign has not changed because the public thinks of the PSA still in terms of the NCSO and the CRS. The immediate past PSDP 2011–2017 mentions apprehensions of political influence in the collection and reporting of statistics, given a lack of standards and guidelines on this matter (NSCB 2012). Technical independence is vital for official statistics: if the data are allowed to be distorted to present a positive image, then they become useless as a measure of accountability. There is scope to look into experiences of other countries in the promotion of technical independence of the county's statistics authority. Thailand's NSO is attached to its Ministry of ICT. Statistics Canada is not attached to any specific Ministry, and is required to reports to a Minister (designated by the Governor of the Queen's Privy Council). In practice, the Minister is rotated regularly, with the corresponding Ministry taking the responsibility to defend the budget of Statistics Canada. The rotation is meant to ensure technical independence of Statistics Canada.

2.4. National Statistician

The National Statistician is not only the Chief Operating Officer of the PSA, but also the Philippines' representative in international statistical forums. As the head of the PSA, the

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National Statistician is the country's main statistical authority and symbol for professionalism integrity, and professional independence on statistical matters.

As per RA 10625, the President of the Philippines appoints the National Statistician, based on a list of recommendees provided by a screening committee composed of a representative from NEDA, the BSP, the UP School of Statistics, the UP Institute of Statistics and the Philippine Statistical Association Inc.. The appointment, good for 5 years, is made through open competition. The law calls for the National Statistician to be a professional statistician, explicitly specifying that the National Statistician must have at least a Master's degree in Statistics, and have experience in managing data collection. No processes, however, are specified for the removal of the National Statistician other that the laws in the government bureaucracy, such as the Code of Conduct and Ethical Standards for Public Officials and Employees (RA 6713). The Philippine Constitution points out that "No officer or employee of the civil service shall be removed or suspended except for cause provided by law." Some experts interviewed point out that RA 10625 gives the screening committee responsibility for vetting candidates, but thus far, the two committees that have chosen the first and second National Statisticians have coursed their recommendations to the Office of the President through the Secretary of Economic Planning (which is not mentioned either by the law or its IRRs). The law on screening was patterned from the independent selection of candidates to the Supreme Court. Concerns have been raised about the lack of transparency in the process of selection of the National Statisticians, as it is unclear whether the NEDA Secretaries have transmitted the committee evaluations, or whether an extra layer of screening was undertaken outside of the processes identified in the law.

Following recommendations made by the 2007 expert committee that reviewed the then PSS, RA 10625 provides a rank of undersecretary to the National Statistician who "should be assisted by three Deputy National Statisticians (of assistant secretary rank), one for Statistics Production, one for Coordination and Standards and another for Civil Registration and Administrative Affairs" (SCRPSS. 2007). Although the expert committee was inclined to provide the National Statistician a more prominent government rank, i.e., cabinet secretary, the committee members expressed fears that a cabinet secretary rank may politicize the PSA.

With the more expanded role of PSA for the PhilSys ID, it is important, however, for legislators to review whether the National Statistician should instead be given the rank of cabinet secretary without portfolio (as in the cases of the Chairperson of the Commission on Higher Education, and the Director-General of the Technical Education and Skills Development Authority), and correspondingly a rise in ranks for other PSA officials (viz., Deputy and Assistant National Statisticians) as well. Alternatively, there is also some wisdom in separating the CRS and the Philsys ID from the PSA so that the PSA may focus on its statistics work. There may also be scope in defining a specific charter for the Philippine Statistics Authority, as in the case of offices such as the BSP, the Philippine Competition Commission, since these offices, like the PSA are expected by the public to act professionally in the pursuit of their mandates without political influence, and armed with sufficient resources (both human and financial).

2.5. Statistical Research and Training

In several ASEAN member states, statistical research and training is part of the mandate of their respective NSOs. The Philippine Statistical Act of 2013 transformed the SRTC into the PSRTI and provided it functions to develop research programs on statistical methods; promote collaborations with academia, data producers and users, conduct staff training; or offer

scholarships. The PSA itself has a mandate [18] on methodological and capacity development work since its sheer size does not allow PSRTI to manage the entire statistical training (and research) needs of PSA.

RA 10625 specifies PSRTI to be headed by an Executive Director and given policy direction by the PSRTI Governing Board, the latter of which is chaired by the PSA Board Chairperson with the following as members: the Dean of the UP School of Statistics, the Executive Director of the Philippine Social Science Council (PSSC), a representative of the NEDA and the Executive Director of the PSRTI, and possibly two appointive members from the private sector. The current composition of the PSRTI Governing Board effectively provides NEDA two representatives since the PSA Board Chairperson is the Secretary of Economic Planning. In EO 121, the NSCB Secretary-General was legally designated Chair of the Governing Board of the SRTC. Currently, the Economic Planning Secretary sits as both Chair of the PSA Board and the PSRTI Governing Board. The composition of the latter likewise deserves review as the original proposal of the Expert Committee was for the National Statistician to be the Chair of the PSRTI Governing Board as this would provide the necessary linkage between the PSA and the PSRTI (SCRPSS. 2007). The original draft of the law designated the National Statistician as the PSA Chair, with the Secretaries of Economic Planning and of Budget and Management as Vice-Chairs. Since this was clearly erroneous in protocol, it was corrected in Section 19 of RA 10625 by having the Economic Planning Secretary as PSA Board Chair. However, this correction led to an unintended consequence: it removed the link of the National Statistician with the PSRTI, and provided NEDA two seats in the PSRTI Board. One simple remedy to resolve this issue would be to have an amendment that would replace the NEDA representative with the National Statistician. Another is to replace the current chair of the PSRTI Board with the National Statistician, as was originally intended.

Two very good provisions of RA 10625, Section 20 on PSRTI Fellows and Associates, and Section 23 on Posting of Statistical Personnel in Government Offices, were meant to strengthen statistical capacity development in the PSS. The idea to reengineer the former SRTC into the PSRTI was meant to staff it with in-house research fellows similar to the organizational models of the Philippine Institute for Development Studies and the United Nations Statistical Institute for Asia and the Pacific (SCRPSS. 2007; Albert *et al*. 2008). In practice, PSRTI and its predecessor organization, the SRTC, have relied on resource persons outside of the institution to develop learning materials, and deliver training courses, as well as to lead in the conduct of statistical research projects. The provision on PSRTI fellows/associates was meant to "provide an alternative and potentially more professionally rewarding avenue for trained statisticians to assist the PSS". Hitherto, the PSRTI has not been provided (by the DBM) any plantilla positions on (teaching and research) fellows, despite the specific mentioning of these positions in RA 10625. From the 25 plantilla positions of SRTC, the number of positions at PSRTI has only grown to 37 positions. Experts, however, wonder if PSRTI gets the positions of fellows from DBM, whether there are enough qualified persons who could be persuaded to apply, especially since salary adjustments have been raised at the University of the Philippines, and salaries in state universities and colleges (SUCs) have also been raised to decent levels.[19]

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[18] The PSA is also legally mandated by RA 10625 to "conduct continuing methodological, analytical and development activities, in coordination with the" PSRTI.

[19] An expert pointed out that the dearth of applicants in the PSA vacancies even at deputy national statistician levels, resulting in hiring of two lawyers for two out of the four positions, is solid evidence of the non-attractiveness of official statistician positions. There are also other reasons, including the market for statisticians-data analysts in the private sector.

The PSA has also not yet developed mechanisms for the organization to cross-post staff to other data producers in the PSS, including LGUs, in spite of the IRRs of RA 10625 that calls for the commencement of cross posting two years after the law (and the IRRs) have taken effect. This is reportedly on account of difficulties of PSA to fill its own plantilla positions, but experts points out that this justification is shortsighted as staff are not really lost to PSA or to statistics work for cross-posting; on the contrary, they strengthen coordination, improve statistics coming out of the department, and increase the use of administrative data for statistics production.

The draft law prepared by the expert committee strengthens the idea about cross-posting statistics personnel across various NGAs and LGUs by also assuring the basic statistical competence of these statistics cadre through PSRTI certification, which is not discussed in the IRRs of RA 10625. The DBM should recognize the importance of strengthening the PSRTI as a means of developing the entire PSS given the importance of statistical research for producing better quality statistics, and of statistical human resource development.

In the wake of the emerging data revolution (UN 2013a; PARIS21 2015) and digitization spurred by the fourth industrial revolution (Albert *et al*. 2018), the PSS and NSSs across the world are beginning to integrate traditional data sources with new data sources, including big data (Albert *et al*. 2019). Unlike the common perception of "revolution" as being quick, the data revolution is, however, country context-specific: in advanced economies, the revolution is already phenomenal and transformational, but in several developing countries, especially least developed countries and small island developing states, technological adoption may be weak, thus harnessing the benefits of the data revolution may be far from the capacity even of those in national statistics offices (NSOs) and other data producers responsible for data collection, dissemination, and analysis of traditional data sources. Enabling countries that are not at the frontier to leapfrog and use new technologies, methods, and data sources is challenging without adequate people, institutions, processes, and enabling environments (including statistical infrastructure).

The Philippines, through the PSS, can invest in and be a part of the emerging big data analytics landscape, especially for addressing some data gaps in official statistics. A draft bill, known as the "Big Data Act", was proposed in previous Congresses that called for the establishment of a Big Data Center to be attached to the PSRTI, but the draft bill did not gather enough momentum in the legislature. The PSRTI, however, in coordination with PSA should be regularly engaged in research projects that conduct analytics on innovative data sources, including big data and crowd-sourced data. This, however, may require arming the PSRTI and PSA with a legal mandate over access to these data sources, even on a sample basis, particularly as much of these sources are private sector data holdings. Given the repute of official statisticians in ensuring confidentiality, this can be readily justified, particularly for purposes of addressing data gaps in monitoring the SDGs and for attaining national development goals, including improved resilience to risks of households and communities. For instance, in the wake of natural disasters (such as Supertyphoon Yolanda), there could be ways for the PSA to be given access to data holdings of telcos to look into the movements of people before and after the disasters. Currently, the PSA, with the support of the Asian Development Bank (ADB) has been examining the use of satellite imagery (particularly luminosity and other remote sensing data) to improve the precision of small area estimates of poverty that are traditionally integrated from data sourced from household surveys and population censuses (Albert *et al*., 2019). According to the current Director of the Advanced Science and Technology Institute (ASTI),

the PSA has made no efforts thus far to make use of satellite imagery data from Philippine satellites for integrating these with their traditional data sources (Marciano 2019).

The PSA, however, is at the forefront of testing out various new data sources, including crowd-sourced data. As was pointed out earlier, the PSA is examining satellite imagery, from publicly available sources, and integrating these with census and survey data to producer more reliable small area estimates of poverty, but work has not commenced on using satellite imagery data for improving agricultural statistics, as has been done in Thailand and Lao PDR (ADB 2018). Pursuant to PSA Board Resolution No. 04, s. 2016, the PSA has undertaken a project (with the support of PARIS21) on establishing collaboration between PSA and civil society organizations (CSOs)/ non-government organizations (NGOs) on possible use of citizen-generated data (CGD) in official reporting for the SDGs and on documenting the possibility of using 27 CGDs to address SDG data gaps, particularly on Tier II and Tier III SDG indicators (PSA 2018a).

Decades ago, NSSs generated statistics only from administrative data, censuses, and surveys. While rarely direct substitutes for data collected from censuses and surveys, administrative-based data can help reduce both the cost of statistics generation and the burden on respondents of surveys and censuses. While data quality assessment frameworks (DQAFs) have been developed at the PSA for various processes in statistics production, these have not been mainstreamed particularly for examining administrative data collected especially by data producers other than the PSA. The opportunities, however, for PSA to influence other data producers could be enhanced especially if the PSA starts to implement cross-posting its staff, even on a pilot basis, e.g., to select departments such as the Department of Education, the Department of Health, the Department of Social Welfare and Development.

Statistics from new data sources, particularly big data (that results from use of mobiles and other electronic devices, social media, search engines, sensors tracking devices and satellite imagery) can complement, and supplement statistics from traditional sources used to determine progress toward targets for national development plans, and the SDGs However, this type of data is no necessarily readily available for access and use by statistical organizations in an NSS. Further, official statisticians also have to tread carefully in exploring the value of these new data sources when they are integrated with existing data sources as it is important to examine how representative big data is. Unlike conventional data sources which have well-defined target populations, some types of big data may not represent the underlying population of interest (Cox *et al*. 2018). To maximize insights with various data sources, the PSRTI and the PSA together with other members of the data ecosystem[20] need to ensure data interoperability, i.e., the ability to access and process data assets from multiple sources and multiple formats without losing meaning and then integrate these assets into coherent information products or services e.g., for mapping, visualization, and other forms of analysis (Morales and Orrell 2018).

3. Budgetary and Human Resources

As pointed out in the UN FPOS, that was adopted by UN members states in UN General Assembly Resolution 68/261 of 29 January 2014 (UN 2014a),

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[20] Parsons et al (2011) define the data ecosystem as "the people and technologies collecting, handling and using the data and the interactions between them". Data ecosystems are very complex, involving many actors at the data supply and data use side, with each having different roles, capacities and relationships.

Principle 1. Official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation

Thus, official statistics are public goods, freely accessible to all interested actors (as well as inexhaustible) for a net (economic or welfare) gain; more precisely, official statistics are "global public goods" due to their global access and use (Round 2014). A major feature of public goods is that they are subject to market failure and, users have an incentive to freeride. A consequence of the free-rider problem is that if goods are produced in a market situation there is likely to be an under-provision. Consequently, NSSs are supposed to be largely financed by national governments, with the development community providing occasional support.

3.1. Statistics Budget

One interesting SDG indicator that describes ongoing statistical support to developing countries is SDG Indicator 17.19.1, i.e., "Dollar value of all resources made available to strengthen statistical capacity in developing countries". The data for this SDG Indicator is sourced from PARIS21's Partner Report on Support to Statistics (PRESS), based on data from Creditor Reporting System[21] as well as PARIS21 PRESS online survey (PARIS21 2018a). More details[22] on how the data was compiled by PARIS21 for this indicator are given in the SDG Indicators Metadata. From 2006 to 2016, the Philippines has, on average obtained 5.86 percent of resources of international development partners made available to all ASEAN member states (**Table 3**). Without the 2015 support from donors, the average share of resources for statistics in ASEAN given to the Philippines was only 2.19 percent. In the period 2006 to 2016, the bulk of development support from donors for ASEAN member states has typically gone to Cambodia (21.91%), Myanmar (22.68%), and Viet Nam (31.94%), with a substantially set of resources going to Myanmar starting 2012 (and generally less to Cambodia over the same period).

Table 3 Dollar value of all resources made available to strengthen statistical capacity in developing countries (current US thousand dollars)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Brunei Darussalam											5.0
Cambodia	5058.9	2247.3	1695.8	6905.0	4401.6	2473.5	5037.9	7249.8	377.8	2118.8	2219.8
Indonesia	0.0	1067.5	787.1	121.8	215.5	47317.0	261.4	71.7			615.6
Lao People's	468.5	266.1	304.2	288.8	1231.7	1059.7	2987.5	8193.7	474.3	689.1	507.0

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[21] https://stats.oecd.org/Index.aspx?DataSetCode=CRS1

[22] The first source of data is the OECD Creditor Reporting System (CRS), which records data from OECD Development Assistance Committee (DAC) members and some non-DAC donors, and provides a comprehensive accounting of ODA. Donors report specific codes for the sector targeted by their aid activity. Statistical capacity building (SCB) is designated by code 16062. Second, when SCB is a component of a larger project, it is not identified by this code, causing the CRS figures to underestimate actual levels of support for international aid. PARIS21 seeks to reduce this bias by searching project descriptions in the CRS for terms indicating SCB. The methodology is presented at http://www.paris21.org/PRESS2015. Third, and finally, the PARIS21 Secretariat supplements this data with an online questionnaire completed by a global network of reporters. The questionnaire covers a subset of the variables collected in the CRS and some additional variables specific to statistical capacity building. Reporting to the questionnaire is voluntary, offering an opportunity for actors to share information on their statistical activities. Reporters to this questionnaire are countries that do not report to the CRS, as well as multilateral institutions with large portfolios of statistical projects that have requested to report to the PARIS21 Secretariat directly.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Democratic Republic											
Malaysia	274.2	210.9	179.4	14.2	1.3	179.4	92.1				21.3
Myanmar	1187.1	1046.1	442.2	83.1	459.1	401.3	68826.7	40148.9	1938.8	5379.8	1843.6
Philippines	773.0	375.6	138.3	437.9	211.8	289.9	1907.1	538.0	268.4	6576.9	114.8
Thailand	510.9	313.9	340.6	51.2	354.6	99.8	125.6	125.3	47.0	105.0	43.5
Viet Nam	5598.9	64435.5	5737.5	739.8	7331.4	2257.2	8354.4	1485.3	6689.3	370.8	1055.6

Source: Global SDG Database https://unstats.un.org/sdgs/indicators/database/

Financing of statistical activities in the PSS is primarily sourced from the annual Government Appropriations Act (GAA). According the 2016 national CRESS report (PSA and PARIS21 2016), over the 2012-2014 period, government statistical agencies reported that 60.2% of finance for statistical operations (except for the development of the PSDP) came from the GAA while 35.4% came from locally funded projects and 4.4% came from other government sources. PSS agencies reported minimum funding from development partners for their statistical operations. Development partners likewise reported so, and this is validated by the data in Table 3.

RA 10625 does not mention measures for balancing the cost and usefulness of statistics. The implicit assumptions are that PSA and other data producers would be given the appropriate budgetary resources by government, and that developments in statistical methodologies can assure data quality.

Budgets for statistical activities could theoretically be accounted for in government but this is currently not tracked across all government entities in the Philippines. In collaboration with the DBM, the PSA has initiated the development of a coding/tagging system for statistical activities for budget purposes under the Program Expenditure Classification (PREXC). Even without all these details, it can be surmised that statistics budgets are a meager share of both government expenditures and the gross domestic product (GDP), especially as the bulk of the statistics budget should be going to the PSA. As earlier pointed out, the PSA produces many socio-economic statistics sourced from its major statistical activities. While RA 10625 neither automatically appropriates nor guarantees budgets for activities related to designated statistics subject to oversight by the PSA Board and/or Congress as was suggested by the 2007 expert committee that reviewed the then PSS (SCRPSS 2007), the PSA has so far managed to conduct many of its major statistical activities in a rather regular cycle with substantial support from the government.

According to the Philippine Country Report on Support to Statistics (CRESS) during the period 2012-2014, the total government agency budgets for statistics in the Philippines was registered at PhP 10.6 billion, corresponding to 0.17% of the national government budget in the same period (PSA and PARIS21 2016). At the surface, the share of government spending for statistical activities in the Philippines in proportion to overall government expenditure is comparable to the spending in Viet Nam (GSO and PARIS21 2016), or even that of Indonesia (at 0.18% of total government spending. One might conclude that the Philippines provides adequate investments and support for official statistics, but this spending is really quite meager. According to former Statistics Division Chief Andrew A. Flatt of the UN Economic and Social Commission for Asia and the Pacific (Flatt 2016), even as early as the 1990s, a typical budget of a central statistical authority was between 0.1 and 0.2 % of the overall government budget,

and depended a lot on the degree of centralization of the NSS. Thus, the PSS and similar NSSs in developing countries have found themselves having to deal with substantial "need deficits," i.e., gaps between required and approved budgets from government.

Support from government to finance statistics has not been at the top of budget priorities in the Philippines, and across the developing world (and likely even in advanced economies) partly because of political economy factors. Processes for the provision of budgets are typically one size fits all, and it can be difficult for budget ministries to justify costs for investments in statistics production, statistical research and statistical capacity development. Budget managers could easily get overwhelmed about the costs of data collection activities in the PSS for measurement and monitoring of hunger and child nutrition (either through obtaining heights and weights of children, or through measurement of food consumption), and might wonder whether these data collection costs may be better used for actual programs to improve child nutrition and reduce hunger. In the Philippines, statistics units of departments (such as the former BAS under the then Department of Agriculture) have often resorted to constantly requesting other units within their respective departments for budgets from programs and projects under these agencies to supplement funding for data collection. This is largely why the Valdepeñas committee recommended the consolidated of BAS with NSO and other data producers (SCRPSS. 2007).

During the 2019 National Convention on Statistics, the former National Statistician described the many undertakings of the PSA since its birth (Bersales 2019). The presentation reported that the PSA budget is set at PhP 7.32 billion for 2020, this is 10.45 percent higher than the PhP 6.63 billion this year (**Figure 1**). The 2020 PSA budget is a huge increase of 342.69 percent from the consolidated budget of PhP 1.65-billion granted to the then major statistical agencies (MSAs) NSCB, NSO, BAS and BLES prior to the establishment of PSA in 2014.
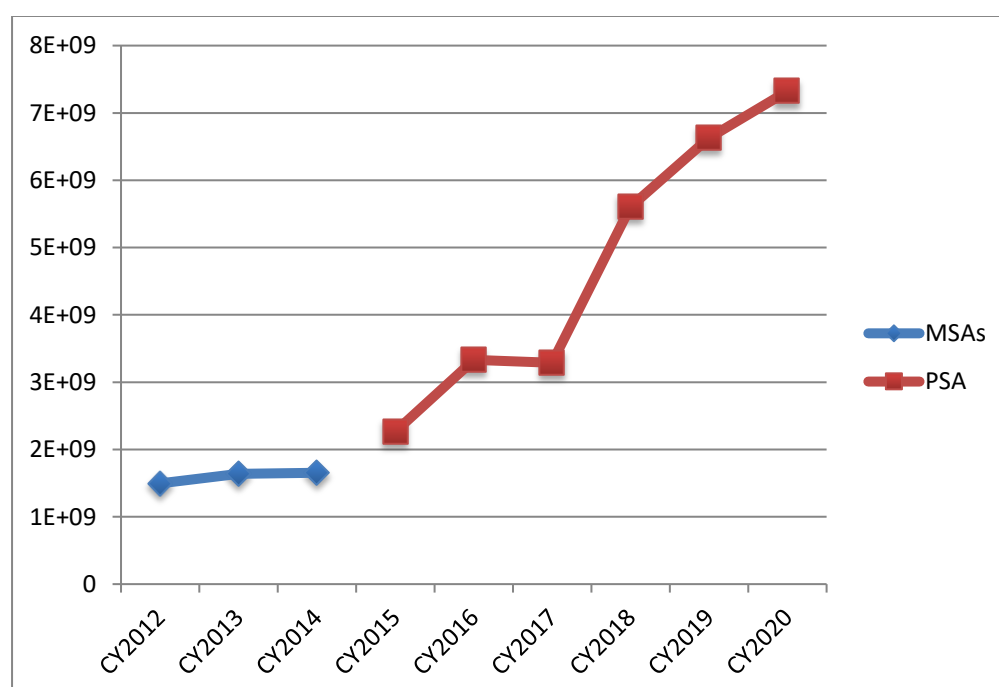
Figure 2 Budget of PSA vis a vis Consolidated Budgets of Former Major Statistical Agencies (MSAs) NSCB, NSO, BAS, and BLES: 2012-2020

Source: Bersales (2019)

In its 2018 accomplishment report, the PSA mentioned that it had an annual operating budget of approximately PhP 3.24 billion, slightly less than the previous year figure of PhP 3.29 billion (PSA 2018). As shown in Figure 2, the operating budget of PSA in 2018 further increased to PhP 5.60 billion as a result of the PSA's responsibility to manage the roll out of the Philsys, i.e., the national ID system (Bersales 2019). While the sizeable increase in resources demonstrates the government's confidence in the PSA and its ability to oversee large-scale, cross-government programs, there is general concern from a number of interviewees about the technical capacity and absorptive capacity of the PSA, particularly on the Philsys. Recent reports on the 2020 budget for the PSA suggest that the national ID budget is not even assured[23].

A medium-term expenditure framework (MTEF)[24] study for the PSA suggests that the trends in budgetary support for NSCB, NSO, BAS, and BLES, compared to that received by the PSA are not so apparent because of unevenness in budgetary requirements that depend on the schedule of the conduct of 31 major sample surveys and censuses over the years (Manasan 2017). The same study pointed out that the average the total budget allocation for the PSA's regular programs and activities has actually been stagnant at 0.0148% of GDP from 2008-2017 although it did exhibit some increase above this level in 2015-2016. (**Table 4**).

Table 4. Budget allocations for the PSA and its predecessor entities as per the Government Appropriations Act (GAA): 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
(in PhP million)										
NSO	979	1,397	3,216	1,191	1,681	3,170	2,491			
NSCB	78	83	84	87	89	101	120			
BAS	230	250	250	299	301	330	316			
BLES	22	27	28	24	28	33	33			
PSA								4,951	3,330	3,287
Total	1,310	1,757	3,575	1,601	2,100	3,635	2,959	4,951	3,330	3,287
% of GDP	0.02	0.02	0.04	0.02	0.02	0.03	0.02	0.04	0.02	0.02
% of Total New Appropriations	0.12	0.15	0.27	0.16	0.17	0.27	0.18	0.27	0.16	0.13
Memo Item:										
Censuses/surveys conducted during the year	CPBI, FIES1, FLEM MS, NDHS	APIS, FIES2, pre-CPH	CPH, APIS	APIS	FIES1	CAF, CPBI, APIS, FIES2, FLEM MS, NDHS	APIS, pre-CPH	CPH, FIES1	FIES2	APIS, NDHS

Source: Manasan (2017)

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[23] https://www.bworldonline.com/no-firm-budget-set-for-national-id-system-to-depend-on-govt-generating-extra-revenue/

[24] MTEF is a multi-year public expenditure planning exercise which is used: (a) to determine the future resource requirements of an agency's major outputs given its existing policies and programs, and (b) to assess the resource implications of future policy changes and any new programs identified in the agency's strategic plan (Manasan 2017).

Further, according to Manasan (2017), after adjusting for variation in conduct of periodic censuses and surveys over the years, the total budget allocation for the PSA for the years 2015, 2016 and 2017 net of the allocation for special surveys and activities is actually even lower than in previous years when expressed as a percentage of GDP. Further, she reports that:

> "For the most part the PSA does not actually apply the standard output rates indicated in the said censuses'/ surveys' manual of operations for the various business processes involved in the conduct of the censuses/ surveys in the preparation of its budget. … Key informants note that the budgets proposed to the DBM are typically arrived at in an incremental fashion, i.e., they are based on the previous year's budget plus some adjustment to account for inflation. … Some of the PSA staff interviewed report that they behave this way because the DBM does not always approve all of the budget items that they propose including those items that are critically needed for their operation. For instance, the budget allocation for some surveys (e.g., APIS) exceed budget requirement but the difference is used for activities which are underfunded (e.g., LFS). Thus, while the PSA's budget allocation in the aggregate may not necessarily be in excess of its total requirements, the allocation across activities is certainly not aligned with the requirements of specific programs and projects resulting in lack of transparency and inefficiency."

According to Manasan (2017), "a number of PSA program managers also report that some regional and provincial offices tend to be severely underfunded such that said offices do not have enough allocation to pay for their mandatory expenditures and the "excess" allocation for some surveys are used to fund these requirements otherwise many of the survey-related activities that are done in the regional/ provincial offices may suffer." The many issues and suggestions in the MTEF study, should help the PSA develop a strategy for obtaining the right resources, particularly by advocating to the economic managers to accept the PSA's MTEP, and thus assure full government support for designated statistics produced by the PSA. This, in turn, can serve as model for other data producers in the PSS, as well as the PSRTI.

Virola (2016) also took note of the mediocre (less than 10%) increase in the budget of the PSA in 2016. The near-inflation increases in PSA's nominal budgets could be a result of the weak absorptive capacity of the PSA to spend its budget during the transition period, coupled with the difficulty of hiring PSA personnel.

There are further concerns reported by interviewees. While a budget for the use of Computer-assisted personal interviewing (CAPI) in the population census, it has not been allotted in the 2020 Government Appropriations Act (GAA). In consequence, the PSA will have to use 1990s technologies for the 2020 census!

Even for the PSRTI, regular budgets remain meager at not over PhP 40 million in recent years (i.e., PhP 36.5 million in 2017, PhP 33.7 million in 2018, PhP 38.4 million in 2019) despite the growing need for statistics investments, although these nominal budgets have doubled from what the SRTC had as budgets a decade ago (i.e., PhP 15.5 million in 2008, PhP 13.8 million in 2009, and PhP 16.1 million in 2010).

3.2. Statistical Human Resources

The PSA's Transparency Seal provides openness in access to government information: PSA budgets as well as milestones on the PSA operations are available online. The 2018 PSA annual

report lists the PSA budget as PhP 3.24 billion roughly US$61.5 million (PSA 2018). With 2,378 PSA employees, this results in a budget per employee of US$25,900 in nominal terms, which is rather high in comparison with other central statistical organizations in the ASEAN. However, the density of 2.2 statisticians per 100,000 people in the Philippines is low in comparison. As of 2018, Malaysia's Department of Statistics had 2,877 filled slots (in its 3,184 positions), which results in 8.9 statisticians per 100,000 people, the highest ratio in the ASEAN (DOSM, 2018). Further, DOS-M expenditures were at RM 174,501,350, about US$41.7 million. Publications of Singapore's Department of Statistics make mention neither of the number of DOS staff nor its annual operating budget, but the Census of Population 2010 of Singapore was reportedly manned by roughly 500 staff, which translates to 9.8 statisticians per 100,000 people. Viet Nam's General Statistics Office (GSO) employs about 5,300 people as of 2019, or a density of 5.5 statisticians per 100,000 people (Viet Nam GSO 2019). Further, GSO has more than a dozen of its upper management having Ph.D.'s, in contrast to only three for the PSA (of which one holds a Ph.D. in Economics, while the other two have a Ph.D. in Statistics). Indonesia's BPS Statistics Indonesia has a workforce of 17,000 staff, which translates to 6.4 statisticians per 100,000 people. BPS also works with a budget equivalent to 0.32% of Indonesia's total government budget expenditure; the annual budget per employee in 2019 was roughly US$35,900 in nominal terms[25].

During the period 2012-2014, the Philippine government had a decline in the number of government statisticians, mainly attributed to the reorganization of the PSS (PSA and PARIS21 2016). Several skilled statisticians in the PSA retired with extra benefits provided by RA10625. Replacing these retirees has been challenging for the PSA, and failure to put attention to human resource development (from the hiring of competent staff, to providing all staff with learning and development opportunities) will have dire consequences on the quality of work and outputs in the PSA, and on its standing in statistical production in the international community.

Across the PSS, government personnel tasked in undertaking statistics-related functions among responding agencies to the CRESS represented only 12.2% of the total number of government human resources in these agencies, suggesting a rather limited pool of statisticians in government service (PSA and PARIS21 2016). Years after its establishment, the PSA continues to have difficulties in hiring staff. As of 2018, PSA has filled up only 85% of its 2799 plantilla positions. Three years prior, it only had a total of 1,943 positions filled up (representing 69.4% of tits positions). This is arising partly because of the limited supply of statistical human resources. Few higher educational institutions in the country offer statistics degrees and of those that graduate from statistics, not all join the PSS, especially given the high demand in the private sector for data analysts and the emerging data scientist occupation. There is also very limited interest and incentive to pursue statistics and other scientific careers. Further, according to some people in the academe interviewed for this study, some statistics students sent to the PSA for practicum, i.e., on the job training (OJT), did not have good experiences. Some of these students were made to perform clerical responsibilities, such as folding letters into envelopes. Another OJT served as an enumerator and had to resort in creative strategies to "look for missing households", but he was not given a copy of the survey

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[25] According to news reports, e.g. https://www.inews.id/finance/keuangan/dpr-setujui-pagu-anggaran-6-kementerian-dan-lembaga-simak-rinciannya https://finance.detik.com/berita-ekonomi-bisnis/d-3572070/anggaran-sri-mulyani-bappenas-bps-hingga-bpk-dipangkas and https://www.reuters.com/article/us-indonesia-president-budget/indonesia-president-proposes-178-billion-budget-for-2020-with-focus-on-education-idUSKCN1V60KI, the budget of BPS in 2019 was 7.92 trillion rupiah, while government wide budget was 2,455 trillion rupiah (thus the share of BPS budget was 0.32%), while the number of BPS staff was 15,658 as per 2017 data (although ideally it should be 21 thousand), as per information here in this link https://www.liputan6.com/bisnis/read/3190933/bps-minta-tambahan-ratusan-cpns-di-2018.

operations manual. This suggests the lack of supervision in field work, as survey operations manuals may not be utilized in the field. One interviewee, who worked for a time at a statistical organization in the PSS, pointed out "*nabobo ako doon.*" Even graduates of related statistics disciplines may not find the compensation attractive, although in theory, the PSA, PSRTI and other data producers in the PSS could make use of the Magna Carta for scientists, engineers, researchers and other S&T personnel in government (RA No.11312) to provide increased benefits and compensation for its staff.

According to interviewees, complicating human resource issues at the PSA is the dwindling institutional memory that arose out of the retirement of former staff of the major statistical agencies which had repercussions across operations, including the convening of IACs that would have given some guidance to operations. These staff were extremely competent but chose to obtain early retirements because of incentives given by RA 10625. While processes could have been arranged for a smooth turnover of knowledge from retired staff to their respective successors at the PSA, interviewees mention that a PSA memo was issued regarding the restriction of movements of "outsiders". Many retirees felt alluded to this, and consequently chose to distance themselves from the PSA. In fact, more people were targeted for interview for this study, but a quarter of them refused to be interviewed because they felt they do not know anymore what is happening in the PSA.

It does not help also that systems are being developed to even discourage loyalty to the PSA. One expert mentioned that the PSA established a policy/memo on tardiness wherein a personnel who comes in late should submit a notarized excuse letter stating their reason for tardiness. Such policies are only time-consuming with little value in developing human resources.

The 2017 PSA Annual Report describes its workforce: females are reportedly more dominant in almost all age groups except ages 30-39 in the Central Office, and 20-29 and 60-65 in the field offices (PSA, 2017). On the other hand, in 2017, new appointment of Job Orders dominated the employment in the PSA Central Office while promotion of regular employees showed the highest number in the Field Offices.

Cognizant of the vastly changing socio-economic landscape, the PSS in its PSDP 2018-2023 presses for greater statistical capacity development through technical, professional, and career development (PSA 2018):

> "To ensure relevance and strengthen the role of the country's statistical system as a major partner and game changer in the country's development, it is therefore imperative to continually build the capacities not only of the statistical workforce but also of the statistical organizations and institutions to respond effectively and efficiently to the ever-growing demand for statistics by decision makers, planners, researchers, and service providers in all sectors of society … Statistical capacity is a nation's ability to collect, analyze, and disseminate high-quality data about its population and economy."

To increase the pool of statistics and allied fields scientists, the PSA and PSRTI should work in partnership with the Department of Science and Technology (DOST) and the Commission on Higher Education (CHED), and SUCs should put their heads together to come up with a long-term human resource development plan for statistics and allied fields. Everything should be on the table, including inviting *balik* scientists, sending local PhDs for postdoctoral posting abroad, as well as SUCs to house field offices of the PSA.

Statistical human resource development should be anchored on a direction for change, inspiring commitment and allowing the statistical organizations and the entire PSS to respond quickly to stakeholders' needs as well as to challenges set forth by other players in the data ecosystem. It should be a coordinated set of actions aimed at integrating the PSS culture, systems and people rules to deliver higher performance and productivity. It should be a 'roadmap', enabling senior managers across the PSS make the links between the PSDP and the workforce and enable the PSS to prioritize people in relation to organizational management and leadership, cognizant of user demands for data quality.

Statistical research and capacity development are thus meant to ultimately improve not only the people and institutions behind the statistics, but also data quality. Workforce transformation in the PSA and the entire PSS is essential to build a workforce of the right size, shape and skills needed for the future, especially given the continuing changes in socio-economic landscape in the country that official statistics are supposed to describe with accuracy and timeliness. The PSDP mentions that

> "the professional and career development of statistical personnel is essential to the development of quality statistical workforce in the PSS … Primarily, the Philippine Statistical Research and Training Institute (PSRTI) will be crafting an integrated framework on statistical capacity and action plan to improve the statistical human resources for the PSS. To ensure constant supply of competent data collectors and enumerators, the PSA, in coordination with the PSRTI and the Technical Education and Skills Development Authority (TESDA), is preparing the competency standards in line with the implementation of Training and Certification Program for data collectors."

The PSA is currently structured in a traditional hierarchy based on product and services (i.e. sectoral statistics production, statistical coordination and conduct of censuses, civil registration and administrative services, and the Philsys). In this arrangement, staff own their processes from end to end for their own output, and undertake their own design methodology. Whilst there are benefits to this such arrangements, this makes people tend to work in 'silos'. Organization of the PSA by 'function' can lead to greater quality as employees specialize in areas such as data collection, methodological research, statistical coordination, or statistics dissemination. This also forces a greater collaboration amongst staff along the statistical value chain.

As pointed out earlier, the PSA often tends to work on its own statistical capacity development needs, rather than subcontract this to the PSRTI (given that the PSRTI is a very small organization). However, it is also unclear to what extent the PSA's Human Resource (HR) Division and other support units can undertake the full range of HR activities needed by the PSA. How many training hours are given to statistics personnel (and to support staff, especially those engaged in ICT tasks), on average per year? It can be difficult for PSA to advocate for using data and statistics for development, if the PSA cannot show that it also uses data and statistics on its workforce to provide lifelong learning opportunities for everyone.

While PSA staff may have the enthusiasm and interest to constantly learn new skills, and the PSA undertakes annual workforce planning and various learning and development activities, it is likely that units in the PSA do not have a full knowledge to consider in advance the needs of the PSA from an organizational 'system wide' perspective. Some new work (such as big data

analytics) may have been introduced, particularly because of some demands by units within the PSA, as well as support from international organizations (such as ADB) but it is likely that the outcomes required from statistical training and other capacity development activities are unclear, particularly to what extent these activities could be used to influence decisions and changes for improving overall data quality and trust in data.

According to those interviewed for this study, there are plans for the number of positions at the PSA to increase by another thousand for the development and maintenance of the Philsys. But increased staffing numbers alone will not deliver quality statistics. It is important for PSA to be strategic and actively assign resources to key priority areas (such as HR development) that will serve to demonstrate performance improvement and progress in the quality of its statistics to data users.

While data analytics has been heralded as a crucial component for improved management, it is unclear whether the PSA generates and uses data on its staff to produce relevant insights that can lead to action on capacity development. While the PSA regularly undergoes a Capacity/Competency Needs Assessment (CNA) among staff to determine what kind of training or capacity building activities will be planned for whom (participants), when (schedule or time table) and how long (duration), it is very likely that the PSA, like many big bureaucracies in government, does not have a regularly updated dashboard of people management information that could be used by PSA management to understand trends in human resources (for example, length of time to recruit, levels of attendance or employee turnover, specific skills gaps of staff), to decide with objective criteria who among the PSA staff can benefit the most from training interventions, and to consider early action to address any emerging risks regarding HR issues. Collecting data on staff can be considered expensive and time consuming, but new technologies can make this much easier if HR professionals can have a useful HR database, undertake data analysis quickly, and provide a real-time view of a situation to PSA management that is not always possible with traditional methods. When PSA is invited to international training activities/conferences, personnel selection might be based on a trivial criterion, such as which staff have not yet been given the chance to travel abroad officially, i.e., *"Kung sino yaong hindi pa nakakaalis."*

As regards PSS-wide statistical capacity development, the PSRTI has conducted a total of 77 statistical training programs from 2016-2017 alone meant to upgrade the knowledge and skills of 1,713 participants in the public sector. More than half (40) of these training programs were part of the PSRTI's regular training program that are offered yearly, while the rest were demand-based customized courses. While PSRTI aims to work on improving the statistical capacity across the country, it is unclear to what extent it is currently working to improve capacities among LGUs, especially given the new law on the CBMS. Plans are being developed to have satellite offices, although this is not a new idea, as the SRTC, its predecessor, identified statistical training partners among state universities and colleges (SUCs). It is also unclear whether the PSRTI has learned lessons from this experience.

Experts have also noticed that PSRTI does more training than research, though in both cases activities are short-term and do not really address the skills required for leading and conducting statistics research and development work.

While the PSDP discusses the need for increasing the rational use of statistics, it does not discuss the concomitant need to increase the knowledge and skills of data users given the varying competence among data users (and producers) at the national and local levels. It is

certainly important to promote demand for statistics as well as better use of statistics, for both national (and local development) policy making, and accountability to citizens. Advocacy of rational use of statistics often stops with dissemination of statistics, with a focus on reporting statistical indicators. PARIS21 developed a methodology of Use of Statistics indicator for National Development Plans (PARIS21 2018b; PARIS21 2019). Data provided from PARIS21 for ASEAN suggests a generally increasing trend on use of (official) statistics in the Philippines, although progress appears to be better in ASEAN member states with less statistics development (**Figure 3**).
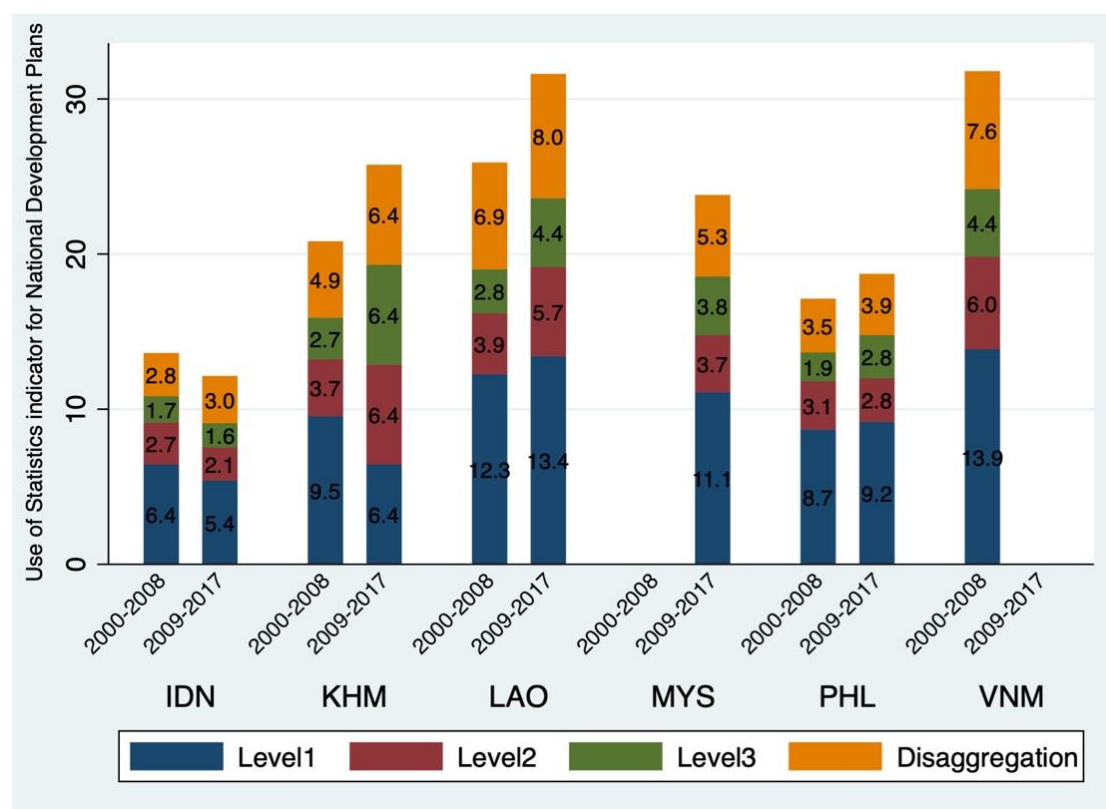
Figure 3 Use of statistics in policy making in ASEAN member state: 2000-17

Note: The aggregate score of the indicator captures the use of statistical concepts in national policy documents across levels of use (basic – level 1, diagnostic – level 2, statistical analysis – level 3) and the level of disaggregation. The higher the score, the more sophisticated the use.
Source: PARIS21 (2018b), "Proposing a Use of Statistics indicator in national development plans", PARIS21.

Release of reports on various official statistics stimulate discussion on the results of efforts to improve socio economic conditions. When it comes to official statistics, gathering data and reporting statistics are important, but not half as important as interpreting statistics correctly as well as supporting capacities for greater use. Even the PSDP chapters on statistical capacity development only look at the individual and institutional levels, but neglects to discuss the enabling environment, particularly the data ecosystem, which includes data users (and re-users). Rational and effective use of statistics by policymakers, and various development stakeholders is crucial if the Philippines is going to achieve the PDP, the SDGs and other international development targets, and go beyond simply monitoring progress towards the national and global targets. This requires initiatives on improving capacities of data users to explore the wealth of data generated by the PSS , and to undertake deeper examination, not just of trends but of the underlying root causes of the barriers and bottlenecks to achieving development goals, aside from the intersectionalities of development goals.

In this day and age, massive open online courses (MOOCs), such as those offered in Coursera, edX, Udacity, as well as distance learning courses offered by international organizations allow anyone to learn new skills and competencies in statistical thinking, processing, and analysis. The PSS, particularly the PSA will need to be strategic in developing lifelong learning systems, particularly in ensuring that MOOCs, preferably developed by the PSRTI, are used as tools for improving skills and competencies of PSS staff (and data users), that such people are rewarded for making use of such training modalities, and that everyone gets learning opportunities to realize their full potential.

As per the PSA's Strategic Plan 2016-2020, the PSA aims to capitalize of the passion, pride and professionalism of many PSA employees and their commitment to enhanced performance (PSA 2016). The challenge will be to ensure that this become a PSA culture of innovation and excellence, and to mainstream work ethics even to new entrants. Undoubtedly, sustaining high levels of performance depends on high levels of motivation of staff. The strategy encourages a simultaneous focus on changing workplace behavior (of staff and managers), building skillsets, improving processes, and raising performance to enable the delivery of the PSA's business plan. For this to happen, it is crucial that all PSA staff understand the statistical value chain and their contribution to the success of the PSA in meeting its mandate and stakeholder demands. The statistical value chain consists of a number of discrete processes and activities that track the required steps in the design and delivery of the statistical products and services of the PSA to the ultimate data user/consumer. Over time, the value chain and the strategy should enable all PSA employees to see the impact of their contribution to the overall PSA goal of generating quality official statistics, as well as to have a feeling of belonging.

Clearly, the PSA and the entire PSS need a diverse, skilled and resilient human resources, ready for change and unforeseen challenges, fully engaged and committed to the highest professional standards, and able to deliver creative solutions and innovations. The PSS, and the PSA in particular, should be having a system in place for lifelong learning for all staff (from managers to methodologists to IT and administrative staff). Administrative and other support staff need to digitize work, especially in procurement of services. Those entrusted with ICT tasks need to develop in-house tools, e.g., HR and administrative systems, that can be helpful for fast decision-making, and themselves should be given continuous technical training to improve their skills. All staff also need to build of their soft skills to empower them to work with each other and to achieve high professional standards throughout their career. Technical skills need to continuously improve: while PSA has had experience with data curation, but it is unfamiliar with unstructured data. This will require not only training programs for re-tooling and learning new methods, but also formal degree programs to build capacities in analytics.

The PSDP has a goal of increasing the number of individuals taking degree programs (MS, PhD, Diploma) through scholarships, grants and partnership with academic institutions. More than a decade ago, the SRTC, through the Re-engineering the PSS project, had a funded initiative to send PSS staff to masteral and doctoral programs, but while most scholars finished the masters programs, none of those sent for Ph.D. programs finished their schooling. The former BAS also was given a large scholarship fund sourced from US AID. This fund was used to send people to enroll in Master of Statistics (MOS), and Master of Science (MS) in Statistics programs at the UP School of Statistics.

However, the culture and work environment in the PSA and the PSRTI need to change in such a manner that newly acquired skills will be welcome and put to use. Experts report that when

BAS sent many staff for graduate degrees, these MOS/MS graduates found BAS not receptive to any change in its surveys operations. These graduates had to return to their old work routines and posts – and eventually left BAS.

Behavioral insights are needed to determine what can incentivize current PSS staff to pursue graduate studies in statistics. It is also important to determine if graduate program scholarships in statistics or even undergraduate program scholarships under the Department of Science and Technology Science Education Institute (DOST-SEI) can be given a return service to the PSA, assuming extra incentives are provided by the PSA for perseverance of these scholars.

The increasing and emerging complexity of the data ecosystem, including the emergence of new data providers, data users, and data sources, all fueled by technological change, are calling for new skills and organizational practices in the PSA and the entire PSS. Soft skills, such as management and leadership, should be increasingly important across statistical organizations in the PSS. Further, understanding the motivation for partners and beneficiaries to participate can make statistical capacity development programmes more relevant and sustainable.

3.3. ICT Resources

In any organization, the office environment in which one works (from the structural and physical security conditions, to the level of accommodation in office space, to the level of adequacy of furniture) affects the quality of work done. This is especially true of data producers in the PSS and the PSRTI. A Data Revolution is emerging amidst that rapid changes in Information Communication Technology (ICT) and the phenomenal use of ICT tools (PARIS21, 2015; UN 2013). Hard ICT infrastructure (such as computer work stations, servers firewalls, routers and ICT appliances), as well as statistical software and access to the internet are essential in statistical organizations. These are crucial support systems for work on data capture, data processing and analysis, data quality checks, effective dissemination and communication of statistics, as well as for the conduct of methodological research in statistics.

If PSA and the PSRTI were to look into big data analytics more seriously, they should be going beyond the use of free software such as R or Python. Retrieving and examining big data streams require adequate technological infrastructure. Many current data mining tools are neither suitable nor efficiently used for large datasets using the conventional sequential computers that the PSA and the PSRTI currently have. If the PSA and PSRTI intend to routinely use big data and integrate these with traditional data sources, they will need better ICT infrastructure and ample committed bandwidth to download these big data sources, as well as to catalog, organize, and process the complex collage of data in a sufficiently timely manner. A recent practice in big data analytics is utilizing a cluster of computers running a framework tool such as Hadoop-MapReduce, and/or cloud computing and processing (Agrawal *et al*. 2011).

The availability of interfaces by some statistical packages has significantly contributed to the use of big data analytics, but the cloud has also emerged as an ideal computing environment for big data. On the infrastructure side, cloud computing provides options for accessing and managing very large data sets as well as for supporting powerful infrastructure elements at a relatively low cost. Further, an increasing number of software held in a hybrid cloud are also capable of performing the processing and data integration tasks.

As pointed out earlier, a serious problem faced by the PSS, particularly the PSA, has been the extremely limited budget it has worked with, which constrains even the maintenance of statistical infrastructure, let alone the expansion and development of official statistics in the country. Now that the PSA is handing responsibilities that are not directly related to statistics (e.g. the CRS and the PhilSys), the PSA will further need to ensure that it does not lose sight of its main mandate on producing quality statistics, on statistical coordination and on the advocacy of statistics development. But it will also need to enhance the security of its databases. Given that the databases being developed at the PSA from the CRS, to the Philsys, to various statistical activities are increasing considerably, it needs to harden its Cyber Security Framework, as well as formulate policies and guidelines on cyber security governance, risk and compliance, in compliance with the DICT National Cybersecurity Plan 2022 (DICT 2017; revised 2019).

The PSA will also need to regularly upgrade its ICT asset monitoring services, and constantly improve its evaluation and certification scheme of Cryptographic products for encrypting and decrypting sensitive personal data when appropriately keyed. The PSA will also need to implement and obtain certification for ISO/IEC 27001 Information Security Management Systems (ISMS) and expand the implementation of Data Leakage Protection activities.

Responding to the increasing need for official statistics requires the PSA to do more while taking care of the sustainability of its resources. Regular modernization of ICT systems used in the statistical production process are necessary to enable the PSA to perform its tasks and help fulfil its mandate in a cost effective and modernized way.

Each public entity is required to formulate an Information Systems Strategic Plan (ISSP) and update its ISSP following a template provided by the DICT with the following main contents:
- Part I : Organizational Template
    A. Department/Agency Vision/Mission Statement
    B. Department/Agency Profile
    C. The Department/Agency And Its Environment (Functional Interface Chart)
    D. Present ICT Situation (Strategic Challenges)
    E. Strategic Concerns for ICT Use
- Part II : Information Systems (IS) Strategy
    A. Conceptual Framework For Information Systems (Diagram of IS Interface)
    B. Detailed Description of Proposed Information Systems
    C. Databases Required
    D. Network Layout
- Part III: Detailed Description of ICT Projects
    A. Internal ICT Projects
    B. Cross-Agency ICT Projects
    C. Performance Measurement Framework
- Part IV: Resource Requirements
    A. Deployment Of ICT Equipment And Services
    B. ICT Organizational Structure
- Part V: Development and Investment Program
    A. ICT Projects Implementation Schedule
    B. Information Systems (IS) Implementation Schedule
    C. Summary Of Investments
    D. Year 1 Cost Breakdown

Like every ISSP, the PSA ISSP 2018-2020 offers a comprehensive view of ICT processes for the organization to pursue its mandate. However because government resources are not plentiful, the DICT and DBM expect public organizations to prioritize their internal and cross-agency ICT projects, as well as their ICT investments. The DICT suggests that ISSPs account for a three year aging of ICT equipment, but the inventory of PSA ICT equipment listed in ISSP 2018-2020 (**see Table 5)** suggests that PSA capital outlay expenditures over the years have not kept up with this suggestion.

Table 5 Number of Select Computing Devices and Peripherals at PSA by Type and by Year Acquired

| Types | TOTAL NUMBER OF FUNCTIONING UNITS BY YEAR ACQUIRED | | | | | | |
| | 2019 | | 2018 | | 2017 | | More than 3 years |
	Owned	Leased	Owned	Leased	Owned	Leased	
Network attached storage (NAS)			39		3		30
Servers	1		17		5		60
Desktop/ Personal computer (PC)	70		1,212		185	5	4,079
Laptop	112		178	2	288	5	1,018
Mobile Phone (incl. smart phones)	5		70		25	3	217
Tablet PC	37		870	234	1,313	19	1,099
Multi-function printer (print, copy, etc.)	3		190		217		400
Printer only	12		151	2	48		890
Wide-format Printer or Plotter	1		8		1		21
Uninterruptable Power Supply (UPS)	70		1,047		213		3,059
Wireless Router			63		5		274
Switch Hub	3		22	13	29	1	118
Wireless Access Point			48		22		381
GPS Receiver			5		21		65
Tablet			20		37		24
Monitor					3		1,866
AVR (Automated Voltage Regulator)							34
Biometric Time Recorder			2				12
Document Collator			13		74		10
Firewall			2				2
Barcode Scanner			2		22		61
Drone	1		3				

Source: PSA ISSP 2018-2020

While the PSA made available some information from its ISSP, it is very challenging to assess the extent to which ICT investments are being made in statistics production, and other services offered by the PSA (such as the CRS, and the Philsys). A listing of PSA's Internal ICT Projects and Cross-Agency ICT Projects, by prioritization of PSA is given in **Box 2**. Of the 14 ICT

projects identified by the PSA in its most recent ISSP, those among the top six priority projects pertain to the Philsys, CPBI, ASPI, CPH, UMID-CVEA and CRS. It can also be observed from Box 2 that the list of outputs/deliverables of the ICT projects identified by the PSA are actually not necessarily ICT-related. The PSA will clearly need to be more careful in writing up its future ISSP documents.

Box 2 Internal ICT Projects and Cross-Agency ICT Projects of PSA

A. Internal ICT Projects

1.	Census of Philippine Business and Industry (CPBI)	Rank 2	2018 CPBI Machine Processing System • 2018 CPBI ONLINE Data Entry Program • Reject Listing of Errors and Completeness Checks • Preliminary and Final Tables • Status and Progress Reports
2.	Annual Survey of Philippine Business and Industry (ASPBI)	Rank 3	Statistical Tables, Special Releases, Publication
3.	2020 Census of Population and Housing (2020 CPH)	Rank 4	• Trainings on Data Collection Using CAPI - series of trainings prior to the conduct of pilot census and actual census. includes also briefings/debriefings done before/after conduct ol pretests and mini-pilot censuses. • Data Capture System Using CAPI - a system integrating the use of CAPI in the pretests, mini-pilot censuses, pilot census, and actual census. • Data Processing and Tabulation System - a system that will provide feedback to supervisors on the consistency of data items for updating during the pilot census and actual census. Generation of statistical tables at the provincial, regional, and national levels (whenever applicable) is also part of the system. • Microdata file - statistical datafile based on the results of the pilot census and actual census. lt gives users access to non-aggregated data and allows them to group and manipulate the variables to suit their data and research requirements.
4.	Establishment of Updated List Frame Sampling Method for the improvement of Agricultural Statistics Survey	Rank 7	Updated List frame of Farm Households for Palay and Corn Production Surveys based from the results of Tablet-Aided 2017 Listing of Farm Households
5.	National Demographic Health Survey (NDHS)	Rank 8	Statistical Tables, PUF/Micro data, Press/Special Release, Metadata, Final Report

6.	2022 Census of Agriculture and Fisheries (CAF)	Rank 9	• Pre-test data capture and processing system • Pre-test datafiles • Pre-test preliminary tabulation system for selected indicators • Pre-test preliminary evaluation and statistical tables • Updated aerial maps of pre-test sample agriculture/aquaculture farms captured by drone
7.	National Migration Survey (NMS)	Rank 10	1. Survey Questionnaire 2. Data Entry Program 3. Data Processing Programs (Validation/Reject Listing and Completeness Check) 4. Statistical Tables 5. Public Use File (PUF)/Micro data file, 6. Press Release/Special Release, Infographics 7. Metadata 8. Final Report

8.	Annual Survey of Information and Communication Technology (SICT)	Rank 11	• Statistical Tables
			  o Generated 49 tables but only 19 tables are being released
			  o Types of Tables:
			  1. Core ICT
			  2. Non-Core ICT
			  3. Business Process Management (BPM) activities
			• Special Releases
			  o Preliminary - core ICT /
			  o Final - core ICT and non-core ICT
			• Publication

9.	Annual Poverty Indicator Survey (APIS)	Rank 12	1. Survey Questionnaire 2. Data Entry Program 3. Data Processing Programs (Validation/Reject Listing and Completeness Check) 4. Statistical Tables 5. Public Use File (PUF)/Micro data file 6. Press Release, Infographics 7. Metadata 8. Final Report
10.	Establishment of Philippine Economic - Environmental and Natural Resources Accounts (PEENRA) unit towards the compilation of Green Gross Domestic Product (GDP) of the Philippines	Rank 13	• Compilation of environmental asset accounts • Compilation of environmental statistics • Coordination with environment-related agencies • Conduct of capacity building activities on environmental accounts and environment statistics • Participation lo environment related international trainings and/or workshops
11.	Development of the sub-national statistical system Towards lnclusive Growth	Rank 14	• Resolutions on local statistical issues; • Reviewed and cleared local surveys • Publications, such as Countryside in Figures, Regional Social and Economic Trends and Statistical Handbook on Women and Men; • information sheets, such as, Regional and Provincial Stat Watch, Gender Watch, Fact

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		Sheets, *etc.*; and . Conduct of user dissemination fora on various statistical topics.	
B.	Cross-Agency ICT Projects		
1.	Philippine ID System (Philsys)	Rank 1	• Issuance of Philippine ID (printed or electronic copy) • Proof of identity through authentication • Repository of information (archiving of data)
2.	Unified Multi-purpose ID (UMID) System-Central Verification and Enrolment Agency Component (UMID-CVEA)	Rank 5	• CRN, CRN Registry
3.	Civil Registry System Information Technology Project Phase 2 (CRS-|TP2)	Rank 6	• Copy issuance system tor birth, marriage, death, authentication, and certificate of no marriage catering to frontline services. • Vital Statistics System that will generate vital statistics on births, marriages, and deaths for policy makers, researchers, and data users. • Digital Archive of records and images of births, marriages, and deaths

Source: PSA ISSP 2018-2020

The limited information provided by PSA from the ISSP 2018-2020 suggests that the PSA is very likely not considering cloud-computing software requirements for big data analytics in its ISSP, even if many ICT budgets in the private sector are now being tied into digital transformation (DX) initiatives and new technologies (mobile, cloud, big data, etc.). Further, it is unclear to what extent the PSA is making constant revisions to ICT policies for the management of the ICT systems and how large are the investments made in ICT tools to support the PSA's modernization of the statistical production process in line with internationally accepted standards, as well as to ensure cybersecurity of the various data holdings of the PSA.

4. Statistical Products and Services

The PSS is generally regarded to be at a similar stage of statistics development as the NSSs of several co-member states of ASEAN, viz., Indonesia, Malaysia and Singapore. The performance of the PSS may be seen using international assessment. These performance measures have their limitations as they do not consider institutional/organizational aspects in a NSS, e.g. resources availability and governance in an NSS, but, they still provide a sense of the NSS performance. Assessments of local experts on data quality and dissemination, are also discussed in this section.

4.1. International Assessments of the PSS

The clustering of statistics development across ASEAN member states can be observed from the pattern of scores in the Statistical Capacity Index (SCI) regularly produced by the World

Bank (WB) from 2004-2018 (see **Figure 4**). The SCI[26] is a composite indicator of twenty five variables that summarizes three dimensions of a NSS, viz, methodology, data source, periodicity (and timeliness). A simple average of all three area scores on a scale of 0-100 comprises the overall Statistical Capacity Indicator (SCI) score
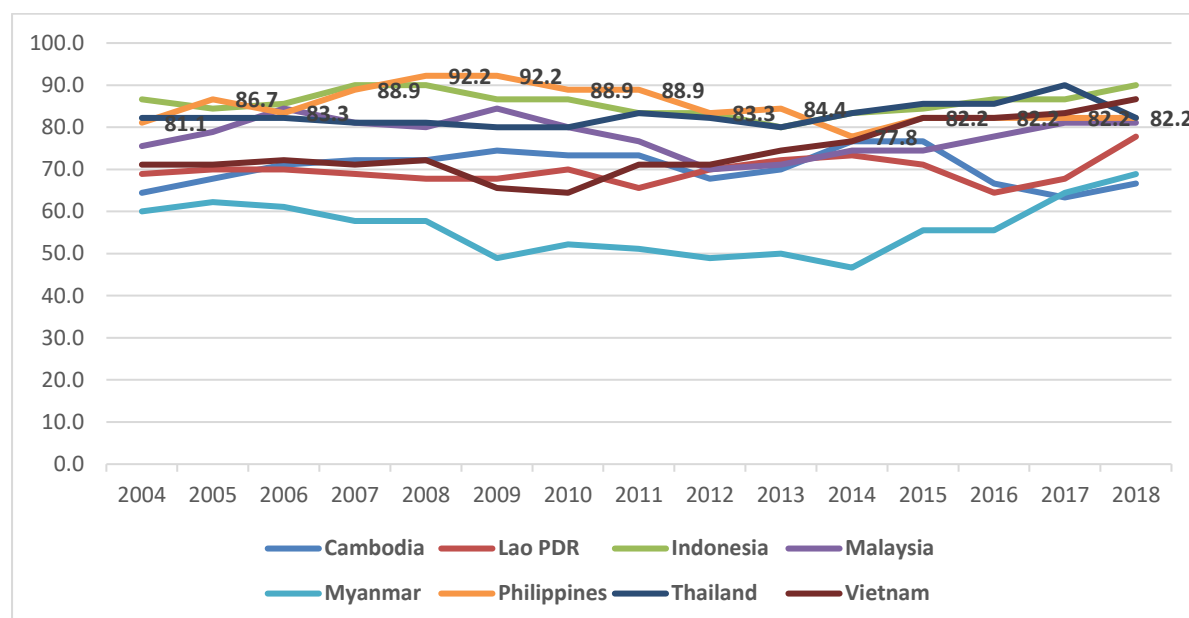
Figure 4 Overall Statistical Capacity Index (SCI) Scores of ASEAN Member States: 2004-2018
Source: World Bank
Notes:
(i) The overall score of the Statistical Capacity Indicator (http://data.worldbank.org/indicator/ IQ.SCI.OVRL, date accessed 20 October 2019) is based on three equally- weighted components: methodology (http://data.worldbank. org/indicator/IQ.SCI.MTHD) ; source data (http://data.worldbank.org/indicator/IQ.SCI.SRCE) ; periodicity (http://data.worldbank.org/indicator/IQ.SCI.PRDC)
(ii) The SCI does not include assessments of the NSSs of Singapore and of Brunei Darussalam.

From being a top performer among NSSs of ASEAN member states from 2008-2012, the PSS slumped in 2014 and was bested by the NSS of Indonesia and Thailand. The PSS performance improved in 2015 but was outperformed (barely) by the NSS of Vietnam at third place; the PSS has remained at fourth place among the 8 ASEAN member states from 2015 up to 2018.

Manasan (2017) attributes the weakening performance of the PSS compared to other ASEAN member states in the SCI to be suggestive of persistent data quality issues, and lack of data on old and new concerns alike, that are largely a result of the lack of sufficient monetary and human resources given to the PSS. Specific data on the indicators and dimensions of the SCI for the Philippines from 2004 to 2018 are shown in **Figure 5**.

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[26] The SCI dashboard (http://datatopics.worldbank.org/statisticalcapacity/SCIdashboard.aspx ; date accessed 2 September 2016) provides a composite index that assesses the capacity of a country's NSS based on a framework on the following areas: methodology; data sources; and periodicity (and timeliness), using publicly available information and/or country inputs. The overall Statistical Capacity Indicator (SCI) score is calculated as simple average of all three area scores (each on a scale of 0-100). For more details on the SCI, see World Bank (2015) 'Note on the Statistical Capacity Indicator', http://siteresources.worldbank.org/INTWBDEBTSTA/Resources/Note_on_Statistical_Capacity_Indicator_BBSC_Nov2012.pdf ; date accessed 15 October 2019)

(a) Methodology

Indicator	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Balance of payments manual in use															
Consumer price index base year															
External debt reporting status															
Government finance accounting															
Import and export price indexes															
Industrial production index															
National accounts base year															
National immunization coverage															
Special Data Dissemination Standard															
UNESCO reporting															
Methodology	70.0	70.0	60.0	70.0	80.0	80.0	70.0	70.0	60.0	60.0	60.0	60.0	60.0	60.0	70.0

Legend: ▦ 0.0 ▦ 1.0

(a) Methodology

(b) Source Data

Indicator	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agricultural census															
Health survey															
Population census															
Poverty survey															
Vital registration system coverage															
Source data	80.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Legend: ▦ 0.0 ▦ 1.0

(b) Source Data

(c) Periodicity

Indicator	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Access to water															
Child immunization															
Child malnutrition															
Child mortality															
Gender equality in education															
HIV/AIDS															
Income poverty															
Maternal health															
Per capita GDP growth															
Primary completion															
Periodicity and timeliness	93.33	90.00	90.00	96.67	96.67	96.67	96.67	96.67	90.00	93.33	73.33	86.67	86.67	86.67	76.67

Legend: ▦ 0.0 ▦ 0.3 ▦ 67.0 ▦ 1.0

(c) Periodicity

Figure 5 SCI Dimensions and Indicators for the Philippines: 2004-2018

Source: World Bank (http://data.worldbank.org/indicator/ IQ.SCI.OVRL, date accessed 20 October 2019)

As regards statistical methodology, the first dimension of SCI, this is assessed by the extent to which countries use guidelines and procedures to compile macroeconomic statistics, and social data reporting and estimation practices. Countries are evaluated against a set of 10 criteria such as use of an updated national accounts base year, an updated consume price index (CPI) base year, use of the latest BOP manual, external debt reporting status, subscription to IMF's Special Data Dissemination Standard, and enrolment data reporting to UNESCO. Each of the criteria are given a maximum of 10 points. Looking into the methodological assessment for the Philippines, we can observe that in 2018, the PSS managed generate government finance accounting data, but it got zero scores for the base year of national accounts, the CPI base year, and import and export price indices (the latter indices are no longer available monthly or quarterly since 2010).

The second dimension of the SCI, i.e., source data, reflects whether a country conducts data collection in line with internationally recommended periodicity, and whether data from administrative systems are available and reliable for statistical estimation purposes. Specifically, five criteria are used (each given a weight of 20 points maximum), viz., the periodicity of population and agricultural censuses, the periodicity of poverty and health related surveys, and completeness of vital registration system coverage. The PSS has been getting 100 percent rating for this dimension, except in 2004. All of these data sources in the SCI criteria are the responsibility of the PSA.

Of the 31 surveys/ censuses conducted on a periodic basis by the PSA, 23 surveys are undertaken by the PSA on either a monthly or quarterly basis and are considered as forming part of the PSA's regular program, while the remaining 8 are conducted less frequently and are classified as locally funded projects. The PSA regularly conducts various censuses every ten years: the Census of Population and Housing at years ending with zero (and a mid-decade population census conducted since 1995 generally on years ending with five); the Census of Agriculture and Fisheries (CAF) at years ending with two; and the economic census, called the Census of Philippine Business and Industry (CPBI) every six years. Inter-censal sample surveys of households are regularly conducted by the PSA include the triennial Family Income and Expenditure Surveys (FIES); the quarterly Labor Force Surveys (LFS); the Annual Poverty Indicator Survey (APIS) conducted yearly on non-FIES years subject to availability of funds; the Survey on Overseas Filipinos (SOF), conducted annually; and the Functional Literacy, Education, and Mass Media Survey (FLEMMS) every five years. The PSA also collects price data monthly to produce the country's consumer price index (CPI) and the official inflation rate, as well as the retail price index. Some establishment surveys regularly undertaken by the PSA include the Occupational Wages Survey; the Annual Survey of Philippine Business and Industry (ASPBI), Monthly Integrated Survey of Selected Industries (MISSI). Other surveys on economic activities include the Palay and Corn Production Survey (PCPS), Backyard Livestock and Poultry Survey (BLPS), Commercial Livestock and Poultry Survey (CLPS). The ASPBI, MISSI, PCPS, BLPS, CLPS are conducted to support the compilation of quarterly and annual gross domestic product (GDP), the gross regional domestic product (GRDP), and the production of statistics on exports and imports, and other economic statistics. A few sample surveys are conducted by the PSA not on an annual basis but fairly regularly; these include the National Demographic and Health Surveys (NDHS) generally done every five years;, and the Multiple Indicator Cluster Surveys (MICS), which are partly supported by development partners. Time lags of some PSA surveys are relatively long, such as the ASPBI.

Periodicity and timeliness, the third dimension of the SCI, looks at the availability and periodicity of key socio-economic indicators, of which nine are indicators for the predecessor of the SDGs, i.e., the Millennium Development Goals. This dimension attempts to measure the extent to which data are made accessible to users through transformation of source data into timely statistical outputs. Criteria used include 10 indicators on income poverty, child and maternal health, HIV/AIDS, primary completion, gender equality, access to water and GDP growth. The Philippines got 10 points on most indicators except on income poverty which yielded zero points, and on primary completion and on gender equality on education, both of which yielded 3.33 out of ten points, thus providing only a total of 76.67 overall ratings for this dimension. Scores for the education criteria were on account of having these reported only once out of the latest five years. This has been the case for these indicators, and there were warning signs already even as early as 2012 and 2013 that the PSS, specifically DepEd, was not reporting these education indicators to the corresponding global statistics compilers, i.e.,

UNESCO Institute of Statistics. This was on account of inability of DepEd to yield single-age projections required for generating indicators such as the net enrolment ratio, given that the PSA only projects the population by specific age groups, i.e., 0-4 years old, 5-9 years old, etc.

The extent of access and the quality of statistics in the Philippines may also be discerned from its performance in meeting the Special Data Dissemination Standard (SDDS)[27] of the International Monetary Fund (IMF)), which demands disclosure of detailed statistics on the real sector, fiscal sector, financial sector, external sector, and socio-demographic data. **Annex Table A-1** provides a summary of these statistics for the SDDS. Partly in compliance with the IMF SDDS, the country publishes metadata and descriptions of its statistical methods. According to the latest annual observation report of the IMF (2018), the coverage, periodicity, and timeliness of macroeconomic data are in compliance to the SDDS. The Philippines meets SDDS specifications using flexibility options for the coverage of wage/earnings data since these do not change significantly on a yearly or quarterly basis. Data on central government debt exceed SDDS prescriptions for periodicity. Further, the country used flexibility options for timeliness on production index and on the producer price index. The Philippines also exceeded the SDDS timeliness requirements for data on national accounts, employment, unemployment, CPI, central government operations, central government debt, balance of payments, and merchandise trade. In 2018, the country also met the SDDS requirements for timeliness for most of data categories except for general government operations (which was not disseminated in 2018), central government operations (occasional long delays and a short delay), depository corporations survey (a short delay).

The PSA uses the 2008 UN System of National Accounts (SNA) to the extent possible in the Philippine System of National Accounts, and the Philippine Standard Industrial Classification (PSIC) for classifying components and groups. The 2009 PSIC was patterned after the UN International Standard Industrial Classification (ISIC) Rev. 4 for all economic activities in the country, but with some modifications to reflect national situation and requirements. Aside from the PSIC, the PSA also makes use of standard classification systems, viz., the Philippine Standard Commodity Classification (PSCC), based on UN SITC Rev.3; and the Philippine Central Product Classification (PCPC), UN CPC 1.1 for the detailed classification of products and external and domestic commodities that enter the Philippine trade.

Information about statistical methods used by the PSA is available with monitoring and legal backing. An ARC exists on the website of the PSA, but this pertains only to statistics released by the PSA. ARCs for official statistics are not always specifically developed even for designated statistics, i.e. those considered crucial for socio-economic development planning (see **Figure 6**). The SDDS mandates the PSA to publish and adhere to its ARC, so monitoring exists, but with no legal anchoring as the ARC is not mentioned either in RA 10625 or its IRR.

Figure 6 Online Monitoring of System of Designated Statistics produced by the Department of Education

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[27] http://dsbb.imf.org/Pages/SDDS/Home.aspx (accessed on 15 October 2019)

Statistics/Statistical Activity	Implementing Agency	Schedule Date of Release	Actual Date of Release
Number of schools	Department of Education	SY 2018-2019	TBA
Enrollment	Department of Education	SY 2018-2019	TBA
Performance Indicators - gross enrollment ratio - net enrollment ratio (participation rate) - transition rate - cohort survival rate - completion rate - dropout rate (school leaver rate)	Department of Education	SY 2018-2019	TBA
Other Basic Education Statistics - number of teachers - number of classroom - number of furniture and seats - teacher-pupil/student ratio - classroom-pupil/student ratio - seat-pupil/student ratio	Department of Education	SY 2018-2019	TBA

Source: https://psa.gov.ph/philippine-statistical-system/sds/online-monitoring-imp-agency/Department%20of%20Education

The PSA has made microdata for its household surveys available to the public for free in compliance with the Open Data Initiative to which the Philippines is a signatory. Open Data is a mechanism to improve data sharing with the public to nurture an environment that promotes transparency and accountability. Previously, microdata especially of household surveys were being sold by the PSA, particularly by the then NSO, to data users at a reasonable cost. To see the extent of the coverage and openness of official statistics in the country compared to other countries, it is useful to consider the scores of the Philippines and other AMS in the Open Data Inventory (ODIN)[28] of Open Data Watch.[29] For 2018, the Philippines ranked 41st globally in the overall score among 178 countries assessed (**Table 6**). Within ASEAN, the country has been second to Singapore in the ODIN scores in 2015 and 2016, it got outpaced to third (by Indonesia in 2017), but regained its second spot last year. In the ODIN scores, the highest levels of coverage and openness for the Philippines are on economic statistics and the lowest levels are on social statistics. Improvements in the ODIN score can be readily made by the Philippines by way of collecting and publishing more recent data and reporting more historical data in social and environmental statistics. It would also be important to have a clear and open terms of use policy, such as CC BY 4.0, for all websites publishing official statistics, and to release more metadata to accompany data to increase usefulness and use of data.

Table 6 Open Data Inventory (ODIN) scores of ASEAN member-states: 2018

ASEAN member state	Overall Rank	Overall ODIN Score	Coverage Score	Openness Score	Data Categories		
					Social Statistics	Economic & Financial Statistics	Environmental Statistics
Cambodia	157	26	24	28	38	18	20
Indonesia	49	56	49	62	51	62	55

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[28] http://odin.opendatawatch.com/ (accessed on 20 October 2019)

[29] The ODIN scores constitute an assessment of 10 elements of coverage and openness. Coverage is assessed based on the availability of key social, economic and environmental indicators, and on whether data are disaggregated over time and by geographic subdivisions. Openness is measured in terms of whether the data can be downloaded in machine-readable and nonproprietary formats, can be selected by users, are accompanied by metadata, and are free to use and reuse. Scores on coverage and openness can also generated for specific aggregate domains, such as economic and financial statistics, social statistics, and environmental statistics.

Lao PDR	162	23	27	20	22	21	27
Malaysia	69	50	48	52	41	64	47
Myanmar	78	47	43	51	46	61	35
Philippines	41	58	50	65	54	64	56
Singapore	1	86	67	100	81	93	82
Thailand	125	36	43	29	31	44	33
Vietnam	106	39	36	42	39	45	33

Source: Open Data Watch -- Open Data Inventory http://www.opendatawatch.com (accessed on 20 October 2019)

The Philippines obtained the highest score in the data category for economic statistics for coverage, and the lowest score in environmental statistics for openness. Further disaggregation of the 20 data categories shows there is best coverage in balance of payments and national accounts statistics, and least coverage on pollution statistics. In terms of openness, the Philippines scores the highest on gender statistics, and lowest on pollution statistics.

One issue about statistical assessments by international organizations (common to the IMF's SDDS, the World Bank's SCI, and the ODIN is the narrow way in which the capacity of NSSs is assessed. Statistical assessments are usually focused on statistical production processes, quality assurance and codes of conduct. The SDDS assessment, for instance, is biased toward national level financial and economic sector statistics, and do not suggest anything about the state of sub-national statistics and are only slightly relevant to social (including health and education) and environment statistics. In earlier sections, we also looked into other dimensions such as legislation, principles and institutional frameworks. Results of a 2016 survey of data users conducted by former NSCB Secretary General Romulo Virola revealed that although the responding data users have seen some improvements in the PSS since the PSA was established, they opined that the improvements envisioned in RA 10625 have not been fully achieved (Virola 2016). In the next sub-section, we discuss results of key informant interviews and focus group discussions with select experts, as well as other data producers in the PSS.

4.2. PSS Stakeholders Observations about the PSS

As shown by many observations aired during key informant interviews (KIIs) and focus group discussions (FGDs) conducted for this study, domestic evaluations can spot many more areas for improvement in data quality than assessments based on an international perspective, such as the SCI, the SDDS or the ODIN. Trust in the quality of the data and statistics it generates is a fundamental issue for a data producer. If data and statistics becomes suspect, the repute of the institution as an independent, objective source of trustworthy data is called into. The experts and stakeholders interviewed were asked to rate the quality of statistics from various domains. Results of the ratings given by the participants to KIIs and FGDs undertaken for this study (**Table 7**) varied considerably.

Table 7 Proportion of Stakeholders Interviewed (in Percent) that Provided a Favorable (1 or 2), Neutral (3) and Unfavorable Rating (4 or 5) by Domain of Official Statistics.

Domain	Favorable	Neutral	Unfavorable
Agricultural Statistics	7.1	42.9	50.0
Fishery Statistics	8.3	33.3	58.3
Banking, Finance and Monetary Statistics	69.2	7.7	23.1
Statistics on Fiscal Sector	62.5	12.5	25.0

National Income Accounts	60.0	10.0	30.0
Business and Industry Statistics	58.3	25.0	16.7
Consumer Price Index (CPI) and Other Price Statistics	58.3	25.0	16.7
Labor and Employment Statistics	60.0	33.3	6.7
Energy Statistics	12.5	62.5	25.0
Education Statistics	14.3	42.9	42.9
Environmental Statistics	12.5	50.0	37.5
Gender/Time Use Statistics	27.3	45.5	27.3
Health Statistics	27.3	27.3	45.5
Housing Statistics	28.6	0.0	71.4
Income. Consumption and Poverty Statistics	64.3	0.0	35.7
Informal Sector Statistics	11.1	44.4	44.4
Science/ ICT/ Innovation / Digital Economy Statistics	27.3	18.2	54.5
Trade Statistics	18.2	45.5	36.4
Statistics on Justice and Security	12.5	12.5	75.0
Population and Migration Statistics	42.9	35.7	21.4
Tourism Statistics	13.3	53.3	33.3
Transport Statistics	9.1	27.3	63.6

Note: Authors' calculations

Statistics on banking and finance, as well as income consumption, and poverty statistics, statistics on the fiscal sector and the national income accounts garnered the most favorable ratings among PSS stakeholders interviewed, with 60 percent or more of interviewees giving a favorable rating (of 1 or 2), on a scale of 1(excellent) to 5 (poor). On the other hand, around half or more provided unfavorable ratings (of 4 or 5) to Justice and Security Statistics, Human Settlements and Housing Statistics, Transportation Statistics, Fishery Statistics, Science ICT and Innovation Statistics, and Agricultural Statistics.

While quality is not an easily defined concept, following Brackstone (1999), the dimensions of quality discussed in this report pertain to relevance[30], accuracy[31], timeliness[32], accessibility[33], interpretability[34], and coherence[35]. One person pointed out that "at the surface, the PSA and other data producers are able to deliver, however many of the processes in the production of official statistics, e.g., on agriculture, are questionable."

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[30] Relevance of statistics pertains to whether the data producer is producing information on the right topics, and utilizing the appropriate concepts for measurement within these topics. (Brackstone 1999)

[31] Accuracy is largely whether estimates are of sufficient precision, i.e. within an acceptable "margin of error". (Brackstone 1999)

[32] Timeliness relates to when statistical information is made available to clients of data producers. (Brackstone 1999)

[33] As pointed out in Brackstone (1999) : "For statistical information to be useful, clients have to be able to determine what is available and how they could obtain it. It then has to be available to potential clients in a form that they can use and afford. Both searching facilities and statistical products themselves have to use technology that is available to potential clients. This collection of considerations will be referred to as accessibility"

[34] According to Brackstone (1999) : "To make appropriate use of statistical information from the NSO clients have to know what they have and to understand the properties of the information. That requires the NSO to provide descriptions of the underlying concepts, variables and classifications that have been used, the methods of collection, processing and estimation used in producing the information, and its own assessment of the accuracy of the information. We will refer to this property of statistical information as its interpretability"

[35] Coherence is "the degree to which statistical information fits into broad frameworks and uses standard concepts, variables, classifications and methods" Brackstone (1999)

4.2.1. Relevance

The government has long recognized the need for data and statistics to inform policy and effect development outcomes. In the fight to reduce poverty, for instance, decision makers require development data and statistics not only for the formulation of public policies and programs, but also for social protection targeting, and for the monitoring and evaluation of interventions meant to help needy and vulnerable segments of society. Thus, the demand for data has been expanding, out of a need to evaluate the PDP and progress in attaining the SDGs. Many FGD respondents recognize that the PSS produces a substantial set of socio-economic statistics out of demand for monitoring development plans and international development commitments, as well as to support local development planning, but they also point out that there are many data gaps. RA 10625 calls for useful statistical output for the government and the public. Meanwhile, the PSS, in trying to meet its mandate, aims to produce relevant statistics, address data gaps, and improve all aspects of data quality in its PSDP. The plan on statistics development suggests the need for new statistics regarding governance, security, climate change, environment, disasters, or social protection. However, the extent of activities for implementing the PSDP requires improving statistical capacities in the corresponding departments and NGAs that should be developing these sectoral statistics.

The PSDP mentions the goal to identify indicators on government processes and services, such as Citizen's Charter monitoring and client satisfaction surveys. Since the PSA complies with the Citizen's Charter—a program to streamline its operations and make them more transparent—it works on improving accountability for user satisfaction. In its website, the PSA show results of its customer satisfaction survey (CSS) but it appears this is limited to monitoring the satisfaction of clients with the PSA's CRS, and not to satisfaction with the PSA products and services on statistics.

A key issue about official statistics is whether they are ultimately useful, especially for describing emerging conditions, or the profile of vulnerable segments of society, especially those likely to be left behind when a country develops. Data should be used to describe the ones likely to be left behind, and to speak on their behalf, but often official statistics are unable to identify who the vulnerable, disadvantaged, marginalized, or socially excluded are, as well as where, and how many they are. Data on these social groups should be available to those engaged in the design, formulation, implementation and monitoring of interventions targeted for marginalized groups.

The SDGs put forward an ambitious agenda to leave no one behind. Yet many of the current official statistics are not of sufficient granularity. Reyes *et al.* (2019) report that of the out of the 156 National SDG indicators that the PSA Board identified for monitoring the SDGs in the country, not all, although a sufficient number (126) of indicators (or about 81.3 percent of the 156 indicators) have available baseline data, and of which, 71 have historical data (**Table 8**). The bulk of the available SDG indicators are in the social domain. Further, of the 126 SDGs indicators with available baseline data, slightly less than a third (38) have breakdown by location, either urban/rural or regional disaggregation. Further, only a total of 39 sex-disaggregated or gender-relevant indicators are available. Also, few of the national SDG indicators are disaggregated by migratory status, ethnicity, income groups, or other relevant sub-populations.

Table 8 Availability of National SDG Tier I Indicators, and Disaggregation by Dimension

Dimension (SDG)	With baseline data		With available level of disaggregation									Gender relevant indicators[g]
	At least 1	At least 2	SEX	AGE	LOC[a]	MIG[b]	EIS[c]	DIS[d]	INC[e]	OTH[f]		
Economic (SDG 8 and 9)	14	11	2	1	4	0	0	0	0	3		0
Social (SDG 1-5; 10-11 and 16)	85	52	22	11	34	0	0	0	12	10		15
Environmental (SDG 6-7; 12-15)	15	6	0	0	0	0	0	0	0	0		0
Governance (SDG 17)	12	2	0	0	0	0	0	0	0	0		0
Total	126	71	24	12	38	0	0	0	12	13		15

Source: Reyes et al. 2018

Notes: [a] LOC = location or spatial disaggregation (e.g. urban/rural, regional, provincial)
[b] MIG = migration status
[c] EIS = ethnicity and indigenous status
[d] DIS = disability status
[e] INC = income quintiles or deciles
[f] OTH = others
[g] Indicators that are not sex disaggregated, but gender-relevant (e.g. maternal mortality)

In June 2015, the photo of a nine-year old boy studying outside a fast food restaurant in the Philippines was posted on Facebook and went viral on the internet (**Figure 6**). It was subsequently reported by media that the boy's family usually lived on the streets and did not have access to electricity. His story attracted sympathy of people prompting them to provide support to continue his studies while his mother was given a reliable source of income. This boy's fate, though, is not a story shared by many others who face the same or worse socio-economic disadvantages.

Figure 7 Photograph of a boy studying outside a fast food restaurant that was posted on Facebook (June 23, 2015) and went viral on the Internet

Source:
https://www.facebook.com/photo.php?fbid=1010235805662470&set=pcb.1010235928995791&type=3&theater

Official statistics, which provide a 'big picture', often hide the living conditions of special segments of society that include persons with disability, people living with HIV/AIDS, indigenous peoples, undocumented migrants, religious minorities, refugees, the uninsured, the elderly, those internally displaced, or those who are in vulnerable working conditions. This hiddenness in data and statistics is largely because surveys can only give reliable big pictures; the hiddenness of those likely to be left behind masks the extent of deprivation and disparities they face, and further exacerbates their vulnerabilities.

One expert interviewed pointed to emerging trends on vital statistics, particularly that half (53%) of births in the country as of 2017 are outside of wedlock (PSA 2018c). In ten of the seventeen regions in the country, the proportion of babies born out of wedlock is more than half of total births. These regions include Eastern Visayas (65.4%), NCR (64.9%), CALABARZON (58.2%), Davao (57.4%), Central Visayas (56.7%), Bicol (55.7%), Caraga (55.6%), Northern Mindanao (53.6%), Central Luzon (52.7%), and Ilocos Region (50.6%). However there is no behavioral insight on why this is occurring. This possibly reflects rising

teenage pregnancies. No public policies have been adopted thus far to address this emerging social phenomenon that may have implications on the country's social fabric.

The PSDP lays out a concrete set of activities for developing official statistics that are of emerging relevance. For instance, the PSA is laudably working to develop an ICT satellite account, while other developmental activities are being undertaken by PSRTI (with DICT) to address gaps in ICT statistics. Ilarina *et al.* (2019) have reported on the specific plans for having a preliminary estimate of the size of the digital economy, and institutionalizing efforts toward the ICT satellite account. To show the extent of data gaps in ICT, consider the SDG indicators alone. Among the 232 global indicators for monitoring of the SDGs, 7 pertain to ICT viz., (i) Proportion of schools with access to the Internet for pedagogical purposes ; (ii) Proportion of schools with access to computers for pedagogical purposes ; (iii) Proportion of youth/adults with ICT skills, by type of skills; (iv) Proportion of individuals who own a mobile telephone, by sex (v) Percentage of the population covered by a mobile network, broken down by technology; (vii) Fixed Internet broadband subscriptions, broken down by speed ; (vii) Proportion of individuals using the Internet. According to Astrologo (2018), only of these seven SDG indicators is available in the country, namely, the proportion of population covered by a mobile network, by technology. Even for the PDP Results Matrix, of the required 14 indicators, only 3 are available. For the ITU's Global ICT Development Index, which requires 11 indicators, only 5 are available. Among the 61 indicators that are considered part of the ITU's Core List of ICT indicators, only 25 are available. The general lack of availability of ICT statistics has resulted in an incomplete picture of on the access and use of ICTs, as well as the full impact of the ICT sector in socio-economic development. More and good quality ICT statistics can clearly provide inputs to policies, regulations and appropriate public programs aimed at a fairer distribution of gains from digital economy. Further, with the pace of digitization, countries will need to understand one of the drivers of the digital economy : digital/online platforms. The emergence of online/digital platforms is shifting competition towards platform-centric ecosystems in the global, regional & national economies. These digital platforms offer new (market) possibilities to businesses and benefits to consumers, enabling innovation, and create more social good. However, they can also disrupt entire industries at scale, change nature of work, put pressure on fair competition, cause privacy issues and can make it more difficult for government to raise taxes. The PSS, like other NSSs, will need to measure the platform economy, especially the sharing economy which narrows the platform economy down to mostly consumer-to-consumer or peer-to-peer relations and transactions.

Information also on another growing part of the economy, viz., the "creative economy", i.e. activities that are part of the creative industries, including music, performing, handicrafts, architecture, visual arts, graphic arts, cartoon animation, literature, fashion, furniture and interior design, film, as well as digital inventions. The DTI, together with the Creative Economy Council of the Philippines, have recently developed a roadmap to develop five priority sectors, viz., advertising, film, animation, game development and design (specifically graphic and digital design). While the UN Conference on Trade and Development (UNCTAD) monitors economic outputs of the creative industries across the world, with its recent Creative Economy Outlook and Country Report (UNCTAD 2018) suggesting that the Philippines is in the top ten performing developing countries across the world (in terms of creative goods exports) as of 2015, it is very likely that these data understate the real magnitude of the creative economy. In the wake of likely risks to jobs from rising autonomation (Albert *et al.* 2018), the PSA will need to see the importance of tracking the creative economy to enable government to use data and statistics as inputs for policy action.

More disaggregated data and classifications of industries such as the creative industries will allow for a detailed analysis of sub-sectors in the economy. Data disaggregation of sub-sectors will be useful in distinguishing between low vs. high value-added services or low vs high skill-intensity exports. Serafica (2019) points out that one of the components of digitally deliverable services is "Other business services" and within this category "Technical, trade-related, and other business services". This could be further disaggregated into the following components:

- Architectural, engineering, scientific, and other technical services;
- Waste treatment and de-pollution, agricultural and mining services;
- Operating leasing services;
- Trade-related services; and
- Other business services n.i.e.

Similarly Serafica (2019) suggests that the category "Personal, cultural, and recreational services" could be further decomposed into the following to understand the potential drivers of the creative services exports:
- Audiovisual services;
- Artistic related services;
- Other personal, cultural, and recreational services (health; education; and heritage and recreational services)

Understanding the composition of imports is equally important, Serafica (2019) adds. For example, "Charges for the use of intellectual property n.i.e" represent 3.4 percent of imports. Moreover, it incurred a trade deficit of $873 M in 2018. This category however has the following subcomponents, which are currently not reported separately:
- Franchises and trademarks licensing fees;
- Licenses for the use of outcomes of research and development;
- Licenses to reproduce and/or distribute computer software; and
- Licenses to reproduce and/or distribute audio-visual and related products

As noted in UNCTAD (2004), this category reflects the use of assets and expertise under contractual agreements of various types and are used as a proxy for non-equity based activity. Thus, it is possible that some imports could be substituting for other modes of supply (i.e. cross border vs supply through commercial presence) particularly when FDI restrictions exist. According to UNCTAD (2019), non-equity modes of international production are growing faster than FDI, and this is visible in the relative growth rates of royalties, licensing fees and services trade.

Serafica (2019) points out that the only estimates of Mode 3 for the Philippines are from WTO TISMOS. For more accurate estimates, the Philippines should compile Foreign Affiliates Trade Statistics (FATS). FATS cover all industries (not just services) and include both inward and outward sales statistics. Other variables covered (e.g. employment, R&D, value added, exports, etc.) will be very useful for trade analysis and FDI policy formulation, among others. Inward FATS provide a better picture of the contribution of foreign investment to the country, beyond the investment figures typically reported. Outward FATS will show the extent of internationalization of Filipino companies, which could be useful for crafting government support.

The PSDP also identifies the need to develop Tier 3 global SDG indicators in the Philippines. This is currently being pursued by the PSRTI. The PSA, however, could update its national SDG indicators more regularly, especially in the wake of regular data updates by SDG compilers in the global SDG indicators database maintained by the UN Statistics Division. These updates are done twice a year since 2016. See Annex 2, for the list of global indicators with available data but that are not in the Philippine SDG Watch.

4.2.2. Accuracy

The statistics law, i.e. RA 10625, mentions the provision of accurate and useful data as one of the goals of the reorganization of the PSS. However, several participants to the FGDs lament that the survey designs, particularly those pertaining to establishment surveys, and agricultural surveys have not improved, if not even deteriorated. The design of the new master sample for households is, however, considered very good. Some experts and stakeholders, however, did not express direct knowledge due to their lack of exposure on these data (as their focus has been on other data, such as nutrition data).

A critical issue regarding the designs of establishment surveys is the persisting lack of PSA capacity to update sampling frames due to difficulties in tracking births and deaths of firms. This could be resolved if there were a business register in the country that provides identification system for firms (similar to the national ID). Further, no work has been undertaken to institutionalize a study on the conduct of enterprise surveys (World Bank 2015).

In the case of agriculture surveys, designs are often not probability-based (and thus lack representativity), and even when they are reportedly probability-based, as in the case of the PCPS, the design is deemed faulty with some provinces excluded in the sampling frame (i.e. only 66 provinces are included in the PCPS), and there are no ways to determine the accuracy of survey-based estimates, i.e., sampling errors for parameter estimates cannot be obtained as there are no available microdata. Some experts interviewed relayed their experience in conducting a life cycle assessment on livestock. They requested data from Livestock Production Statistics Division (LPSD) of PSA but the LPSD was unable to provide them with the required microdata. LPSD only has access on the summary statistics at the provincial level. No data is collected at the micro-level by the LPSD (e.g. type of water used in livestock production is asked in the questionnaire but no statistics has been released on this indicator).
Experts point out that incomplete info on survey datafiles (no sampling unit sizes, selection probabilities, identifiers, etc.) is symptomatic of the data collectors' (survey group) technical weakness, hence their inability to impart correctly and completely to the IT group what need to be encoded. Ignoring replicates and instead analyzing all replicates as one sample is another evidence of lack of technical knowledge in designing, handling and analyzing surveys. Many statistics experts interviewed generally question the quality of the agriculture database in the Philippines, i.e., crops (annual and perennial), livestock (animals and poultry), fishery (capture) and aquaculture (raised or cultured). The agriculture survey system should also adopt a master sample approach, only it will not be one but many, possibly one each for annual crops, perennial crops, livestock, poultry, fisheries, and aquaculture; with these connected via a multifaceted area frame. Experts point out that this should have been done years ago.

While reportedly the Philippines is trying to implement the Global Strategy to Improve Agricultural and Rural Statistics (WB, FAO and UN 2011) but no improvement has been felt so far. Instead, the PSA continues a practice of obtaining consolidated worksheets of municipal-level data (that undergo a "data validation system") that are aggregated at the

provincial-level (that again undergo another data validation system), and further aggregated at the regional-level, and national level (again after data validation). This practice, according to former PSA officials, arose out of the limited financial resources made available to the then BAS, which was given lumpsum budgets to conduct all its statistical activities for generating various agricultural statistics. When the PSA was established from the then major statistical agencies, staff of these agencies experienced culture shocks as the discrepancy in actual budgets for statistical operations for the then NSO and the then BAS were enormous (Manasan 2017).

Reportedly, the PSA plans to redesign many of its agricultural surveys in the next few years to reflect an updated agricultural sampling frame based on the most recent conduct of the census of agriculture and fisheries (CAF). However, experts point out that no report has been officially released by the PSA on the CAF, likely due to data quality issues, and there is concern that revising the sampling design based on a faulty frame can have serious consequences. Interviewees point out the current lack of consultations of the PSA with sampling experts needs correction. Further, there is no information currently available on the extent of these plans, i.e., whether these will triangulate information available from remote sensing/satellite imagery that has been tested by the Asian Development Bank in select countries, viz., Thailand and Lao PDR (ADB 2018).

Considering that most of the poor in the country have livelihoods that depend on the agriculture sector, and that policy-makers make critical decisions, such as the importance of rice, many express concern regarding the poor quality of agricultural statistics, and the limited efforts by the PSA to improve designs of agricultural surveys and to look into possibilities of making use of other innovative data sources. Agricultural statistics, and other sectoral statistics should be able to reflect and describe actual situations. Several pointed out that this is why some organizations, including LGUs, and civil society are starting to collect their own data, as these organizations consider official statistics as not being relevant.

One expert relayed her experience working on the National ICT household survey of the DICT which was based on POPCEN 2015 listing of households. Their team found instances where one household was listed as two separate households in the sampling frame. There was also a case with a listing of a household serial number but the lot is actually vacant. It is likely that some PSA personnel are not capacitated enough to take on the other survey operations from other offices after the merging (e.g., PSA staff may have been focused on NSO survey operations but may be having difficulties handling agricultural surveys of the BAS). Aside from improving survey designs, the PSA will need to systematically study how to retool its staff.

The now defunct BAS used to have 3000 hired data collectors for agricultural surveys. After BAS got consolidated with other major statistical agencies in the PSA, all the activities of the former BAS have been put in one PSA division. The main issue here is that agricultural data should be treated differently in data collection compared with household and establishment surveys. Data collectors in agricultural surveys have also different capacities from the usual enumerators of household and establishment surveys.

While the PSA is reportedly modernizing its data collection, including making use of tablets for geo-tagging (Bersales 2019), several experts pointed out that during field visits, some PSA field enumerators were observed to be actually not geo-tagging on site, but rather encoding data in their respective dwellings, either for fear of loss of the tablets during data collection

(and the corresponding liability), or because of experience of errors in the use of the encoding apps, or on account of some areas, especially those hard-to-reach areas, not having internet connection/signal. This suggests a lack of supervision in fieldwork. In relation to this, one expert mentioned that during the conduct of the CPH 2010, a tricycle driver rather than a teacher (wo is supposed to be the enumerator according to law) delivered the interview form to her house.   Experts also note that problems may also arise when supervisor of enumerators do not appreciate statistical concepts and definitions during data collection. The appreciation for DQAFs must be in place across all processes in statistics production.

Many FGD participants lamented that the PSA abolished the Technical Committee on Survey Design, which could have been a mechanism for experts to externally assess the accuracy and other dimensions of quality of official statistics. Instead, the PSA has resorted to performing the SSRCS on its own. The PSA should recognize that monitoring and evaluation activities by external assessors are important mechanisms for organizational learning.

Further, experts point out the need for enumerators and other PSA staff to undergo re-tooling, especially through certification by the Technical Education and Skills Development Authority (TESDA), in cooperation with PSRTI as PSRTI does not have a legal mandate to certify competence in statistics. The Valdepeñas committee, however, suggested that PSRTI be given this responsibility. This may still be undertaken by PSRTI, with the support of academic institutions, including the UP Open University. There are likely going to be challenges in having experienced enumerators undergo retooling as he/she may views this as a waste of time.

One expert finds it curious that the National Mapping and Resource Information Authority (NAMRIA) is an attached agency of the Department of Environment and Natural Resources (DENR), and not consolidated with the PSA. The expert explains that maps, landsats, photos, and the like are useful for work in ensuring quality of statistics, such as sampling frame, sampling units construction, stratification, direct observation of changes.

4.2.3. Timeliness

The Philippine Statistical Act of 2013 mentions timeliness as a priority in its statistical system. Official statistics are usually available with a short time lag in theory but only partially in practice. The lack of timeliness in practice is surprising considering that one would expect faster data processing amidst new ICT tools. Time lags of some PSA surveys are relatively long, such as the ASPBI. According to the World Bank's SCI, the periodicity of Philippine statistics has declined since 2011. As pointed out in previously, reasons for this are the longer time period of reporting gender equality in education, primary completion, and poverty statistics. In the case of poverty statistics, this has been produced every three years (sourced from the triennial FIES), but the PSA has been releasing first semester poverty figures not only from the FIES, but also from the APIS, even if the FIES and APIS survey instruments are not fully comparable.

Under the SDDS, the Philippines must disseminate data according to guidelines for periodicity and timeliness on a national webpage and the National Summary Data Page (NSDP), which hyperlinks to the IMF's Dissemination Standards Bulletin Board (DSBB). Many time-sensitive statistics are current, and monthly inflation data is available within a few days after the end of the month. Periodicity meets the needs of users in theory and practice with monitoring but without legal anchoring. The statistics law mentions nothing about the periodicity of statistical censuses, surveys, and releases.Neither are there specific policies about periodicity other than

for designated statistics. While the PSA has impressively developed mechanisms for monitoring the extent to which designated statistics are being released as per scheduled release, there are currently no accountabilities regarding good and not-so-good practices on timeliness.

While the PSA counts the earlier release of national accounts[36] and other related data (viz., agricultural production and farmgate prices) among its achievements (Bersales 2019), many suggest that such earlier releases will not necessarily make policy makers come up with more timely interventions. Experts wonder whether the earlier releases are further sacrificing data quality given the likely low response rates from establishment and agricultural surveys, compared to previous releases.

4.2.4. Accessibility

There is a generally positive view about the shift of the PSA to make microdata from household surveys freely accessible by the public from the previous practice of having to pay for such data. But several FGD participants expressed concern that the PSA data platforms are very difficult to access outside of regular office hours. Further, the microdata of surveys made available by the PSA in its PSADA does not contain survey design variables that are vitally needed for estimation of standard errors of parameter estimates from survey data.

The main consideration of experts is that they offer Special Problem [thesis] courses, and the easy and quick accessibility of microdata for analysis is crucial so that students can finish their research within the year. Data on barangay code [domain verifier variable], for instance, is also not available in downloading datasets from PSA's Data Archive (PSADA[37]) http://psada.psa.gov.ph/index.php/home, and OpenStat http://openstat.psa.gov.ph/). Requests for these extra variables, in practice, take a few months for the PSA to address. Even the authors of this report encountered similar difficulties when they requested a copy of APIS microdata that contain a variable that tags households on whether they reside in urban or rural areas; this data request took months for PSA to address. Another on-going study being conducted by the authors with other researchers on the science and technology (S&T) human resources requirements of the country has taken the PSA 7 months to deliver a microdata request.

Specific PSA data dissemination platforms are available for the PDP and the SDGs:

- StatDev https://psa.gov.ph/statdev-main for the 307 indicators of the PDP Results Matrix that have data.
- SDG Watch https://psa.gov.ph/sdg for monitoring of the extent to which the country is attaining the SDGs.

As per the StatDev, 138 (44.95 percent) of the 307 PDP results matrix indicators had a high likelihood of attaining the end-of-plan targets, while 42 (13.68 percent) which had a medium likelihood, and 127 (41.37 percent) a low-likelihood of achievement. The PSA not only

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[36] Starting May 2018, the PSA has released national accounts 40 days after the reference quarter, ten days earlier than the previous releases, reportedly because of demands from stakeholders (largely NEDA) for a more timely release of estimates of economic performance. Gross regional domestic product was also released three months earlier than in the previous year.

[37] A centralized catalogue of many microdata files (of household surveys) is available in the PSADA, a web-based cataloging system powered by the National Data Archive (NADA) application developed by the International Household Survey Network (IHSN). This PSADA serves as a gateway to microdata as well as documentations of PSA's surveys, censuses and administrative-based statistics.

compiled by the indicators from various government agencies, but also objectively measured the pace of progress of these indicators based on the ratio between the actual annual growth rate and the required annual growth rate of progress if the plan targets were to be met. If the ratio were more than 0.9, then likelihood of achieving the end-of-plan target was considered "High" (and the indicator's icon was given a green smiley face). If the ratio were less than 0.5, that likelihood was deemed "Low" (with the indicator's icon given a red frowning face). And if the ratio were between 0.5 and 0.9, the likelihood was deemed "Medium" (with the indicator's icon given a yellow expressionless face, suggesting the target may or may not be achieved).

Rather than present the results by chapter/domain, **Table 9** summarizes the most recent Statdev information by domain. Here, we see that the indicators are very dominated by the economic domain, where less than three fifths (110 indicators or 58.2 percent) out of 189 indicators have either a high likelihood or medium likelihood of being attained. The best performing domain is the environment, which has three quarters (14 indicators or 73.7 percent) of 19 indicators having a medium or high likelihood of being attained. The least performing domain is governance, where only two fifths (9 indicators or 40.9 percent) of a total of 22 indicators that have at least a medium likelihood of being attained. Halfway into the life of the current administration, many analysts may conclude from the Statdev that since only less than half of the PDP targets are likely to be achieved, the targets were either unrealistic or overly ambitious, or they encountered bottlenecks. Some may also wonder whether the choice of indicators, particularly in the environment, may have led to the empirical results. Regardless of how one views these results, the Statdev exercise can be a helpful mechanism for government to be accountable, and for policy planners to work toward developing actions that can improve the country's performance in its medium terms socio-economic targets.

Table 9 Summary of StatDev 2018 Indicators by Dimension and by Likelihood of Achieving the Target

Dimension	Number of PDP Results Matrix Indicators by Likelihood of Achieving the Target			
	High	Medium	Low	Total
Social	38	9	30	77
Economic	84	26	79	189
Environmental	10	4	5	19
Governance	6	3	13	22
Overall	**138**	**42**	**127**	**307**

Source: PSA https://psa.gov.ph/statdev-main

While the PSA maintains information portals on the SDGs and the PSDP results matrix, but no information is available about indicators pertaining to progress on attaining regional integration within ASEAN. For implementing the ASEAN Community Vision 2025, member states of ASEAN have formulated three blueprints: (i) ASEAN Socio-Cultural Community (ASCC) Blueprint 2025, (ii) ASEAN Economic Community (AEC) Blueprint 2025, and (iii) ASEAN Political-Security Community (APSC) Blueprint 2025. The ASEAN secretariat has released ASEAN Community Progress Monitoring System (ACPMS) reports for 2007, 2012, and 2017 (ASEAN 2007; 2012; 2017). These reports provide statistics from ASEAN member states, and trends on broad economic and socio-cultural conditions in ASEAN in the context of ASEAN integration. These ACPMS reports were produced in parallel with mechanisms for

monitoring progress of ASEAN regional integration (e.g., Community Score cards, sector-specific monitoring & surveillance.) The Philippines, however, has not been examining these monitoring systems in relation to its commitments to the achieve the ASEAN Community Vision and Blueprints for 2025. On the other hand, the country has drafted two Voluntary National Review (VNR) Reports on the Sustainable Development Reports (NEDA 2016; 2019), and looking into the progress in their National Development Goals and long-term aspirations, (e.g. PDP, and Ambisyon 2040).

While having several information management systems (PSADA, Openstat) at the PSA aside from specific platforms for the SDGs (SDG Watch https://psa.gov.ph/sdg) and the PDP Results Matrix (https://psa.gov.ph/statdev-main) can be helpful in simplifying search of information, these systems are put into silos, which are unable to operate with other systems. Such a mechanism creates an environment of disparate independent systems and impacts negatively on the efficiency and reliability of statistical processes and makes collaboration between units difficult and data production error-prone.

There were also issues raised about the long prevailing microdata survey access policies among specific data producers other than the PSA, specifically the FNRI, which reportedly expects its researchers to be co-authors of all technical papers that make use of FNRI surveys, even if their researchers tend to be nutritionists and not statisticians. Further, microdata made publicly available by FNRI are not for the most recent survey rounds, but from more than five years ago, which is no longer timely data to examine. Considering that public monies were used for these surveys, it is widely viewed that the PSA Board should have already formulated policies to compel institutions such as FNRI to follow the lead of the PSA in moving towards a full open data access policy.

The main components of data aggregates are available for top-of-mind socio economic statistics such as national accounts and population growth rates for the 18 individual regions. The PSA, however, releases no public data for the Philippines' 80 provinces or municipalities. However, regional and provincial data are available on the Open Data website of the Philippine government as pdf files. The PSDP notes that agencies need to address the demand for more granular data, i.e. geographical disaggregation, as well as greater frequency of official statistics. Users can readily access quarterly economic indicators and monthly price-sensitive data, such as the CPI or inflation rates. The World Bank reports the industrial production index is available monthly or quarterly.

Many official statistics and microdata are available online free of charge, but access is often cumbersome. Further the PSA website and data portals, including the PSADA and OpenStat, are not viewed to be very user friendly. Similar confusion exists with statistical yearbooks, which have not been improved in content and form, unlike comparable statistical yearbooks, e.g. that released by NSO Mongolia, which show QR codes on pages of the yearbook for ease of downloading of data (either on one's computer or smartphone). Many official statistics from surveys and censuses exist only in separate files, so that users need to download and organize all these files to get the results of the surveys and censuses. Data portals, including the PSA, often returns errors.

Forming the PSA as the central Philippine statistics agency has not managed to make data easily accessible. Technical and organizational hurdles exist for access to statistics and ready accessibility in digital form applies only partially. The PSA offers a crude dynamic table builder, and even though the government runs an Open Data initiative, several basic statistics—

such as a table with population by region or province—are available in pdf or geospatial format only. It is likely that across PSA units, there is a lack of standardized work procedures pertaining to statistics dissemination. While many Excel worksheets are accessible on national income accounts in OpenStat, even for the gross regional domestic product, but the same cannot be noticed among results of sample surveys. For instance, there is no current way to easily download historical data on the Gini income inequality by regions.

Experts observe that PSA lacks effective dissemination and communication mechanisms. The way PSA releases data and official statistics is not friendly to the public. The public lacks appreciation of statistics. PSA staff are viewed to lack the skills to translate the core message of their statistical releases: "*Hindi nila maibaba sa publiko*", as one expert pointed out. The PSA's public image still leans more on civil registration rather than on statistics. Soon, experts expect that the national ID will also take more prominence.

In the PSDP, the PSS promises to align itself closer with its users. Plans for more data portals, local statistical information centers, and active media partnership are meant to improve access to data. The PSA continues to conduct many data users fora, but the extent of action on user feedback during these fora and through informal gatherings is unknown. More than ever, however, the PSA needs however to develop mechanisms for effective user feedback to ensure that it is meeting ever growing data demands of various actors in the data ecosystem.

4.2.5. Interpretability

Experts interviewed pointed out that aside from the top-of-mind statistics in the public are on prices, jobs, and income (including poverty), and these need to be interpreted well especially by policy-makers. They expressed strong concerns about the PSA decision to change the Technical Committee on Poverty Statistics to an IAC, especially as the subject matter has technical issues to deal with, e.g., the setting of poverty lines, the use of the proper indicator (i.e., income or consumption, or a multidimensional deprivation indicator), and the aggregation of poverty data, aside from the communication of poverty statistics into interpretable inputs for policy action.

The decision by the PSA to release a multidimensional poverty index (MPI)[38] without wider consultation, including a more comprehensive review of experts, was noted. While several exercises on generating the MPI were presented to the IAC on Poverty Statistics, but the MPI release of the PSA did not have the IAC clearance. Many technical issues hound the MPI, starting with the choice of indicators. The indicator on educational attainment pertains to whether any family member 18 years and over did not complete high school. The use of this indicator is not sufficiently justified, considering that the Global MPI makes use of a less stringent indicator on educational attainment, i.e., "No household member aged 10 years or older has completed five years of schooling (Alkire *et al*. 2018). The selected indicator in the MPI effectively makes a household (including an income rich household) with a head who has not finished high school as deprived. It is expected that a few guiding principles for the choice of indicators for the National MPI could have been observed, such as:

    (i)   relevance: The indicators should be relevant in that they are acknowledged (in national and/or international literature, discussions with experts) to represent essential aspects of welfare. Furthermore, preferably, indicators can be affected by

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[38] The MPI is based on thirteen indicators from four dimensions sourced from the APIS.

(ii)   data availability; Indicators should be derived from the same data source (usually a household survey). Because of the requirement about data sources, the selection of the dimensions and indicators is shaped by the availability of meaningful data.

(iii)   parsimony. While there may be some correlation among the indicators, the selection of indicators should avoid duplication. and involve only a small number of carefully-selected dimensions to provide prominence to multidimensionality, but also ensuring sufficiently complete coverage

so that the composite index could gain better interpretability, especially for policy use.

Any aggregation of indicators into a composite index such as the MPI also involves a decision on what weight to give to each of the indicators. Ravallion (2010; 2011; 2012) critiques the lack of an intrinsic meaning of the associated "nested equal weights" in the global MPI as regards prices, which are used to add the components of consumption (or, incomes used to finance consumption)[39].

Even for the current methodology on income poverty statistics, there will be a need to re-examine whether the current national poverty line still reflects an accurate portrait of the threshold that separates the poor from the non-poor. Across social media, the PSA received a lot of criticism when it described the poverty line (for the first semester of 2019) as a monthly income of about ten thousand per month for a family of five. There is some sense to adjusting the national poverty line used by the PSA since the poverty line is based on a methodology approved a decade ago; this poverty line needs updating since consumptions and lifestyles change across time especially when a country undergoes development.

World Bank makes use of several international poverty lines aside from the $1.90 per person per day in purchasing power parity poverty (PPP) [40] 2011 prices. In particular, it defines poverty lines for lower-middle-, upper-middle- and high-income countries respectively at $3.20 PPP, $5.50 PPP, and $21.70 PPP a day. **Table 10** shows the income poverty rates (from the FIES) making use of the $1.90 and $3.20 international poverty lines, as well as the official poverty lines.

Table 10 Income Poverty Headcount Rates (in %) in Philippines using International and National Poverty Lines: 2006-2015

Year	International Poverty Line		National Poverty Line
	$1.90 a day	$3.20 a day	
2015	6.15	26.04	21.6
2012	10.51	33.55	25.2
2009	10.87	34.24	26.3
2006	14.54	38.42	26.6

Source: World Bank Povcalnet; PSA

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[39] Under the law of one price, and given relatively weak assumptions on consumer preferences, the relative prices are equal to the rate at which consumers— regardless of their income levels and allowing for different utility functions—are willing to trade one such component of the index (e.g., safe drinking water) for another (e.g., an asset such as television).

[40] The PPP exchange rates essentially capture the cost of living difference among countries. To obtain PPP, the "nominal" exchange rate (e.g., the market rate) between currencies is adjusted by the difference in prices between the countries whose currencies are being converted, one to the other. The result, for example, is that a given amount of Philippine peso can buy the same basket of goods when used directly or when converted to US dollars using the price-adjusted or PPP dollar/ peso exchange rate.

While the trends are fairly comparable using the different poverty lines, the official (income) poverty headcount that uses the national poverty lines are between to estimates using an international poverty line of $1.90 and $3.20 per day, suggesting that the current poverty lines may need to be shifted upward. Currently, the PSA makes use of an overly complicated methodology that estimates the cost of a food menu, but a food basket pertaining to foods consumed by those in the second to the fourth income deciles may be alternatively used (Albert and Molano 2009).

4.2.6. Coherence

Many top-of-mind official statistics are generally viewed to be coherent. For instance, trends in the national income accounts, which uses the most recent 2008 SNA to the extent possible, are consistent with those of the Purchasing Manager's Index[41] and other information generated by the private sector on the country's economic performance. In its annual report for 2013, the PSA report on the results of the 2010 Survey of Energy Consumption of Establishments (SECE), conducted by the PSA for the Department of Energy (DOE), and the consistency of data compiled on the computation of fuel products and electricity that sample establishments reported (PSA 2013). Reports on some official statistics, such as national accounts, have a section for sources of revisions, which list the amount of the correction and the reason for revisions. The PSA issues press releases to correct statistics, but there ae no existing guidelines and statistical policies for their timing.

Because of adherence to statistical standards, the official statistics in the country are generally comparable over time. However, weaknesses prevail. As of 2018, the World Bank's SCI in the methodology dimension for the PSS was below its peak in 2008 and 2009. There are concerns expressed by experts than even CPI, which uses a 2012 base year does not anymore reflect accurately economic conditions, especially given the fast-growing use of telecommunications devices and the Internet. Experts also fear that the PSS, particularly the PSA, is unable to see the growing and vastly changing nature of the digital economy, particularly the platform economy.

The PSDP proposes to adopt core national development indicators to improve statistical coherence and comparability. The PSDP mentions the PSS must revitalize statistical coordination and monitoring mechanisms, and adopt policies on data revision and changes in concepts and definitions, designs, and methodologies. No formal process to monitor the consistency of methods exists, and the decentralization of the PSS complicates adherence to methods. Monitoring applies partially, but the SDDS impose adherence to standard methods.

The Philippine Statistical Act of 2013 transformed the former SRTC into the PSRTI to strengthen statistical capacity development as well as engage in development activities on statistics. Statistical research and training (including statistics education) could be mechanisms to improve data quality, methodology, and innovation. However, there are also concerns that some middle management, who are not benefitting from capacity development activities, are becoming bottlenecks to innovation. One stakeholder relayed his experience training PSA staff on designing infographics. Even if trained PSA staff applied what they learned during training

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[41] http://www.bsp.gov.ph/statistics/spei_new/tab51_pmi.htm ; http://imetricsasia.com/what-we-do/content-provider/pmi-philippines

activities, when the PSA produces reports, their supervisors would still revert to the old formats. This maybe arising because no lifelong learning system is in place, with everyone, including junior and senior managers being given opportunities to be re-tooled.

5. Summary and Ways Forward

Six years have gone by since RA10625 was enacted, and more than a decade since the PSS review by the Valdepeñas committee. This study looked into various issues, from the current statistical legislation, to the (human, budget and ICT) resources in the PSA (as an indicator of the state of affairs in the entire PSS), to international assessments made on the PSS, to PSS stakeholder observations on the quality of data produced by the PSS. This study looks into the statistical capacity and enabling environment of the PSS, especially given demands for national development planning, and issues of trust in data that all NSSs are confronting in the modern day.

With the growing demands for statistics not only for monitoring the PDP and the country's progress in meeting its commitments to the 2030 Agenda for Sustainable Development and the ASEAN Community Vision 2025, it is important for the PSA and the entire PSS to improve the quality of official statistics and the caliber of its human resources aside from having an improved legal framework and governance. Experts point out that the PSA is getting absorbed by issues about systems that have become part of its mandate but are not directly statistics-related (viz., the CRS and the National ID). According to one expert, "in terms of implementing and planning for the National ID system, the PSA follows the model of India which was hacked. It is difficult to guarantee the confidentiality of information (in statistical activities) once they are hacked."

Ironically, the public branding on the PSA is about the CRS, and soon the PhilSys, and not about statistics. Currently, the public's judgement about the capability of PSA is judged by the performance of *Serbilis* Centers to produce birth certificates rather than the ability of PSA to produce official statistics that are relevant, accurate, timely, accessible, interpretable, and coherent. The branding of the PSA (and the NSO) has always been about birth certificates rather than of the censuses and sample surveys that the PSA conducts. There are big risks that once data holdings on these systems are hacked, they will have dire consequences to the trust the public has had in the PSA.

The benefits and harms that the CRS and the PhilSys do and will do to the production of quality statistics, statistical coordination, and statistics development in the country need critical, objective re-examination with the view to recommend whether these systems should stay with the PSA.

Several statistics experts expressed concern that the current budgets of PSA have not been fully utilized, with staff positions not being filled, and budget utilization being low, especially for recent budgets pertaining to the implementation of the national ID. Although a 2020 budget for the national ID was requested, the current version of the General Appropriations Act in Congress does not provide for a budget for Philsys. Neither are the budgetary requirements for the conduct of the 2020 population census fully provided by government. Understandably, this lack of appreciation of required budgets for the PSA has arisen from the lack of absorptive capacity to spend its immediate past budgets. The PSA has also been reportedly questioned

for service allowances given to its PSA officials and select staff. All these issues are reducing the integrity of the PSA.

Experts also mentioned that the current statistics law, which omitted a Statistics Policy Council in lieu of an inter-agency PSA Board effectively eliminated a mechanism for external review of the PSA. The conversion of TCs into IACs further weakened outside expert input to PSA and the entire PSS.

Among official statistics, agriculture and industry statistics remain very weak with PSA still relying on faulty procedures carried out by the former BAS. Industry statistics weaknesses have been with the former NSO from the beginning on account of defective sampling frames that do not readily track and deaths of firms. Further emphasis at the former NSO, including on training, had been on household-based info.

PSA technical competence in statistics has weakened, as evidenced from the international assessments, as well as from the failure to release results of the recent agriculture census and operational breakdowns with the large discrepancies in the population and household counts.

The PSRTI, like its predecessor organization, does more training than research, though in both cases activities are short-term and do not fully address the need for skills to lead and conduct statistics research and development.

There are still many aspects of RA 10625 that have yet to be implemented by the PSA to fully improve the quality of government statistics, particularly those on crime and drugs, out-of-school youth, agriculture and fisheries, health and nutrition, among others. DQAFs need to be mainstreamed across the PSS. Critical to improving the quality of official statistics in the country are people, processes and partnerships.

More can be done by the PSA in having a systematic statistical capacity development plan and strategy that considers not only training for individuals, but also putting in place lifelong systems for all of its staff. It is also important for the PSA to have a strategy to fill all its remaining unfilled positions in the near future. While the PSDP advocates greater statistical capacity development through stronger institutions and a focus on technical, professional, and career development, the plan for methodological improvement and capacity development should be more strategic. Skills upgrading in the PSS, especially the PSA should not only focus on technical requirements, but also soft-skills development.

The cross posting of PSA staff in other agencies (e.g. DepEd, DSWD, DOH) should be piloted so that these agencies could them improve their data collection systems. PSA currently points out that it cannot cross-post because internal positions have yet to be filled, but the law specifically mandates the PSA to initiate this activity. Experts point out that carrying out cross-posting can actually strengthen coordination, improve statistics coming out of line agencies, and increase the use of administrative data for statistics production.

Attention should also be given to be improving survey designs, especially of establishment and agricultural surveys, triangulating if possible information from other sources (such as LGU data on business registration, and remote sensing/satellite imagery). Methodological research undertaking should also be part of the investments given the possibilities for making use of emerging, innovative data sources that can be integrated with traditional data sources. The PSA should be ensuring that experts provide external assessments of the current statistical

production process, especially given the diminishing stature of the PSS in the SCI, the composite index of statistical capacity regularly released by the World Bank. More attention should be given by the PSA to monitoring the SCI and other international assessments and having remedial action for improving the performance of the PSS. There is also a lot of scope for improving data dissemination and communication processes. Feedback from data users and action on this feedback is essential.

Functionings of IACs could be improved (especially by having them work out plans toward the development of ARCs across sectoral statistics). Some IACs (e.g., on Poverty Statistics, and on Population and Housing Statistics) should be converted to TCs given the need for technical discussions with experts. IACs and TCs have been coordination tools of the PSS, and a mechanism for data producers to receive feedback from experts. Now, more than ever, the PSA and the entire PSS needs help and technical advice on surveys in the PSS, on population projections, among others.

Better budgetary support, and improved statistical infrastructure, such as ICT resources (including improved systems for cyber-security, and knowledgeable staff on ICT) are essential for the PSA and for statistics development across the PSS. Work on integrating traditional and innovative data sources require also cloud computing, aside from improved analytical skills for PSA staff.

There may also be scope for further amending RA 10625 to improve the PSS and its governance. In particular, the following revisions to the statistical legislation are suggested:

- The current Statistics Law is too PSA- and PSRTI-centric. The Statistics Act should describe processes on the products and services across many statistical organizations, defining traditional data collection activities, and emerging, innovative data sources that can be integrated, especially for addressing current data gaps. The law also needs to state that official statistics are a public good, and to require government to assure budgets for designated statistics. RA 10625 also falls short of mentioning equal access to data produced by the PSA and other data producers.
- It is important to assess to what extent the country could further ensure the independence of statistics from political interference. RA10625 does not make explicit mention of separating statistical releases from political statements, nor are there currently any standards and guidelines on this. In other ASEAN member states, the NSOs have an independent status and are merely functionally attached to either the Office of the President (Indonesia), the Office of the Prime Minister (Malaysia), or some department that has no vested interest in statistics, such as the DICT (Thailand). There is a need to rethink the current composition of the PSA Board as was suggested in the Valdepeñas committee to have in place instead a committee of experts as the Statistics Policy Council. If the current composition continues, the PSA Board responsibility to "provide technical assistance and exercise supervision over major government statistical activities" should at least be removed, especially as this is not a competency of PSA board members. The PSRTI Governing Board composition as per RA 10625 should likewise be re-examined and legally amended.
- While the PSA defines an ARC for major socio-economic statistics, there is no legal anchor for it and other statistics producers to publish and adhere to an ARC that can protect the integrity and independence of statistics. Neither are there statistics policies, except on the designated statistics, but the lack of an accountability

framework has not yielded any outcomes to improve the timely releases of statistics, especially those out of the main responsibility of the PSA.

The PSS, particularly the PSA and the PSRTI, are in an emerging data landscape. Official statistics are about credibility and integrity. Statistical capacities of data producers will need constant improvement, especially in harnessing skills, technology for data capture and analysis, as well as in integrating traditional data sources with innovative data sources. The government will need to invest in statistics, statisticians, and statistical organizations to ensure that the official statistics of the country continue to be viewed well and will fare even much better than its current standing. These investments require absorptive capacities of the PSA and other data producers, whose staff will need future skills so that they can obtain insights from traditional and innovative data sources that decision makers can use in real time in improving development outcomes today for a better and brighter tomorrow for all people in every corner of the country.

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Annex Table A-1 SDDS Summary of Observance: Philippines.

SDDS Data Category	Coverage (meets SDDS)	Periodicity		Timeliness		Comments (Flexibility Options, etc)
		SDDS	PHL	SDDS	PHL	
Real Sector (Specification)						
National accounts	Yes	Q	Q	1Q	NLT 2M	
Production index	Yes	M	M	6W (1M encouraged)	8W	Timeliness flexibility
Value, Volume of Production Index of Key Enterprises in Manufacturing By Industry						
Labor market: Employment	Yes	Q	Q	1Q	6W	
Labor market: Unemployment	Yes	Q	Q	1Q	6W	
Labor market: Wages/Earnings	Yes	Q	2A	1Q	14M	As relevant coverage
Average Monthly Wage Rates in Selected Occupations						
Price index: Consumer prices	Yes	M	M	1M	5D	
Price Index: Consumer Price Index						
Price index: Producer prices	Yes	M	M	1M	5W	Timeliness flexibility
Producer's Price Index for Manufacturing By Industry Major Group						
Fiscal Sector (Specification)						
General Government Operations	Yes	A	A	2Q	6M	
Consolidated Public Sector Financial Position						
Central government operations	Yes	M	M	1M	3W	
Cash Operations of the National Government						
Central government debt	Yes	Q	M	1Q	4W	
National Government (NG) Outstanding Debt						
Financial Sector (Specification)						
Depository corporations survey	Yes	M	M	1M	1M	
Analytical accounts of the depository corporations sector						

SDDS Data Category	Coverage (meets SDDS)	Periodicity		Timeliness		Comments (Flexibility Options, etc)
		SDDS	PHL	SDDS	PHL	
Central bank survey Analytical Accounts of the Central Bank	Yes	M (W encouraged)	M	2W (1W encouraged)	2W	
Interest rates INTEREST RATES	Yes	D	D	1D	1D	
Stock market: Share price index Composite Index	Yes	D	D	1D	1D	
External Sector (Specification)						
Balance of payments	Yes	Q	Q	1Q	11W	
Official reserve assets	Yes	M(W encouraged)	M	1W	1W	
Reserves template	Yes	M	M	1M (1W encouraged)	NLT 1M	
Merchandise trade	Yes	M	M	8W (4-6W encouraged)	45D	
Merchandise trade - Total Imports Merchandise imports		M	M	8W (4-6W encouraged)	59D	
International investment position	Yes	Q	Q	1Q	NLT 3M	
External debt	Yes	Q	Q	1Q	NLT 1Q	
Exchange rates	Yes	D	D	1D	1D	
Socio-demographic Data (Specification)						
Population	Yes	A	A	...	8M	

Note:

Periodicity and timeliness: (D) daily; (W) weekly or with a lag of ## week(s) from the reference date; (WD) working days, or business days; (M) monthly or with a lag of ## month(s); (NLT) not later than; (Q) quarterly or with a lag of ## quarter(s); (A) annually; (SA) semiannual; and (...)

not applicable.") 1Given that the data are broadly disseminated by private means, the timeliness with which official data are disseminated is not time critical

Annex Table A-2 List of SDG Global Indicators that have available data but are not available in Philippine SDG Watch, by Tier.

SDG Indicator	Tier (global)
1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disability, pregnant women, newborns, work-injury victims and the poor and the vulnerable	Tier II
1.4.1 Proportion of population living in households with access to basic services	Tier III
2.1.1 Prevalence of undernourishment	Tier I
2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	Tier II
2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	Tier III
2.3.2 Average income of small-scale food producers, by sex and indigenous status	Tier III
2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities	Tier I
2.5.2 Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction	Tier I
2.a.1 The agriculture orientation index for government expenditures	Tier II
2.a.2 Total official flows (official development assistance plus other official flows) to the agriculture sector	Tier I
2.c.1 Indicator of food price anomalies	Tier II
3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	Tier II
3.3.4 Hepatitis B incidence per 100,000 population	Tier II
3.3.5 Number of people requiring interventions against neglected tropical diseases	Tier I
3.4.2 Suicide mortality rate	Tier I
3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)	Tier III
3.9.1 Mortality rate attributed to household and ambient air pollution	Tier I
3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	Tier I
3.b.1 Proportion of the target population covered by all vaccines included in their national programme	Tier II
3.b.2 Total net official development assistance to medical research and basic health sectors	Tier I
3.c.1 Health worker density and distribution	Tier I
3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness	Tier I
4.b.1 Volume of official development assistance flows for scholarships by sector and type of study	Tier I

4.c.1 Proportion of teachers in: (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country	Tier II
5.6.1 Proportion of women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care	Tier II
6.1.1 Proportion of population using safely managed drinking water services	Tier II
6.2.1 Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	Tier II
6.4.1 Change in water-use efficiency over time	Tier II
6.5.1 Degree of integrated water resources management (IWRM) implementation (0-100)	Tier I
6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation	Tier II
6.6.1 Change in the extent of water-related ecosystems over time	Tier III
8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	Tier I
8.7.1 Proportion and number of children aged 5-17 years engaged in child labour, by sex and age	Tier II
8.a.1 Aid for Trade commitments and disbursements	Tier I
9.3.1 Proportion of small-scale industries in total industry value added	Tier II
9.3.2 Proportion of small-scale industries with a loan or line of credit	Tier II
9.4.1 CO2 emission per unit of value added	Tier I
9.5.2 Researchers (in full-time equivalent) per million inhabitants	Tier I
9.b.1 Proportion of medium and high-tech industry value added in total value added	Tier I
9.c.1 Proportion of population covered by a mobile network, by technology	Tier I
10.7.2 Number of countries that have implemented well-managed migration policies	Tier III
10.c.1 Remittance costs as a proportion of the amount remitted	Tier II
11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	Tier I
11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	Tier II
11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	Tier I
12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies	Tier II
12.2.1 Material footprint, material footprint per capita, and material footprint per GDP (Indicator is also SDG 8.4.1)	Tier III
12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP (Indicator is also SDG 8.4.2.)	Tier I

12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement	Tier I
12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels	Tier III
14.6.1 Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	Tier III
14.b.1 Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries	Tier III
15.3.1 Proportion of land that is degraded over total land area	Tier II
15.4.1 Coverage by protected areas of important sites for mountain biodiversity	Tier I
15.4.2 Mountain Green Cover Index	Tier I
16.1.3 Proportion of population subjected to physical, psychological or sexual violence in the previous 12 months	Tier II
16.2.2 Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation	Tier II
16.2.3 Proportion of young women and men aged 18-29 years who experienced sexual violence by age 18	Tier II
16.3.2 Unsentenced detainees as a proportion of overall prison population	Tier I
16.5.2 Proportion of businesses that had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months	Tier II
17.10.1 Worldwide weighted tariff-average	Tier I
17.12.1 Average tariffs faced by developing countries, least developed countries and small island developing States	Tier I
17.15.1 Extent of use of country-owned results frameworks and planning tools by providers of development cooperation	Tier II
17.16.1 Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the sustainable development goals	Tier II