

# THE CHALLENGES AND SOLUTIONS OF SUSTAINABLE DEVELOPMENTS GOALS (SDG) DATA COORDINATION AND INTEGRATION IN MALAYSIA

Nur-'Azah Afnan Hanafi<sup>1</sup>, Nur Ezzati Abdul Hamid<sup>1</sup>, Mohd Amin Ishak<sup>2</sup>,  
and Zaidatul Azreen Zulkiple<sup>1</sup>

## ABSTRAK

*Jabatan Perangkaan Malaysia (DOSM) merupakan agensi utama kerajaan yang diamanah dan dipertanggungjawab untuk memungut, mentafsir serta menyebarkan perangkaan yang bertepatan masa dan terkini untuk memantau prestasi ekonomi dan juga pembangunan sosial negara. DOSM telah dilantik sebagai focal point dalam penyelarasan pembangunan indikator SDG yang memberi tumpuan kepada pembangunan sosial, alam sekitar dan ekonomi Malaysia. Pada bulan Disember 2021, DOSM telah menerbitkan Laporan Indikator SDG 2020 yang terdiri daripada 146 indikator yang tersedia. Daripada 146 indikator ini, 74 peratus adalah daripada kementerian/ agensi lain dan selebihnya 26 peratus adalah daripada DOSM. Dalam mencapai Matlamat Pembangunan Mampan (SDG) untuk Malaysia, DOSM menyedari bahawa cabaran terbesar yang dihadapi oleh sebuah negara adalah untuk mengenal pasti jurang data. Tindakan yang komprehensif perlu diambil untuk mengurangkan jurang data ke arah mencapai Agenda 2030. Artikel ini akan memfokuskan terutamanya pada isu dan cabaran yang berkaitan dengan koordinasi dan integrasi indikator SDG serta penyelesaiannya. Penyelesaiannya akan menghuraikan bagaimana SDG memberikan contoh terbaik mengapa sistem statistik yang terkoordinasi dan bersepada penting untuk memastikan pencapaian Agenda 2030.*

*Kata kunci: Matlamat Pembangunan Mampan, Indikator SDG, Jurang Data*

## ABSTRACT

*The Department of Statistics Malaysia (DOSM) is a premier government agency under the Prime Minister's Department entrusted with the responsibility to collect, interpret and disseminate latest and real time statistics in the monitoring of national economic performance and social development. DOSM has been appointed as a focal point in the coordination of the development of SDG indicators that focuses on Malaysia's social, environmental and economic development. In December 2021, DOSM has published the SDG Indicators 2020 report which consists of 146 readily available indicators. Out of 146 readily available indicators, 74 per cent are from other ministries/ agencies and the remainder 26 per cent are from DOSM. As Malaysia's progress in*

---

<sup>1</sup> Nur-'Azah Afnan Hanafi is currently Principal Assistant Director of Manpower and Social Statistics Division, Nur Ezzati Abdul Hamid, and Zaidatul Azreen Zulkiple are currently Assistant Director at Manpower and Social Statistics Division, and <sup>2</sup> Mohd Amin Ishak is currently Senior Assistant Director at Balance of Payments Statistics Division, Department of Statistics Malaysia.

Nur-'Azah Afnan Hanafi, Nur Ezzati Abdul Hamid, Mohd Amin Ishak, and Zaidatul Azreen Zulkiple

*achieving the Sustainable Development Goals (SDGs), DOSM realised the biggest challenge faced by a country lies in identifying the data gaps. A comprehensive course of actions needs to be undertaken to reduce the data gap toward achieving 2030 Agenda. This paper will focus primarily on issues and challenges relating to the coordination and integration of SDG indicators as well as the solutions. The solutions will elaborate on how SDGs provide a perfect example of why a coordinated and integrated statistical system is important to ensure the achievement of 2030 Agenda.*

**Keywords:** Sustainable Development Goals, SDG Indicators, Data Gaps

## 1. INTRODUCTION

Malaysia together with 192 UN Members states has expressed its commitment to support and implement the 2030 Agenda for Sustainable Development Goals (SDGs) at the United Nations General Assembly in New York on September 2015. Malaysia has established National SDG Council chaired by Prime Minister to plan and monitor the SDGs implementation of the country. It consists of multi-stakeholder and participatory governance structure. The Council is supported by the National Steering Committee (NSC) chaired by the General Director of the Economic Planning Unit (EPU) which tasked to formulate SDGs Roadmap, monitor progress of targets, identify issues and report to National SDGs Council. Meanwhile, Department of Statistics, Malaysia (DOSM) has been tasked as the focal point in the development of SDG indicators.

Internally, DOSM SDG Task Force was established on 28<sup>th</sup> August 2017 with a composition of five Working Committee Cluster from the respective division. The function of the task force is to identify and establish a strategic technical framework between DOSM and other ministries/ agencies involved in the development of SDG indicators as well as to review the development of SDG indicators for the purpose of research, planning and policy formulation by the government.

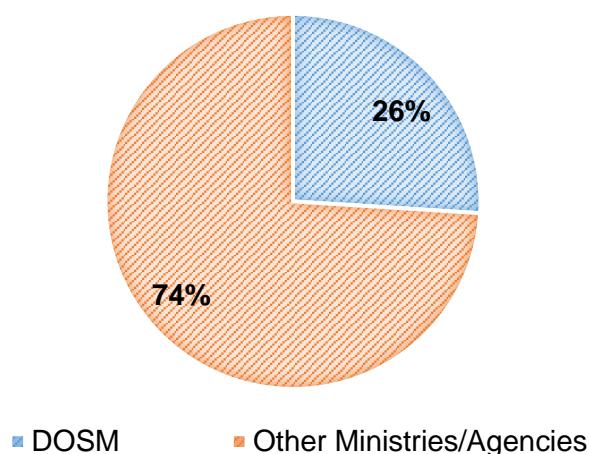
The Government's commitments to the sustainable development agenda are integrated into the Mid-Term Review of the Eleventh Malaysia Plan (11MP), Twelfth Malaysia Plan (12MP) as well as Shared Prosperity Vision (SPV). In this regard, the commitment to 2030 Agenda for Sustainable Development has been aligned with the strategies and initiatives of the 11MP and 12MP. 12MP which has been announced in September 2021 is a comprehensive development plan to ensure sustainable economic growth with more equitable distribution of opportunities and outcome. Meanwhile, SPV 2030 is a commitment to make Malaysia a nation that achieves sustainable growth along with fair and equitable distribution, across income groups, ethnicities, regions and supply chains.

DOSM has conducted the SDG Indicators assessments and studies on data readiness and gap analysis as well as undertake a mapping exercise with Government Plans and Policies (DOSM, 2018). In December 2018, DOSM has published The Initial Assessment of Sustainable Development Goals Indicators, 2018. This report presents 118 indicators (48%) as available. The first and second SDG Indicators report for Malaysia has been subsequently published in October 2019 and December 2020 which contains 99 and 128 available indicators respectively. The reports highlighted

the national progress being made towards the 2030 Agenda for SDGs. Malaysia has also launched the National SDG Progress Monitoring System as one stop centre of visualization dashboard on March 2019. This platform will facilitate government agencies, academia and researcher to conduct in depth analysis regarding the SDG achievement.

Progressing well in the indicators development, currently there are 146 available indicators whereby 26 percent of the indicators are produced by DOSM and the remaining 74 percent are from other ministries/ agencies as shown in Chart. The final number of available indicators for 2020 is subject to the feedback given by ministries/ agencies.

**Chart: Percentage of available indicators by source agencies, 2020**



## **2. CHALLENGES AND SOLUTIONS OF SUSTAINABLE DEVELOPMENT GOALS (SDG) DATA COORDINATION AND INTEGRATION**

Every country needs to identify the challenges of implementing the SDGs to ensure countries are on the right track for achieving sustainability. Among the challenges are lack of fully developed infrastructure to support networking, high-performance computing, the use of GIS, the lack of manpower to operate and support a database management system as well as the absence of policies regarding infrastructure in developing nations and underdeveloped countries (Sarvajayakesavalu, 2015). Rahman (2020) said that proper alignment with national planning and policy processes and coordination as well as availability of factual data, partnership, and stakeholders' active participation are among the challenges face to measure SDGs.

Based on the Oxford Languages coordinate means to bring the different elements of (a complex activity or organization) into a harmonious or efficient relationship. While integrate means combine (one thing) with another to form a whole. Thus, it is important to have a strong coordinated and integrated statistical system especially in developing and monitoring the SDG for the nation. According to FAO (2010) the integrated statistical systems can resolve many problems by avoiding duplications of effort, preventing the release of conflicting statistics, and ensuring the best use of resources. Furthermore, the standardisation of concepts, definitions and classifications will allow more systematic data collection across sources.

From a statistical perspective, the implications of Agenda 2030 for the accompanying monitoring framework are enormous. Not only have the number of goals and targets increased considerably (the MDGs had 8 goals, 21 targets and 60 indicators whereas the SDGs have 17 goals, 169 targets and 247 indicators), but also has the complexity of these targets. The scope of Agenda 2030 is also far wider than that of its predecessor, attempting to span the full spectrum of development issues, including not only aspects of society, economy and the environment but also institutional coordination. The challenges for data coordination and integration in Malaysia can be divided into five categories as follows:

- a) Metadata;
- b) Data disaggregation;
- c) Limitation use of administrative data and survey data;
- d) Population Census 2020 as new data sources for SDG; and
- e) Lack of data sources from unofficial data.

### **Metadata**

Based on OECD, metadata is data that defines and describes other data. Meanwhile, ISO standard defined metadata as data that defines and describes other data and processes.

The compilation of SDG Indicators involves multiple agencies. There are 36 agencies involved in the data collection process hence, the data collection has to be carried out in a structured and well-planned manner. Furthermore, DOSM also has to scrutinize the metadata and methodology used by agencies to ensure the data is comparable and reliable. DOSM will propose the indicator as proxy indicators to the agencies if the metadata do not match the IAEG-SDG. As the focal point for SDG indicators development, DOSM relies at other ministries/ agencies in order to provide the SDG Indicators. It is recorded that more than 70 percent of SDG indicators are from ministries/ agencies. However, lack of understanding towards SDG Indicators among the data providers has resulted with the agencies unable to provide the data. Thus, engagement session and capacity building are crucial to assist the agencies to have a better understanding regarding the SDG Indicators. DOSM has also engaged with United Nation Country Teams for technical assistance in developing Partially Available and Not Available Indicators.

### **Data disaggregation**

In ensuring no one is left behind, the statistics need to be presented for different population groups and geographical areas (IAEG-SDG, 2019). According to the IAEG-SDG, the principle of disaggregated data are the SDG indicators should be disaggregated, where relevant, by income, gender, age, race, ethnicity, migratory status, disability and geographic location or other characteristics in accordance with the Fundamental Principles of Official Statistics.

Based on the SDG Indicators Malaysia 2020, there are 59 per cent of indicators with disaggregated data (73 out of 124 statistical indicators). From 73 indicators, 24 per cent (30 indicators) are multiple disaggregation while 35 per cent (43 indicators) are single disaggregation. Types of disaggregation are by districts, state, sex, strata, age, education and others. Thus, to enhance the disaggregation of indicators towards achieving 2030 Agenda, it is important to strengthen the usage of existing administrative as well as survey data. In addition, it is also crucial to have a frequent engagement with related agencies to develop understanding regarding the indicator and discuss the disaggregation of the existing available indicator.

### **Limitation use of administrative data and survey data**

According to MacFeely (2017), survey data will not be sufficient to compile all SDG indicators and some will rely heavily on its link with administrative microdata. Thus, it will require the use and integration of administrative data which is most likely from third party agencies. For instances, SDG 3.1.1 Maternal mortality ratio; SDG 3.2.1 Under-five mortality rate and SDG 3.2.2 Neonatal mortality rate are some of indicators produced by the integration and use of administrative data from National Registration Department. The statistics have been compiled based on the concepts and guidelines of Principles and Recommendations for a Vital Statistics System, Revision 3 published by United Nations Statistics Division (2014).

Since SDGs present a vision for a transformed world in 2030, the idea of holistic data ecosystems using unofficial data has often being raised up. This practice is expected to grow as statistical agencies are now looking beyond survey and administrative data (Macfeely & Nastav, 2019). It has been pointed out that big data will be one of the useful sources for compilation of official statistics. Big data also have the potential to produce more relevant and more timely statistics than traditional sources of official statistics, such as survey and administrative data sources. Among big data sources are, mobile data, social media, satellite imaging and commercial transactions. The potential use of big data statistics can contribute to the new indicator development. For instance, the data from mobile operator databases can help to determine population location which is essential during disaster such as flood. The information can be used by the government to plan aid distribution and estimate the number of people affected. The SDG indicator involves are SDG1.5.1/11.5.1/13.1.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population. In addition, geospatial is one of the most promising data sources and can be used very effectively for monitoring most of the SDGs (Avtar et.al., 2019). In future planning, SDG 11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities; SDG 11.3.1 Ratio of land consumption rate to population growth rate and SDG 11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities have been identified to be integrated from spatial tools by enumeration block from Census 2010. DOSM has started using Geographic Information System (GIS) to produce new SDG Indicator, SDG 9.1.1 Proportion of the rural population who live within 2 km of an all-season road.

Nur-'Azah Afnan Hanafi, Nur Ezzati Abdul Hamid, Mohd Amin Ishak, and Zaidatul Azreen Zulkiple

In addition, the data gaps for achieving the Sustainable Development Goals (SDGs) also can be address using Citizen Science. This non-traditional data source is potential to track progress on the SDGs, provide input for evidence-based policy making and SDG achievement. Citizen science data consist of data that 'citizen scientists' voluntarily generate and gather by employing a wide range of technologies and participatory collection methodologies, such as community-based monitoring, crowdsourcing online platforms, or digital sensors (Ballerini & Bergh, 2021).

### **Population Census 2020 as new data sources for SDG**

Census data also become a major source for SDG Indicators development. It captures a wide spectrum of a country's population data and characteristics as well as other variables such as housing, income, sanitation etc. Malaysia Population and Housing Census 2020 consists of 108 questions covers nine section namely A. Respondent information, B. Address, C. Living quarters, D. Household, E. Persons particulars, F. Health and fitness, G. Social relations, H. Housing and I. Senior citizens. There are seven new parameters in Census 2020 questions namely Health, Distance & Access to Basic facilities, Crime Prevention and Road Safety, Social Relations, Active Lifestyle; Environment and Senior Citizens. To support the commitments towards 2030 Agenda, SDG parameters are also included in the questionnaire. Among the SDG parameters are SDG 9.1.1 Proportion of the rural population who live within 2 km of an all-season road and SDG 16.1.4 Proportion of population that feel safe walking alone around the area they live. The outcome from 2020 Census data can be used to measure the SDG and act as a baseline for SDG Indicators even though the data only available in 10 years period. In addition, eight SDG indicators will be included in the upcoming Economic Census.

### **Lack of data sources from unofficial data**

Currently, DOSM only uses official data from administrative data as well as survey/census data produced by DOSM and 36 other government agencies for the development of SDG Indicators. To date, there are 146 indicators (59%) which are available at national level.

Limited data sources have become the obstacle to measure the progress of the SDG Indicators. To enhance the data sources, collaboration between DOSM and new actors can be beneficial to improve the data availability of SDG Indicators at national and local level. New actor refers to non-governmental organization (NGO), Civil Society Organization (CSO), academia and private sectors who can contribute unofficial data to SDG Indicators development. For instance, All Party Parliamentary Group Malaysia (APPGM-SDG) has conducted SDG Survey in ten parliamentary constituencies, namely Bentong, Selayang, Petaling Jaya, Tanjung Piai, Papar, Pensiangan, Kuching, Batang Sadong, Pendang and Jeli. All studies conducted are using qualitative methods and focus on the solution project that is to implement activities for selected areas in need of assistance.

Through the engagement, all the SDG data can be integrate to produce more holistic SDG database. The SDG programme conducted also can be coordinated with the cooperation of government agencies and others. This will definitely reduce the cost and will bring more impact to the community. The exchange between these organisations and the NSO will certainly help to improve the coverage of SDGs. Countries such as Netherlands has started to collaborate with a group of organisations outside of the NSS to explore the use of unofficial data for SDG reporting (Cazarez-Grageda & Zougbede, 2019). The group included universities, research institutes, non-governmental organisations and foundations. Statistics Netherlands has use data from the NGOs Pharos and Rutgers on genital mutilation and sexual violence to measure progress on SDG5 and SDG16 while Uruguay used gender statistics from a civil society organization to report on SDG3.

Using alternative sources to official data may require the combination of statistical and subject matter expertise since there might have a problem regarding errors or inaccuracies, non-adherence to international standards, incompleteness or data gaps and inconsistencies over time or imbalances. If unofficial statistics are to be used, then they must adhere to the same high-quality standards as official statistics. However, achieving the SDGs requires integrated solutions and relies on complementary roles of different organizations in society. As recognized by the 2030 Agenda, NGOs play critical roles in SDG implementation to raise awareness and mobilize, build capacity, design and implement projects, monitor and review policies, collect data, provide technical expertise, and both support as well as hold governments accountable to their commitments (NGO, 2017).

Currently, DOSM has initiated a number of efforts in reducing SDG data gaps. National Household Indicators Survey (NHIS) has been conducted during September until November 2021 covering 22 additional SDG indicators. Meanwhile, 8 SDG indicators will be included in the upcoming Economic Census. DOSM also has engaged with Food and Agriculture Organization (FAO) to develop SDG 2.1.1: Prevalence of undernourishment and SDG 2.1.2: Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES). For the upcoming effort, DOSM will collaborate with UNICEF to strengthen the monitoring and evaluation (M&E) of the Sustainable Development Goals (SDGs) in Malaysia. The technical assistance provided by UNICEF is expected to bridge the gap on the readiness by Malaysia to effectively progress towards the achievement of all SDGs.

### **3. CONCLUSION**

To ensure that policies, programmes and decision are based on statistical evidence, among DOSM's initiatives in facing the challenges especially in modernisation of data collection and integration are digitalisation in big data as well as enhancement of national statistical system through National Statistics and Data Council as well as the establishment the National Big Data Analytic Centre (NBDAC). The aspiration is for the purpose of NBDAC to serve as the administrative center for national public data analytics, where it is responsible for data collection in an integrated manner, as a dissemination hub data, manage, coordinate and analyze public data from various agencies and data sources for national needs. Currently, DOSM is in the midst of the expansion of statistics data warehouse which aims to improve the statistical delivery system, simplifying the management metadata as well as managing data sharing, communications, analysis and analytics.

Integration of data (official and non-official data) is crucial to produce more available SDG Indicators which will assist government to measure the country position towards achieving SDG Goals. The national statistical system needs to strengthen and develop its capacities to process, validate and classify data from alternative sources to ensure the achievement of SDG. The variety of data coming from government agencies, private sectors and NGOs will be an input to the holistic planning and policy making which will covers all aspect and people and thus will put Malaysia on the right track in achieving Agenda 2030.

## REFERENCES

Avtar, R., Aggarwal, R., Kharrazi, A., Kumar, P., & Kurniawan, T. A. (2019). Utilizing geospatial information to implement SDGs and monitor their progress. *Environmental Monitoring and Assessment*, 192. doi:10.1007/s10661-019-7996-9.

Ballerini, L., & Bergh, S. I. (2021). Using citizen science data to monitor the Sustainable Development Goals: a bottom-up analysis. *SpringerLink*.

Cazarez-Grageda, K., & Zougbede, K. (2019). *National SDG Review: data challenges and opportunities*.

DOSM. (2018). *The Initial Assessment of the Sustainable Development Goals Indicators for Malaysia 2018*. Department of Statistics Malaysia.

DOSM. (2019). *Sustainable Development Goals (SDG) Indicators Malaysia 2018*. Department of Statistics Malaysia.

DOSM. (2020). *Sustainable Development Goals (SDG) Indicators, Malaysia, 2019*. Department of Statistics Malaysia.

DOSM. (2021). *Sustainable Development Goals (SDG) Indicators, Malaysia, 2020*.

FAO. (2010). *Global strategy to improve agriculture and rural statistics*. The world bank.

IAEG-SDG. (2019). *Data Disaggregation and SDG Indicators: Policy Priorities and Current and Future Disaggregation Plans*. Statistical Commission Fiftieth Sessions.

MacFeely, S. (2017). Measuring the Sustainable Development Goals: What does it mean for Ireland? 65, 41-71. doi:10.1515/admin-2017-0033

Macfeely, S., & Nastav, B. (2019). "You say you want a [data] revolution": A proposal to use unofficial statistics for the SDG Global Indicator Framework. *Statistical Journal of the IAOS*, 309–327. doi:10.3233/SJI-180486

NGO. (2017). *Non-Governmental Organizations (NGO) Major Group Official Position Paper for the 2017 High-Level Political Forum*.

OECD. (2017). *Measuring Distance to the SDG Targets*. Paris.

Rahman, M. M. (2020). Achieving Sustainable Development Goals of Agenda 2030 in Bangladesh: the crossroad of the governance and performance. *Public Administration and Policy*, 195.

Sarvajayakesavalu, S. (2015). Addressing challenges of developing countries in implementing five priorities for sustainable development goals. *Ecosystem Health and Sustainability*, 1(7).