BEST PRACTICES FOR COMPILATION OF NATIONAL STATISTICS: WHERE ARE WE?

Dr. Mohd Uzir Mahidin[1], Kanageswary Ramasamy[2], Suhaily Safie[3] and Mohd Firdaus Zaini[4]

1. Introduction

1.1 Background of DOSM

Department of Statistics Malaysia (DOSM) was formed in 1949 under the Statistics Ordinance 1949 and was formerly known as Bureau of Statistics. DOSM was established to resume as a leading statistical agency for the nation which is responsible to collect, interpret and disseminate national statistics.

In the early commissioning of the Bureau of Statistics, the data were produced mainly for the British Government's planning purposes and the main data available were on external trade and estate agriculture statistics.[5] From 1957 onwards, the Bureau initiated data collection based on surveys such as Household Budget Survey, Population Census of Malaya and Retail Price Index. Recognising the importance of statistical services, a special committee was established on 5 March 1960 by the Federal Government to strengthen the statistical system. Furthermore, the unification of Federation of Malaya, Sabah and Sarawak in 1963 required an integrated and cohesive statistical data which reflects the overall statistics of Malaysia. In tandem with the advancement of economic and social structure in Malaysia, the Statistics Ordinance 1949 was repealed and replaced with the Statistics Act 1965 whereby the Bureau of Statistics was rebranded as the Department of Statistics Malaysia with the expanded role as the official national statistics producer. Subsequently in 1989, the Statistics Act 1965 was revised to strengthen further the function of DOSM and enhance the jurisdiction power of the Chief Statistician in data collection, interpretation and dissemination. DOSM strictly adheres to the Statistics Act in safeguarding the usage and communicating the information provided by respondents. The respondents are made aware of the purpose of the survey and the confidentiality of the individual information. This is always stated on the front page of the survey questionnaire together with the key quotations of the Statistics Act. The rules and regulations as stipulated in the Statistics Act are available in DOSM website. In accordance to the international initiative, the DOSM's workflow is aligned with the Fundamental Principles of Official Statistics by United Nations Statistical Commission (UNSC) which was initiated in 1992. The UNSC has recommended ten fundamental requirements of official statistics.[6]

---

[1] Department of Statistics Malaysia, Email: uzir@stats.gov.my
[2] Department of Statistics Malaysia
[3] Department of Statistics Malaysia
[4] Department of Statistics Malaysia
[5] Department of Statistics Malaysia (2009a), p13.
[6] See Appendix 1

After 63 years, DOSM still remains relevant and vital in the nation's development process. The statistics provided by DOSM are the hard evidence statistics in measuring the performance of the economy, demographic, social and environment as well as to gauge the success of the Government's programmes and policies. By adhering to international standards, statistics produced by DOSM are comparable internationally and enable the Government in measuring the performance of its policies with counterparts.

1.2 Malaysia Statistical System

Every country upholds its own statistical system which is designed based on the country's requirements and specifications as well as the historical background. Appropriate national statistical system ensures the efficiency and effectiveness in compiling national statistics. Malaysia implements a centralised statistical system whereby the process of collection, compilation and dissemination of key national statistics is carried out by DOSM. This system is also applied by other developed countries through their national statistical agencies such as the Statistics Canada and the Australian Bureau of Statistics (ABS). Meanwhile, there are other countries that implement a decentralised system such as India, Japan and the United States of America (USA). However, some countries may practise a combination of both systems.[7]

In some countries, the centralised statistical system is viewed with scepticism, yet this system has its advantages. The centralised statistical system allows DOSM to coordinate and integrate the national statistics through standardised definition, concepts, methodology and classification. In addition, it provides a platform in integrating the entire process of data collection, interpretation and dissemination under one roof in order to produce sound statistics. This system is also convenient and efficient for users to secure statistical materials in various fields from a single source. Thus, DOSM plays the role as 'one stop centre' for users in obtaining national statistics, and consequently reduces time and cost.

2. Have We Met The Real Need of Statistics?

The ABS has evolved over 100 years and the Statistics Canada for more than 90 years, while the evolution of DOSM has taken over 60 years. Internationally, ABS and the Statistics Canada's statistical framework systems have become the benchmark for most of the national statistics offices (NSO). In line with DOSM's aspiration 'to become a leading statistical organisation internationally by 2020', the main questions and challenges are: i) Have we consistently served the nation in providing

---

[7] See Appendix 2 for the comparison of statistical systems between Japan, Canada and USA

appropriate and adequate statistics?; ii) Are users, stakeholders and the public satisfied with the statistics currently produced by DOSM?; and iii) Do the statistics shed light on the important issues at a particular period of time?

Since its existence, DOSM has delivered sound statistics that have conformed to international standards and in a timely manner. The rapid changes in economy and complexity of economic agents require comprehensive statistics to cater to the dynamic changes. Comprehensive and quality data on specific and frequent periods are vital to reflect the actual economy and social scenario which act as valuable ingredients to formulate good policies and informed decisions. On this front, the major determinant in measuring relevance of statistics is closely associated with the users and public. In achieving this aspiration, continuous engagements and mutual understandings coupled with maturity and professionalism among all the parties involved are paramount.

2.1 Quality Multidimensional

Quality data is fundamental for official national statistics. Statistics and quality are inseparable properties, and quality is always a 'must have' characteristic in any statistical data. In the dictionary of NSOs, quality is generally accepted as fitness for purpose. Fitness for purpose implies an assessment of an output, with specific reference to its intended objectives or aims. Quality is therefore a multidimensional concept which does not only include the accuracy of statistics, but also stretches to include other aspects such as relevance, timeliness, coherence, interpretability, accessibility and reliability.[8] These seven dimensions of quality must be built in each phase of statistical process. Consistent with the Fundamental Principles of Official Statistics, it is widely expected that DOSM as well as other international NSOs adhere to those qualities.

The United Nations Economic Commission for Europe Statistical Division (UNECE) has developed the Generic Statistical Business Process Model (GSBPM) which DOSM has adopted in the work process. The model was based on business process model developed by the Statistics New Zealand. Internationally, the implementation of GSBPM started since April 2009 with the main objective to define and describe statistical process in a consistent way. GSBPM has outlined nine important processes involved in the compilation of statistics which begins with 'specify needs' and ends with 'evaluate'. Each process signifies standard steps that are required in producing quality statistics as shown in the following diagram (Figure 1).

---

[8] Farrell, D. (2007), p9.

Figure 1: Generic Statistical Business Process Model (GSBPM)
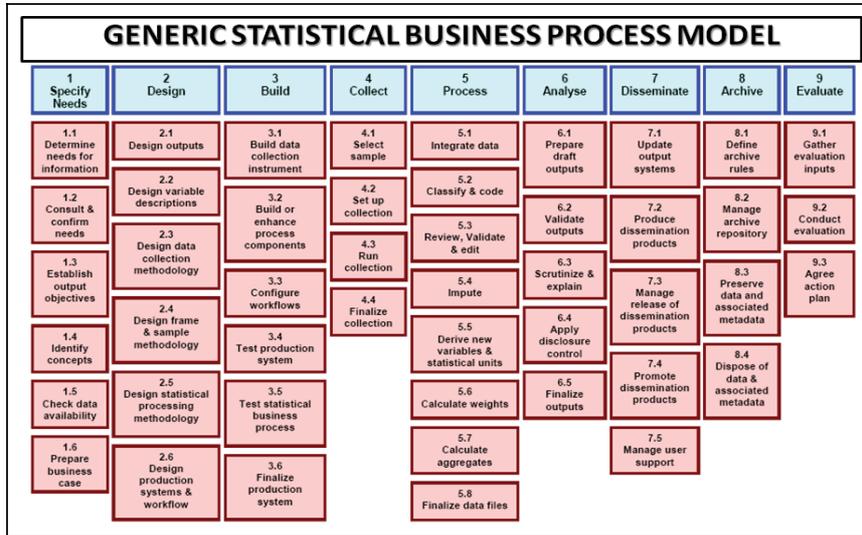
2.2 Data Collection

The quality of national statistics depends largely on the cooperation of respondents in providing appropriate and reliable data to their NSOs. The most common challenge for all NSOs is to obtain the data from respondents without neglecting the quality of data. Statistics Canada highlighted that the main quality element in data collection is accuracy. This element measures the response rates, processing error rates, follow-up rates and rates of non-response by reason.[9] Trewin (2007) observes that lately most of the NSOs response rates on surveys are deteriorating. In this regard, he suggested that NSOs should formulate solutions to tackle the problems. DOSM practises good engagement with respondents and have managed to achieve substantial response rates for most of the surveys. Moving forward, and to lessen the burden of our respondents, DOSM is gradually moving away from conventional methods of data collection to e-surveys and online response via emails as alternative tools. Currently, the e-surveys and other forms of electronic medium recorded on average 40 per cent of response rates (e.g. Monthly Manufacturing Survey). Nevertheless, DOSM is gearing up to achieve at least 80 per cent in the near future. In the case of other countries such as Korea, they took about 3 to 5 years to reach the acceptable level of response rates. Furthermore, continuous engagements with private sector are held through dedicated seminars and "Hari Bersama Pelanggan" at every state to educate respondents and the public on the importance of their cooperation and submissions of questionnaires for the development of nation.

---

[9] Statistics Canada (2009), p37.

2.3 Data Interpretation and Processing

Data interpretation is the most important stage prior to dissemination of statistics to the public. Statisticians' comprehensive knowledge and experience as well as ICT tools will be integrated to produce reliable statistics. Statisticians need to be well equipped with knowledge and keep abreast of relevant issues to validate the data before it can be released. To ensure response errors are kept to a minimum, stringent verification and validation steps are embedded in the processing system.

Apart from human capabilities, ICT tools are also widely used to facilitate the work process. DOSM deals with huge volumes of data and ICT tools predominantly play an important role to minimise human error and able to assist staff in managing and processing the massive data volume more efficiently, and thus, shorten the processing time. After the process of verification and analysis, statisticians must know the most effective way to present the findings to the users.

2.4 Data Dissemination

One of the key functions of DOSM is to disseminate statistics which have been collected and interpreted. Dissemination is defined as a process of releasing statistical data through various media e.g. printed and electronic medium. Larry Hartke (1997) explains that effective data dissemination means that statistical agencies should fully identify the potential data user communities, actively solicit their needs and then respond promptly by providing the users with timely and affordable statistical data that meet those needs as close as possible. Therefore, it is essential for the produced data to be accessible, timely and relevant.

In accordance with international standards, the statistics provided by DOSM are accompanied with guidelines known as metadata. The metadata provides supporting information on the source, concept, definition, methodology and details on collection, processing, interpretation and dissemination as well as availability of disaggregated data. This information help users to have a better understanding on the published data, assisting in literature review and in locating the existence of required data. The metadata information is available on DOSM's website.

Accessibility: Enhancement of Data Dissemination Platform

Accessibility ensures statistics are easily reachable and in a readable format. Recognising statistics as public goods and to ensure it is widely used, the statistical services and products should be easy and fast to access (Chief Statistician of Malaysia, 2012). In the past, most of the information was disseminated in printed forms. In tandem with the recognition of statistics as public goods and the dynamic transformation of ICT, currently most of the statistics are made available and accessible via electronic medium such as website and mobile short messaging service (SMS).

DOSM's website http://www.statistics.gov.my provides extensive statistical information via internet. The website has received few commendable awards and recognitions for its contents and presentation format such as "5 Star Rating" under the Malaysia Government Portals and Websites Assessment 2011.

In ensuring the official statistical data are widely accessible, the data are also disseminated through other local and international agencies' websites such as various Ministries, Bank Negara Malaysia (BNM), Economic Planning Unit (EPU), Malaysian External Trade Development Corporation (MATRADE), Malaysian Investment Development Authority (MIDA), ASEAN Secretariat, International Monetary Fund (IMF) and United Nations Statistics Division (UNSD).

As at September 2012, more than 105 online publications in the format of MS Excel and Portable Document Format (PDF) were uploaded and currently the publications have recorded 268,688 hits by users. Online publications are conducive for users to obtain data quickly and have reduced red tape.

Online data dissemination was further enhanced by introducing the Malaysia Informative Data Centre (MysIDC) in 2012. MysIDC is a one stop information gateway of social and economic data for Malaysia through a user friendly system which contains data from DOSM and other government agencies. The available data in MysIDC include National Accounts, Balance of Payments (BOP) and Investment, External Trade, Indices, Industrial Production by Sector, Monetary and Banking, Labour Market, Population, Income and Expenditures Household, Agriculture, Environment, Education and Other Social Indicators. MysIDC can be accessed at http://mysidc.statistics.gov.my.

Figure 2: Malaysia Informative Data Centre (MysIDC)

In addition, in order to facilitate fast access to statistical information, since 2009, mySMS was introduced as part of e-KL initiatives for 'Delivering services through an integrated and connected Klang Valley' via one SMS short code that is 15888. Currently, seven data categories are disseminated via SMS i.e. population, Gross Domestic Product (GDP), Consumer Price Index, External Trade, Index of Industrial Production, labour force, and monthly manufacturing statistics. In future, more categories of data are planned to be disseminated via this platform.

As the national statistics producer, DOSM also has a responsibility pertaining to issues on sensitivity and misinterpretation of data. Some of the monthly and quarterly data are provided at aggregated level, as the information provided by respondents is still at preliminary/provisional stage and subject to revision upon completion of audit of the financial statements. The practice of providing monthly and quarterly data at aggregated level is to avoid recurrent revisions on the same set of data. In terms of timeliness, DOSM complies with the Special Data Dissemination Standard (SDDS) of IMF in producing key official statistics. DOSM exceeds the SDDS timeliness requirements for national accounts, labour market, balance of payments, merchandise trade and international investment position statistics. For example, recognising the urgency of obtaining quarterly GDP and BOP data by stakeholders, DOSM managed to reduce the compilation period from 9 weeks to 6-7 weeks.

Table 1: Special Data Dissemination Standard (SDDS)

SDDS Data Category	Periodicity		Timeliness	
	SDDS	DOSM	SDDS	DOSM
Production index	Monthly	Monthly	6 weeks	6 weeks
Labour market: Wages/Earning	Quarterly	Monthly	12 weeks	6 weeks
Price index: Consumer prices	Monthly	Monthly	4 weeks	3 weeks
Price index: Producer prices	Monthly	Monthly	4 weeks	4 weeks
Merchandise trade	Monthly	Monthly	8 weeks	6 weeks
National accounts	Quarterly	Quarterly	12 weeks	7 weeks
Labour market: Unemployment	Quarterly	Quarterly	12 weeks	7 weeks
Balance of payments	Quarterly	Quarterly	12 weeks	7 weeks
International Investment Position	Annually	Annually	3 quarters	Not later than 3 quarters
Population	Annually	Annually	nil	2 quarters

3. Evolution of DOSM in Steering the Nation's Transformation

DOSM has indeed evolved from a small organisation to become one of the leading statistical agencies in Asia and among developing countries. Malaysia's diverse culture and historical background requires different types of statistics. These differences have led to the special characteristics of DOSM as compared to other NSOs where DOSM has been producing more detailed statistics as compared to many NSOs in developed countries. The multi-culture and multi-ethnicity in Malaysia warrants more precise and specific social-economic policy that essentially requires comprehensive statistics. In the 1970s, the gap in income distribution among ethnic groups has given the need for a new economic policy. Thus, the New Economic Policy (NEP) was introduced and the policy formulation required more diverse, relevant and comprehensive statistics. During this juncture, the theme of development was 'a growth with distribution' and DOSM had stepped up its role to provide the meticulous statistics to the policy makers, especially statistics on demographic, household expenditure, household income and income distribution by ethnicity. Meticulous efforts made by policy makers who were equipped with profound statistics had successfully helped the Government to accomplish the best policies to elevate the quality of life of all Malaysians regardless of ethnicity.

It has been noted extensively in the economic literature that in early stage of development, the most important goal is to achieve higher rate of economic growth. This eventually translates into higher per capita income followed by higher employment rate; fair distribution of wealth among the population; and the stability of general price level. Economic

performance of a country can be measured at least by 6 key economic indicators namely real GDP, unemployment rate, inflation rate, interest rate, level of stock market and exchange rate. DOSM is producing 3 of these indicators which are real GDP, unemployment rate and CPI since the 1950's.

In 1997, most ASEAN countries were hit by financial crisis which started in Thailand and later in Malaysia. During the period, DOSM experienced insufficient and infrequent short term economic indicators such as quarterly GDP and BOP statistics. Hence, in 1999, the first quarterly GDP series were compiled and published with the time series from 1991 onwards. During that period, DOSM was considered to be 'reactive' rather than 'proactive'.

Understanding the importance of short–term indicators in monitoring economic condition, over the years, DOSM has developed various short-term indicators such as Index of Distributive Trade (IoDT), Index of Services (IoS), Monthly Distributive Trade (MDT), Quarterly Labour Force Survey and Quarterly Construction Statistics. Comprehensive and wide-ranging short-term indicators enable policy makers to foresee any calamity or distortion in the economy and to make timely and fast turnaround decision.

The borderless economies and the rapid structural changes have resulted in more complex management. This requires a new set of indicators and more frequent dissemination of statistics to monitor and identify these changes. Informal statistics is one of the key areas that DOSM has focused by conducting the Pilot Survey of Informal Sector in 2006 and this has become a regular survey. In 2009, DOSM had initiated the compilation of statistics on Small Medium Enterprises (SMEs). The statistics have been used extensively to examine the role of SME as the next engine of economic growth. Using these statistics, the SME Master Plan had been formulated with the goal of stimulating the SMEs contribution in the economy. The evidence shows that during the economic recession in 2009, SMEs recorded a positive growth of 0.2 per cent against a negative growth of 1.5 per cent posted by the national economy.

4. Technological Advancement

Technology enhances the effectiveness of NSOs, including DOSM, in expediting statistical workflow. Prior to the 1950s, DOSM used hand-pick system whereby data were collected and captured manually. This was insufficient to capture and process the data that might lead to momentous non-sampling error. In year 1954 and 1957, ICT tabulator and Key Punch Machine were introduced to speed up the process in producing statistics, and in 1967, the workflow had migrated from mechanical to electronic data processing following the installation of the

Figure 3: Evolution of DOSM

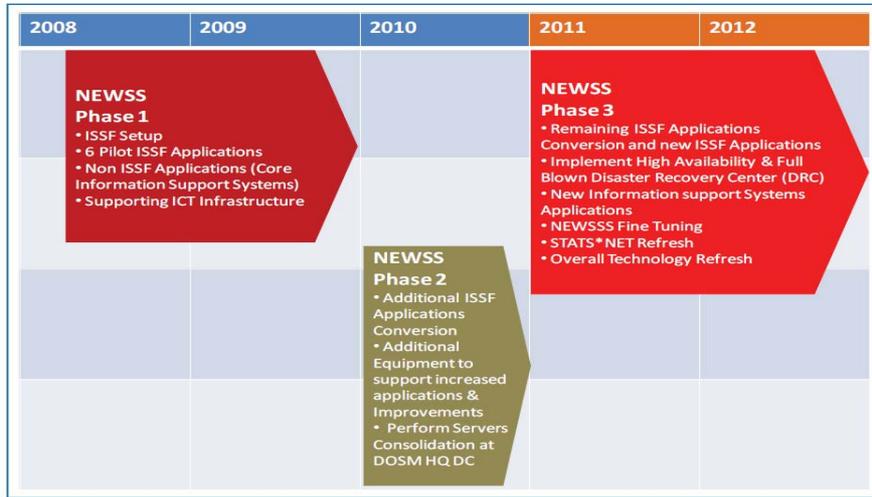| 1940	1950	1960	1970	1980	1990	2000	2010
1949 - Bureau of Statistics under the Statistics Ordinance 1949	**1956-1960** -First Malaya Plan **1955** - National Accounts Statistics **1957** - Malaysia Independence Day - First Household Budget Survey **1959** - First Retails Price Index	**1960** - Population Census of Sabah and Sarawak **1962** - Survey of Manufacturing Industries (reference year 1960) - National Survey (Labour Force) Peninsular Malaysia **1964** - First Survey of Construction -First Mining Census **1967** - Census of Distributive Trades **1966-1970** - First Malaysia Plan	**1970** - First Population and Housing Census for Malaysia **1973** - First Census of Stone Quarrying **1971-1975** - Second Malaysia Plan **1976-1980** - Third Malaysia Plan	**1981-1986** - Fourth Malaysia Plan **1986-1990** - Fifth Malaysia Plan	**1991-1995** - Sixth Malaysia Plan **1998** - First Compendium of Environment Statistics **1999** - First quarterly Labour Force Statistics - First Quarterly National Accounts **1996-2000** - Seventh Malaysia Plan	**2000** - Population and Housing Census **2001** - Economic Census (reference year 2000) **2001-2005** - Eighth Malaysia Plan **2005** - ICR was introduced for data processing **2008** - NEWSS was developed **2006-2010** - Ninth Malaysia Plan	**2010** - Population and Housing Census **2011** - Economic Census (reference year 2010) **2012** - Rebasing of GDP to base year 2005 - Economic Census of SMEs 2011

mainframe system. The system has been continuously upgraded and up to the 1980's, few generations of mainframe systems were installed to cope with the increasing usage and users' demand for timely data. DOSM started to use the Intelligent Character Recognition (ICR) for data processing in 2005. ICR has definitely reduced the time consumed in data processing and human error in data capturing.

4.1 National Enterprise-Wide Statistical System (NEWSS)

Recently, DOSM has taken new initiatives to integrate different system applications and all statistical workflow processes which include designing, processing, collecting, analysing, interpreting and disseminating activities in the GSBPM, through a computerised system known as NEWSS. The project kicked off in 2008 and the first phase development was completed and fully implemented in 2010. Ultimately, DOSM is moving towards developing NEWSS as a central repository and serves the following purposes:

i. To standardise, consolidate and improve the existing system/ application to support the strategic requirement and the operation of DOSM;

ii. To simplify, improve and expedite the process of statistical data dissemination;

iii. To develop an integrated business process management that adheres to international statistics standards; and

iv. To build up a central repository to facilitate data sharing between DOSM and other government agencies.

Figure 4: Implementation of NEWSS in Three Phases

2008	2009	2010	2011	2012

NEWSS Phase 1
- ISSF Setup
- 6 Pilot ISSF Applications
- Non ISSF Applications (Core Information Support Systems)
- Supporting ICT Infrastructure

NEWSS Phase 2
- Additional ISSF Applications Conversion
- Additional Equipment to support increased applications & Improvements
- Perform Servers Consolidation at DOSM HQ DC

NEWSS Phase 3
- Remaining ISSF Applications Conversion and new ISSF Applications
- Implement High Availability & Full Blown Disaster Recovery Center (DRC)
- New Information support Systems Applications
- NEWSSS Fine Tuning
- STATS*NET Refresh
- Overall Technology Refresh

NEWSS is made up of eight layers which formed the DOSM ICT Architecture. Figure 5 shows the components of the eight layers of DOSM ICT Architecture.

**Figure 5: DOSM ICT Architechture**
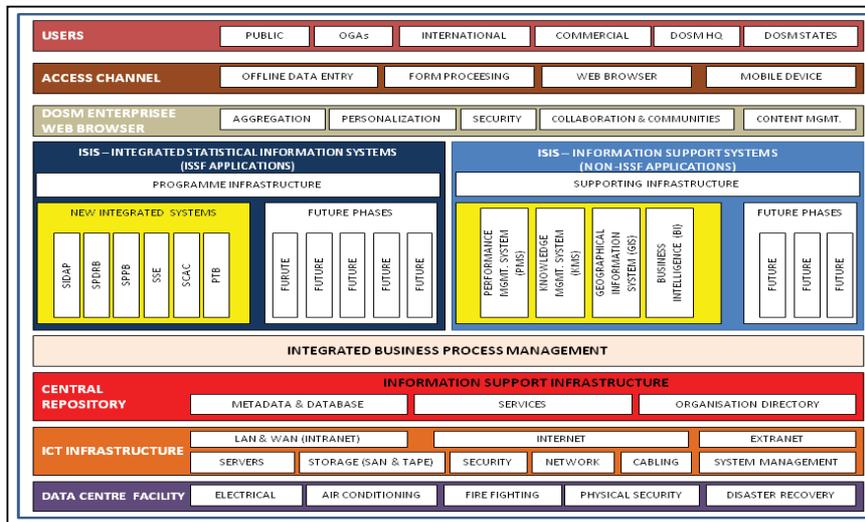
Integrated Statistical Systems Framework (ISSF)

Currently, DOSM has approximately 95 application systems which are operational and maintained in various platforms, databases and programming languages. The ISSF was developed to ensure applications produce quality statistics using standard mechanism that would increase efficiency and shorten the process of developing the census/surveys on the same platform. There are six major applications that have been revamped and selected as a pilot project which uses the same platform, database and programming language. These applications are:

i. *Sistem Daftar Pusat (SIDAP)* which is used to maintain the Enterprise and Establishment Frame;

ii. *Sistem Pangkalan Data Rangka Banci (SPDRB)* which is used to maintain Household Frame;

iii. *Sistem Penyiasatan Tenaga Buruh (SPTB)* which covers the surveys and analysis in the areas of labour force, migration, salaries and wages;

iv. *Sistem Soal Selidik Ekonomi (SSE)* which is used to process 35 types of economics surveys;

v. *Sistem Penyiasatan Pembuatan Bulanan (SPPB)* which is used to support the monthly manufacturing surveys; and

vi. *Sistem Pengkodan Bantuan Komputer* which maintains the codes used by DOSM.

Figure 6: Integrated Statistical Systems Framework (ISSF)
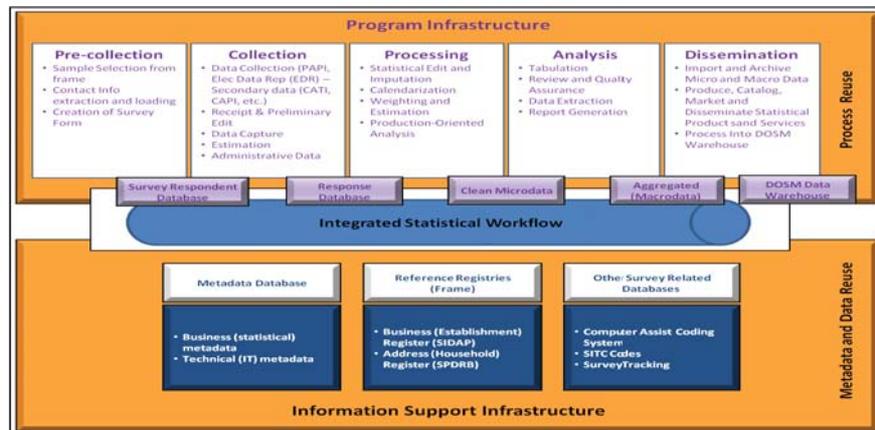
Information Support System (ISS)

Complementing the ISSF on assisting users in performing the effective and efficient process is the ISS. ISS enhances the capability of governance, digital mapping analysis, advanced analysis and create the knowledge sharing environment within DOSM. The systems within ISS are as follows:

i. Enterprise Portal (EP) which provides a single point of access to the contents and records of the various modules in NEWSS;

ii. Geographic Information System (GIS) which supports the analysis process using spatial data;

iii. Business Intelligence (BI) which is used for statistical analysis on structured data;

iv. Performance Management System (PMS) which allows DOSM to measure performance via key performance indicators; and

v. Knowledge Management System (KMS) which promotes collaboration and sharing of information within DOSM.

Advantages of NEWSS

The implementation of NEWSS was based on the DOSM ICT Architecture which will definitely move DOSM towards leveraging on the use of emerging technology. The impact of NEWSS on DOSM can be categorised into the following areas:

i.   Stakeholders/users;

ii. Subject Matter Divisions;

iii. Frame;

iv. Central repository;

v.   Dissemination; and

vi. Hardware and software.

5. Capacity Building

Personnel with well-equipped skills are a prerequisite to produce the right statistics. The increasing need for wide range and complex statistics requires skilled personnel with a diversified background and solid foundation in the field of statistics, economics, demographics and ICT. To date, DOSM has 3,254 personnel who are responsible in wide areas of social-economic statistics and involved in 9 important processes as outlined in GSBPM. Comparatively, the ABS has 3,542 employees while the Statistics Canada has approximately 6,000 workforce. The current ratio of statistician against total personnel is 1:10, which is comparatively lower than other developed NSOs. In shaping the statistics profession and reducing the ratio gap, DOSM is looking for a possible revision of the workforce at designated time-period when it is permitted. The appropriate ratio of professional and management group will spearhead more profound statistics analysis and interpretation.

In recognising the importance of the statistical services to cater to the increasing demand for new areas of statistics, in January 2008, the Government had reclassified the statistics profession from Administration and Supporting Service (N) Scheme into Economic Service (E) Scheme. This scheme acknowledges that the personnel in DOSM should be well equipped and specialised in statistical discipline along with technical and analytical knowledge in the macroeconomics discipline including national accounts, balance of payments, international trade, prices, population, demographic, labour and environmental. DOSM upholds to the expectation and is committed to meet the needs of users in the challenging environment. Equipped with the expertise, analytical knowledge and integrity, every statistics produced by DOSM are expected to be accompanied with quality reasoning and detailed elaborations.

In safeguarding a high level of proficiency and expertise in producing the official statistics of the nation, personnel need to be trained in appropriate subject matters/disciplines and exposed to hands-on training. Internationally, the developed NSOs with a long period of evolution have developed some degree of expertise in the designated subject matters. Besides the continuous collaboration and exchange programme with the renowned NSOs and international institutions for capacity building activity, DOSM has also developed its own programme that is tailored to the specific needs of personnel at all levels. In recognition of the importance of statistical services, the Government has approved the establishment of the Statistical Training Institute of Malaysia (ILSM) in 2009 and commenced its operation in 2012. With the dedicated training centre, more well-structured courses and established curriculums will be conducted, focusing on technical courses ranging from social, economic and generic modules. Moving forward, ILSM

thrives to become the best statistical centre of excellence, domestically and internationally. ILSM also plans to open its courses to government agencies and users as well as providing facilities for international courses.

Apart from training in ILSM, DOSM's personnel will continuously be engaged and attached with other NSOs and international bodies such as UNSD, IMF and Asian Development Bank (ADB) in enhancing knowledge to pursue DOSM's vision. Attachments with international statistical bodies was held in selected subjects to keep abreast of the latest international manuals and recommendations as well as in ensuring the methodology used is comparable internationally.

Contribution to the public is one of the important characteristics of DOSM, other than providing statistical data. DOSM highly encourages the personnel to share their technical expertise in journals and technical papers as well as presenting papers in seminars and workshops. Thus, public can have a better understanding and view on DOSM methodology and statistics findings.

DOSM aspires to become one of the catalysts in statistics community in the near future rather than being a follower by providing expertise internationally and regionally. Among the international contributions of DOSM includes being a member of the Advisory Expert Group (AEG) of System of National Accounts, Expert Group on Industrial Statistics of International Recommendations for Industrial Statistics and Quarterly National Accounts Manual.

6. Reaching to the Community

Statistical data are being used extensively not only for policy formulation and administrative purposes but they are also being referred to for research and analysis purposes by research institutions and private sector. As the country continues to develop, the community, mainly the general public, as well as media have shown increasing interest towards official statistics. With diversity of users from different groups and background, statistical literacy becomes an ongoing concern for DOSM. Issues such as 'how the public will perceive the data' and 'possibility of misinterpretation of the statistics by media' may lead to misconstruing and misleading implications to the community.

Statistical Literacy

Statistical literacy entails the capability to understand the connotation of the released statistics. Statistical literacy might not become an issue for researchers, analysts or even economists. However, it may be rather difficult for media, particularly journalists, to report and interpret statistics in the form of a story that can be comprehended by public and without misconstruing the statistics. Basically, there are two types of journalist; those statistically literate journalist and general news journalist who may be less statistically literate. It is a challenge for DOSM to facilitate these journalists in a way that each statistical release comes along with an understandable explanation for press release. The numbers or figures alone will not make up a story and it might not give any intended meaning and interest to the public. For example, quarterly GDP growth of 7.3 per cent has little statistical value by itself. Clear and concise explanation such as the trend of growth as compared to previous quarter or major contributors by industry must be included in the press materials. Hence, the readily understandable statistical explanation to journalists will be transmitted through simple and clear language to the general public. Subsequently, it can stimulate public interest towards statistics.

Statistical Leadership

Growing interest towards statistics leads to increasing number of statistics being produced, not only by the NSO but also by other agencies such as research houses. It is common for various agencies to compile statistics to serve their administrative purposes. Statistics which is compiled from diverse groups will produce different figures which are incomparable even on the same area of study. DOSM, as the national statistics producer, undertakes the role of statistical leadership by offering technical assistance, consultancy and support resources for any statistical work outside DOSM. To improve the confidence in the data produced by researchers, DOSM stepped in by educating them on the importance of appropriate methodology and concept, standards and classification in producing statistics. Continuous consultation is also given to any agencies that require advice on the methodology of data collection, questionnaire and sampling design. DOSM has frequently been asked to give consultation service and feedback on various studies done by other government agencies and selected statisticians are also frequently appointed as members in Technical Working Group (TWG) to assess/evaluate the studies carried out by consultants/private institutions on behalf of government agencies. Moving forward, DOSM has to develop the capability to become the national leading agency for statistical rating. This effort will give the assurance to the community that the statistics produced by other agencies are at acceptable standard and the quality is maintained.

DOSM's involvement in international cooperation in the field of statistics has expanded over the years. Since the past few years, DOSM has been actively providing technical assistance to other NSOs and has received several delegations under the study visit programmes.[10] DOSM has also actively participated in regional and international statistical coordination and capacity building cooperation[11] and concurrently as a sitting member in international communities such as Organisation of Islamic Cooperation (OIC), Asia Pacific and ASEAN. At ASEAN level, DOSM is also an active member in various programmes such as the ASEAN Community Progress Monitoring System (ACPMS), and more recently, was appointed as the Chairman of Working Group on Data Sharing Analysis, Dissemination and Communication of Statistics (WGDSA).

7. Way Forward

Building Smart Partnership

In Malaysia, DOSM has moved towards intensifying data tapping on secondary and administrative data from relevant agencies instead of relying on primary data to cater to the increasing demand for statistics. This is vital in order to avoid duplication of efforts and to reduce the respondents' burden as well as to use the resources more effectively. Prior to data tapping, it is important that respective agencies add in relevant statistical information in their surveys to meet the statistics needs by DOSM. In addition, full understanding of codes, classifications and concepts is a must to ensure standardisation and compliance with international recommendations in the produced statistics.

In line with our data tapping practices, several memorandum of understanding (MoU) have been signed with OGAs such as Malaysia Productivity Corporation (MPC), Companies Commission of Malaysia (CCM) and BNM. These MoUs serve to enhance mutual cooperation in garnering data, sharing expertise and providing current statistics. DOSM has extended its services to various relevant government agencies by placing statisticians (cadre) as technical arms to interconnect between DOSM and other agencies. As of today, a total of 180 cadres are placed in 34 government agencies. The cadre service is important in enhancing cooperation between DOSM and other agencies.

The Statistics Act establishes a mandate for DOSM and empowers it to virtually collect all information from individuals and businesses. However, unlike the Statistics Canada, DOSM does not have the mandate to access individual record in the possession of other government agencies. It should be noted that Statistics Canada has full access to all records held by the Government, and specifically identifies all taxation

---

[10] Refer Appendix 3
[11] Refer Appendix 4

and customs records as well as record of court.[12] Similar step needs to be taken to set up a working group to establish a mutual understanding that DOSM could also have full access to all records and statistics held by other government agencies.

Most of the developed countries impose a ruling that all companies must provide information to Inland Revenue Board and statistics office whenever they register their business. However, such practice is not implemented in Malaysia whereby companies are not obliged to report to DOSM. Although the legislation has armed DOSM with the power to penalise non-compliant individual or entity, diplomacy and persuasive approach is deeply practised. Thus, we hope that the working group will look into making it compulsory for any businesses which are registered with CCM to provide information to DOSM as well.

8. Conclusion

For the continuing development and affluence of the country, the national statistical system must be the point of reference for policy formulation. The national statistical system has to provide quality statistics so that confidence in the system will remain intact. In order to achieve this, the system requires help and co-operation of other relevant external parties such as other government agencies, the academia, the media, private sector as well as the general public. In addition, it is also pertinent that the roles of coordination and engagement with all prospective users continue to be expanded and shifted to a new level. These concerted efforts will lead to a successful statistical system that can contribute to the nation's social-economic legitimacy along with providing assistance in the implementation of vigorous national policies. Technology advancement has made a big headway in DOSM especially through the implementation of NEWSS and with this, the delivery of statistical services will continue to be strengthened.

Despite the key role of DOSM to provide official statistics to the stakeholders, the success of national statistical system is also measured by its ability to fulfil a variety of statistics that are requested by the community, businesses and researchers on daily and real time basis. On this front, DOSM understands the importance of the statistics needed. However, these parties have to understand that there are always potential constraints that may limit DOSM's ability to serve their needs. Skilled statisticians and advanced tools can never fully complement the non-response data from businesses and households. This is a real challenge where we believe that everyone plays an important role in creating awareness on the statistical enquiry.

---

[12] Chander, R. (2009) p5.

DOSM always strives to foresee incoming new emerging statistics and is never complacent on the statistics and services provided. DOSM continues to evolve and keep abreast with the dynamic changes internally and externally and is committed and responsive to these changes. DOSM will keep producing relevant statistics to reflect these changes and fulfil the users' needs. The availability of relevant statistics is becoming more paramount as international competition will get stiffer fuelled by globalisation and the gathering momentum of trade liberalisation. With these experiences, DOSM is currently providing expertise in the various statistical fields to assist developing countries to enhance their statistical acumen. There is no doubt that the country's past successes in attaining the economic prosperity were done through years of planning combined with invaluable statistics. To ensure this continues in the future, collective efforts by statistical community and policy makers will play a vital role in shaping the future and well-being of the nation.

Appendix 1: Fundamental Principles of Official Statistics

Principle 1: Relevance, Impartiality and Equal Access

"Official statistics provide an indispensable element in the information system of a society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honour citizens' entitlement to public information."

Principle 2: Professional Standards, Scientific Principles and Professional Ethics

"To retain trust in official statistics, the statistical agencies need to decide according to strictly professional consideration, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage and presentation of statistical data."

Principle 3: Accountability and Transparency

"To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods and procedures of the statistics."

Principle 4: Prevention of Misuse

"The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics."

Principle 5: Sources for Official Statistics

"Data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents."

Principle 6: Confidentiality

"Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes."

Principle 7: Legislation

"The laws, regulations and measures under which the statistical systems operate are to be made public."

Principle 8: National Coordination

"Coordination among statistical agencies within countries is essential to achieve consistency and efficiency in the statistical system."

Principle 9: Use of International Standards

"The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels."

Principle 10: International Cooperation

"Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries."

Appendix 2: Comparison between Centralised and Decentralised Statistical System

Item	Statistical System in Japan	Statistical System in U.S.	Statistical System in Canada
Statistical System	Decentralised statistical system which statistical function are spread out among individual administrative organisation.	Highly decentralised statistical system.	Centralised statistical system whereby the statistical function are assigned to a single organisation.
Year of Establishment	Established in year 1869.		Established in year 1867.
Statistics Organisation	• Cabinet Office; • Ministry of Internal Affairs and Communications; • Ministry of Justice; • Ministry of Finance; • Ministry of Education, Culture, Sports, Science and Technology; • Ministry of Health, Labour and Welfare; • Ministry of Agriculture, Forestry and Fisheries; • Ministry of Economy, Trade and Industry; • Ministry of Land, Infrastructure, Transport and Tourism; • Ministry of the Environment; • Local Branch Office of Central Government Agencies, and etc.	More than 100 agencies and each agency is responsible to produce social and economic federal statistics. The agencies include US Census Bureau, Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), Bureau of Justice Statistics, National Aeronautics and Space Administration, Bureau of Transportation Statistics, National Center for Health Statistics, Statistics of Income (IRS), National Center for Education Statistics, and etc.	Statistics Canada
Advantages	• Statistics that respond to changes in the social and economic trends can be compiled. • Enables each organisation/ agency to utilise knowledge and experiences on the administration under its jurisdiction for planning and conducting statistical surveys. • Each statistical agency receives current year appropriations, either as a specific line item in the budget or through allocations from its parent organisation's budget.	• Policy relevance. • Strong statistical linkages to administrative management and information systems.	• Easy to capitalise on the professionalism of statistics. • A consistent statistical system is built more readily. • Has a single budget for Statistics Canada which allows response to changing priorities through internal reallocations. • Convenient and efficient for users to secure statistical materials in a variety of fields from a single source.
Legal Framework	Statistics Act 1947 (Revised 2007) covers not only statistics compiled from census such as the Population Census and surveys, but also those compiled from administrative records and processed from other statistics such as the National Accounts. This Act is shared among agencies.	Statistical agencies generally operate under a number of laws, policies or regulations governing the collection, use and confidentiality of the statistical information for which they are responsible. Some of these laws, policies and regulations apply only to a specific agency. The legal framework also limits the extent of data sharing among agencies.	In Canada, a single law, the Statistics Act of 1971, provides the authority for all activities of Statistics Canada, including the coordination of those parts of the Canadian statistical system not included in Statistics Canada, and applies to all components of Statistics Canada. Under the Statistics Act, Statistics Canada has broad access to administrative records, the authority to use data from several sources to construct composite records, and the authority to share data among different components of Statistics Canada. The Statistics Act also provides for the protection of the confidentiality of individual data providers, as does Canada's Access to Information Act and Privacy Act.

Appendix 3: List of Meetings and Visits from International Agencies In 2011 and 2012

No.	Meetings And Visits	Agency	Year
1	Working Visit by the BANBEIS	Bangladesh Civil Services Officials (BANBEIS)	2011
2	Public Expenditure Review (PER) Meeting	World Bank	2011
3	Study Visit by the Embassy of the Islamic Republic of Iran	Planning and Strategic Supervision of Iran	2011
4	Discussion with the EASCAB Consultant	EU-ASEAN Statistical Capacity Building Programme (EASCAB)	2011
5	Discussion with the Agricultural Economics Institute, Netherlands	Agricultural Economics Institute, Netherlands	2011
6	Study Visit by the Population Census Organisation Government of Pakistan	Government of Pakistan	2011
7	Study Visit by the University Quebec, Canada	University Quebec, Canada	2011
8	Study Visit by the General Statistics Office, Vietnam	General Statistics Office, Vietnam	2011
9	Study Visit by the Central Statistical Agency of Ethiopia	Central Statistical Agency of Ethiopia	2012
10	EASCAB Technical Assistance: Statistics on International Trade in Services (SITS)	EU-ASEAN Statistical Building (EASCAB)	2012
11	Study Visit by the Reserve Bank of India (RBI)	Reserve Bank of India (RBI)	2012
12	Study Visit by the National Institute of Statistics of Mozambique	National Institute of Statistics, Mozambique	2012
13	2nd Workshop on Enhancing the ASEAN Community Progress Monitoring System (ACPMS) and the First Meeting of the Working Group on Data Sharing, Analysis, Dissemination and Communication of Statistics (WGDSA)	ASEAN Secretariat	2012
14	Institutional Capacity Building for ASEAN Monitoring and Statistics	Formulation Team Leader from EU	2012
15	Discussion on Asian International Input-Output Table (AIIO) 2005 project	Institute of Developing Economies – Japan External Trade Organization (IDE-JETRO)	2012

Appendix 4: Statistical Capacity Building (StatCaB) Programme under Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC)

No.	Training Programme	Country	Institution	Year
1	Quarterly National Accounts	Maldives	Department of National Planning	2012
2	Labour Force	Afghanistan	Islamic State of Afghanistan	2012
3	Price Statistics and Indices	Afghanistan	Islamic State of Afghanistan	2012
4	Short-term Business Statistics	Pakistan	Pakistan Bureau of Statistics	2012
5	National Accounts	Maldives	Department of National Planning	2010
5	National Accounts	Indonesia	Badan Pusat Statistik Indonesia	2007
6	General Statistics	Maldives	Ministry of Planning and National Development of Maldives	2007

References

Chander, R. (2009). Effective national statistical systems: essential requirements. *Journal of the Department of Statistics, Malaysia,* 1(2009), 1-20.

Farrell, D. (2007). *Information paper: Quality dimension of the Australian National Accounts.*

Kei, T. (2007). *On the recent reform of official statistics of Japan. Proceeding of the International Symposium on Development of Official Statistics, Tokyo, Japan.*
Retrieved 5 October 2012 from:
http://www.stat.go.jp/english/info/meetings/sympo/pdf/sympos1.pdf

Larry Hartke. (1997). *Effective Data Dissemination Principles and Practices for Statistical Organisations and Agencies,* United States Bureau of the Census.

Mazlan bin Sulong. (2011). *National Enterprise-wide Statistical System: Impact to Department of Statistics Malaysia.*
Retrieved 28 October 2012 from
www.unescap.org/stat/MSIS/egm-Jun2011/session1-Malaysia.pdf

Nazaria Baharudin, Siti Salwani Ismail and Shamsinar Ibrahim (2011). Data communication- give users what they really need.
Journal of the Department of Statistics, Malaysia, 2(2011), 1-17.

Pink, B., Borowik, J., and Lee, G. (2009). The case for an international statistical innovation program– transforming national and international statistics systems. *Statistical Journal of IAOS, 26 (2009/2010),* 125-133.

Trewin, D. (2007). The evolution of national statistical systems: trends and implications. *Statistical Journal of IAOS,* 24, 5-33.

Department of Statistics Malaysia. (2009a). *Department of Statistics Malaysia: 60 Years Statistics.*

Department of Statistics Malaysia. (2009b). *Metadata guideline.*
Retrieved 19 September 2012 from:
http://www.statistics.gov.my/portal/images/stories/files/methods/Metadata_Guideline.pdf

Department of Statistics Malaysia. (2010). Department of Statistics Malaysia Strategic Plan 2010-2014 – Producer of National Statistics.

Department of Statistics Malaysia. (2012, January 1). *New Year message from the Chief Statistician Malaysia.*
Retrieved 19 September 2012 from:
http://intranet.stats.gov.my/tekskp/Amanat_2012_KP_BI.pdf

International Monetary Fund. (2012). Annual Observance Report of the Special Data Dissemination Standard for 2011.

Retrieved 9 October 2012, from: http://dsbb.imf.org/

National Enterprise-wide Statistical System. Retrieved 19 September 2012, from
http://intranet.stats.gov.my/index.php?module=newss&nav=newss

Office for National Statistics. (2011). *GSS quality measurement and reporting: guidance and an example framework for reporting.* Retrieved 19 September 2012 from:

http://www.ons.gov.uk/ons/guide-method/best-practice/gss-best-practice/index.html

Statistics Denmark. (2003). *Good Dissemination Practices in Statistics New Zealand and Statistics Denmark 2003.*

Statistics Canada. (2009). *Statistics Canada quality guidelines* (5th Ed.). Ottawa: Statistics Canada.

United Nations. (2001). *Best practices in designing websites for dissemination of statistics.* Geneva: United Nations.

United Nations. (2003). *Handbook of statistical organization: the operation and organization of a statistical agency* (3rd Ed.). New York: United Nations.

United States General Accounting Office. (1996). *A comparison of the US and Canadian statistical systems. Washington,* DC: U.S General Accounting Office.

United Nations Statistical Commission.
Retrieved 22 September 2012 from
http://unstats.un.org/unsd/methods/statorg/FP-English.html