



COUNTRY REPORT MALAYSIA



&

15th General Assembly of the International Cartographic Association

3rd – 8th JULY 2011

Prepared by

Department of Survey and Mapping, Malaysia

TABLE OF CONTENT

1.	Introduction.....	2
2.	Mapping Activities.....	3
2.1	Topographical Map.....	6
2.2	Thematic Map.....	7
2.3	Electronic Map (eMap).....	8
2.4	Webmap.....	9
2.5	National Atlas (eAtlas).....	9
2.6.	DSMM's 125 th Anniversary Drawing Competition	10
3.	Conclusion.....	10

1. INTRODUCTION

This report covers all Cartography activities and other related matters carried out by the Department of Survey and Mapping, Malaysia (DSMM), from September 2007 to June 2011, after the 14th General Assembly of the ICA which was held in Moscow, Russia from August 4 -10, 2007.

Situated in Southeast Asia, Malaysia, with an area of 329,959 sq km, is divided into 13 states and 3 Federal Territories, separated by the South China Sea with 11 states and 2 federal territories (Kuala Lumpur and Putrajaya) in Peninsular Malaysia and two states and 1 federal territory (Labuan) in East Malaysia.



Map of Malaysia

DSMM is one of the oldest agencies in Malaysia responsible for survey and mapping measurement activities since the year 1885. It has 3 divisions namely the Cadastral, Mapping and Defense Geospatial to carry out its operations. The Cadastral division carries out the cadastral survey activities and the preparation of land and strata certified plans for the issuance of title by the Land Offices. Mapping Division will handle geodetic, topographic and utility survey works and produce their respective maps and other outputs. Defense Geospatial Division will support the Malaysian Army with its geospatial data requirement and also carries out security screening of third party data applicants.

DSMM activities are monitored by the National Mapping and Geospatial Data Committee. The committee is responsible to advise the Director of DSMM on matters related to mapping policy and priorities. DSMM's mission is to provide quality mapping and surveying service, as well as geospatial data management through the best system, competent human resource and conducive working environment. DSMM current functions are as follows:

- i. To advise the government in the field of cadastral and mapping as well as the state and international boundaries surveys.
- ii. To provide complete and conclusive cadastral information for issuing of land, strata and stratum titles.
- iii. To efficiently manage the cadastral and mapping databases.
- iv. To publish photographic, cadastral, thematic and utility maps for the purpose of planning, management of natural environment resources, preservation of environment, development, surveillance and security.
- v. To survey, determine, demarcate and maintain state and international boundaries for the needs of state administration and sovereignty of the country.
- vi. To provide geodetic infrastructure for cadastre survey, mapping, engineering and scientific research purposes.

In the field of mapping, DSMM produces topographical maps (both restricted and non-restricted), thematic maps (political, district, road, election, etc), orthophoto, electronic map and Webmap.

2. MAPPING ACTIVITIES

As its core business, for decades DSMM has been preparing and publishing reliable maps both for military and public purposes. This is achieved by using various computerised mapping systems namely Computer Assisted Mapping System (CAMS) and Digital Thematic Mapping system (DTMS) to automate the production of variety of maps at various

scales in hardcopy as well as in digital format covering Peninsular Malaysia, Sabah and Sarawak.

Over the years, upgrades were carried out in stages to improve the systems' performance to provide productive and efficient map publishing environment. These include performing, editing and viewing map representation data in WYSWYG environment to enable better way of manipulating and enhancing data to generate cartographic representation data for topographic maps and thematic maps.

With the procurement of plate setter, the Department is able to automate its pre-press processes, hence replacing the film based process with a Computer to Plate (CTP) environment in a digital workflow. The system allows recording of image of a map sheet or page of a manuscript directly from data file to the printing plate before printing of the image or dataset on a four colour printing press. DSMM is proud to have a comprehensive process of map production encompassing populating and extracting the Cartographic Database, map design and generation of cartographic representation dataset, pre-press process and printing operation under one roof. This arrangement allows better coordination and continuity of activities in map production.

Under CTP environment, Mercator cartographic publishing software is used for the production of high quality printed maps. It complements the Laser-Scan Automated Map Production System (LAMPS) system which is utilised to compile and populate topographic database. Data from the LAMPS is ingested and translated into Mercator Cartographic format before being manipulated, edited and symbolised using the Mercator symbol libraries and style templates to produce the final map reproduction dataset conforming to map specifications that define the map layout, scale and representation. Proofs are plotted from pdf files of the map reproduction dataset for verification, quality check and conformance to specifications. The pdf files will subsequently undergo prepress operations and procedures which include layout, proofing, colour separations and plate making.

In terms of data compilation, traditionally, the process of generalisation to generate cartographic data from topographic data and data originated from other sources is done manually. Currently, DSMM is building its capacity and capability to establish an automated generalisation solution to replace the existing proven manual procedures.

The generalisation module is developed to establish a seamless cartographic database at various scales. It shall ingest seamless map data in the existing 1:25,000 topographic database and other data sources of appropriate scale. These data shall form a clean, coherent and seamless database without any loss of information with full topology.

Subsequently, a fully automated model generalisation procedure shall be applied to produce seamless database at 1:100,000 scale. At this scale, density of data shall be reduced and simplified but the data shall remain in its correct geometrical position. Further, an automated cartographic generalisation procedure conforming to the generalisation rules and specifications shall then be applied to produce cartographic database at 1:100,000 scale. However, it is expected that additional editing would be required on the database to ensure it will fully meet the cartographic data specifications. This cartographic database is ready to be extracted for cartographic representation editing to generate map representation dataset before subsequent printing of the dataset by offset printing, digital printing, etc.

The automated generalisation solution is based on the following softwares:

- Radius Studio

To support data preparation through data migration and creation of the seamless database through validation and undertaking the edge matching process and ensuring the legacy data is structured into a form that is suitable for the generalisation procedures.

- Radius Clarity

To provide automated model, cartographic generalization and produce cartographic dataset at the intended map scale. It provides a parameterised, rules-based process that is repeatable, consistent, measurable, flexible and adaptable to user-requirements, thus enabling products to be consistently and independently maintained without relying on the interpretation of cartographers.

2.1. Topographical Map

DSMM has started producing new series of topographical maps with the scales of 1:10,000 and 1:50,000 since the year 2005 to replace the older map series. The specification for the new map series introduces new characteristics to the printed topographical maps, among others are:

- Adaptation of the new mapping datum which is the Geocentric Datum of Malaysia known as GDM2000 to replace the old Kertau/Timbalai Datum.
- Usage of four process colours for map printing.
- New standard series designation where a restricted version of 1:50,000 scale topographical maps covering Peninsular Malaysia will carry a series number of MY501T (old series is designated as L7030).
- New numbering of map sheets.
- New representation for features in terms of colours and symbologies.
- Ground coverage of 25km by 25km

The old map series namely L7030 and T835 with ground coverage of 30km by 30km have been completed. With the new map series, the Department is targeting to complete the topographic mapping of the country consisting of 718 map sheets by 2014. These maps are

updated according to a revision cycle of three, five and ten years depending on the extent of changes on the ground. The 1:10,000 scale topographical maps covering selected town and urban areas comprising of 300 sheets (identified at this point of time) are expected to be completed by 2019.

For the purpose of planning, administration, management and development along the border with the neighbouring country, Malaysia and Indonesia have embarked on a joint border mapping project to produce topographical maps with modified specifications covering a five kilometer buffer on both side of the international border. Each country produces its own version of the said maps and the project is expected to be completed in 2016.

2.2. Thematic Map

DSMM has published all district maps consisting of 87 maps covering Peninsular Malaysia and 56 maps covering Sabah and Sarawak. The scales of these maps range from 1:25,000 to 1:260,000 in which most of the data are derived and generalized from the topographic database. In order to meet the three years revision cycle, the department is concentrating on updating these maps of which the second edition for a number of district maps has already been printed.

The state maps with scales ranging from 1:25,000 to 1:750,000 are also being revised every three years. Another product adopting small mapping scale i.e. 1:750,000 are the three physical maps showing peninsular Malaysia, Sabah and Sarawak which are also being revised every three years.

DSMM also prepares and prints maps for other agencies such as state road maps for the Public Works Department of Malaysia. The

scales of these maps range from 1:30,000 to 1:325,000 depending on the size of states. The maps show road classes and will be revised every five years or when new data is available. Occasionally, the Department also prepares and prints electoral maps with scales ranging from 1:12,500 to 1:750,000 for the Election Commission which is usually done prior to election. These maps will be revised whenever requested by the Election Commission.

Currently, DSMM is preparing specifications of map series meant for mapping of all islands in Malaysian territory.

2.3. Electronic map (eMap)

eMap, was launched by the DSMM in year 2001. It is developed based on the interactive multimedia cartographic concept using Adobe Flash and Director and is a standalone 'plug and play' application distributed through compact disc. eMap is now one of the alternative digital products being offered to the public by DSMM amidst of the various hardcopy maps of the nation. Currently, eMap is produced to cover all states in Malaysia and until 2010, DSMM has already produced eMaps of all the states in Peninsular Malaysia while for Sabah and Sarawak, it will be published this year. The highlight of eMap is the virtual reality function where user can view photos and videos of selected points of interest complete with descriptive information about the location. Other than that, normal functionalities of map viewing such as zoom, pan, search, user input layer, copy, print, etc are also available.

2.4. Webmap

DSMM has developed Webmap, a web based map application in year 2009 using the Geomedia Web Map software. Webmap is still undergoing continuous enhancement to improve its performance on the network routing function. Other normal functionalities for map viewing such as zoom, pan, search, copy, print, user input, data downloading, etc are also provided.

Currently, Webmap covers the Klang Valley area of Peninsular Malaysia. DSMM targets to cover the whole country by the end of this year using the 1:25,000 database for state maps and 1:10,000 database for town maps. Webmap can be accessed at <http://www.myemap.jupem.gov.my/v1>.

2.5. National Atlas (eAtlas)

The National Mapping and Spatial Data Committee has formed the National Atlas Technical Committee in year 2010 to initiate the publishing of National Atlas of Malaysia to be used by students, administrators and public. DSMM as the Chair for both committees has been given the task to lead the publishing of it with cooperation from various government agencies. Five main themes have been identified for its contents which are as follows:

- i. History, Climate, Political and Physical
- ii. Natural resources and Land Use
- iii. Infrastructure
- iv. Socio-economic Statistics
- v. Tourism

The National Atlas will be produced in digital format using the eMap platform, thus to be called eAtlas. Our target is to produce eAtlas of

the first theme by the end of this year and the remaining themes shall be completed by 2013.

2.6. DSMM's 125th Anniversary Drawing Competition

DSMM has organized a drawing competition at national level in conjunction with its 125th anniversary celebration in 2010. Forty three (43) entries were received from school students of age less than 16 years old. Out of those, four (4) entries which fulfilled the criteria set by DSMM, in accordance with the Barbara Petchenik Children's World Map Competition's theme of 'Living in a Globalised World', were selected and sent to the organizing committee in the Netherlands this year. The objective of this event for children is to promote the creative and geocartographic portrayal of the world as seen by kids, thus raising their cartographic perceptivity and their awareness of and respect for the environment.

3. CONCLUSION

With the current trend of lifestyle, education system, information and communication technology development, geospatial data dissemination has become very crucial yet important to the nation. DSMM as the lead geospatial agency is currently taking all the necessary measures with great enthusiasm to empower the public with accurate and quality geospatial information as expected. To ensure accurate and quality data dissemination, emphasis is given to the cartographic aspect of it which DSMM has never failed to comply and improve.