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# **Geo-spatial Data Accuracy and its Legal Implications in the Malaysian Context**

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A brief introduction....

## GIS in Malaysia

**Once:**

lack / absence of digital data,  
so we go digitising.....

**At present:**

too much digital data.....

**So much.....we have**



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## **4 categories of GIS users**

- a. the experts
- b. the moderate users
- c. the less expert users
- d. the non-expert users

## **and problems of disparate data**

- Data in different format,
- Data in different map projection
- Data in different map scale

to name a few....



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“First indication that there are serious problem with geospatial data are when accident occurs”

(George Cho, 2005)



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# Harm / injury or liability has been shown to arise from

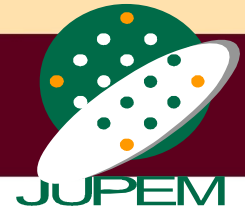
- Inaccurate data
- Incomplete data
- Misleading information of data

Some illustrations of damages suffered as a result  
of data inaccuracy...



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Aftermath of Hurricane Ike : millions of dollar losses suffered by landholders for building houses below the Base Flood Level & no flood insurance due to **inaccurate map**

- Houses built below the Base Flood Level – position fixed by the National Geodetic Survey but in the 1980's re-measured by the Federal Emergency Management Agency & found that the flood plain was a meter above the old marks. Issued new map that become a document of reference for insurance companies & other authorities.
- However, surveyors continued to rely on the old elevations & allow landholders to build houses
- **DAMAGES** : 20 homes in La Belle were build in the flood plain and with no flood insurance and not allowed to rebuild their homes as they were in the flood plain.

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Death of 4 New South Wales, National Parks & Wildlife Service officers  
from smoke suffocation due to **inaccurate map**

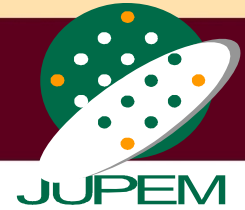
- The officers were given maps that showed two possible escape routes in a burn-off operation, but which ended in impenetrable bush or line of cliffs. Information on the maps showed a cleared hilltop, which provided shelter from the fire but instead there was a 30 m cliff, which stood between the fire and the cleared area
- **LOSS OF LIFE DUE TO** : error in the botanical map that had not been ground-truthed to include specific details & did not mark areas with safe refuges to retreat as required in the fire management procedures guidelines.

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In Malaysia no court cases / no known litigations  
on injury or damages caused directly by inaccurate data

- Non-suing tradition
- Not an indicator to bypass the need to formalize geospatial data management policy & legislation

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The Malaysian case:

not to illustrate the *direct legal implication* from inaccurate data,

but simply to show *depiction of erroneous data* in the form of old maps produced by Malaysia



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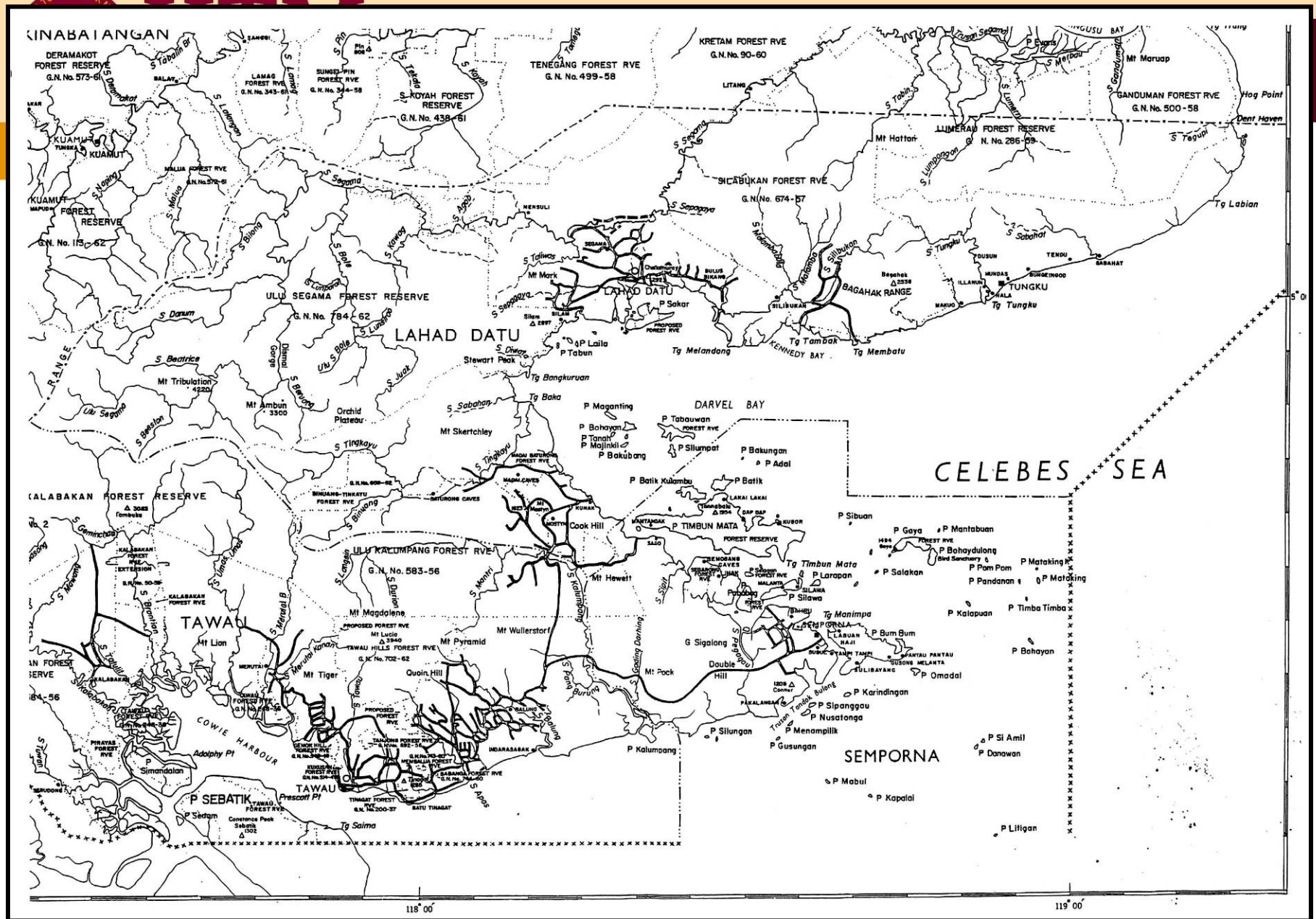


## Issue over Ligatan and Sipadan islands between Malaysia & Indonesia ( 2002 )

- Amongst the many matters raised before the International Court of Justice by the Indonesians were that the islands of Ligatan & Sipadan were theirs i.e. portraying of the extended parallel of latitude 4 deg 10 min North which protrudes the island of Sebatik on the eastern side of the whole contentious area, when in fact the line should have stopped at the easternmost corner of Sebatik .
- This was based upon the British Dutch Boundary Convention of 1891 which provided that geographical entities situated south of the latitude would belong to the Dutch ( & later to the Indonesians), and the northern part as belonging to the British, which was subsequently inherited by Malaysia.

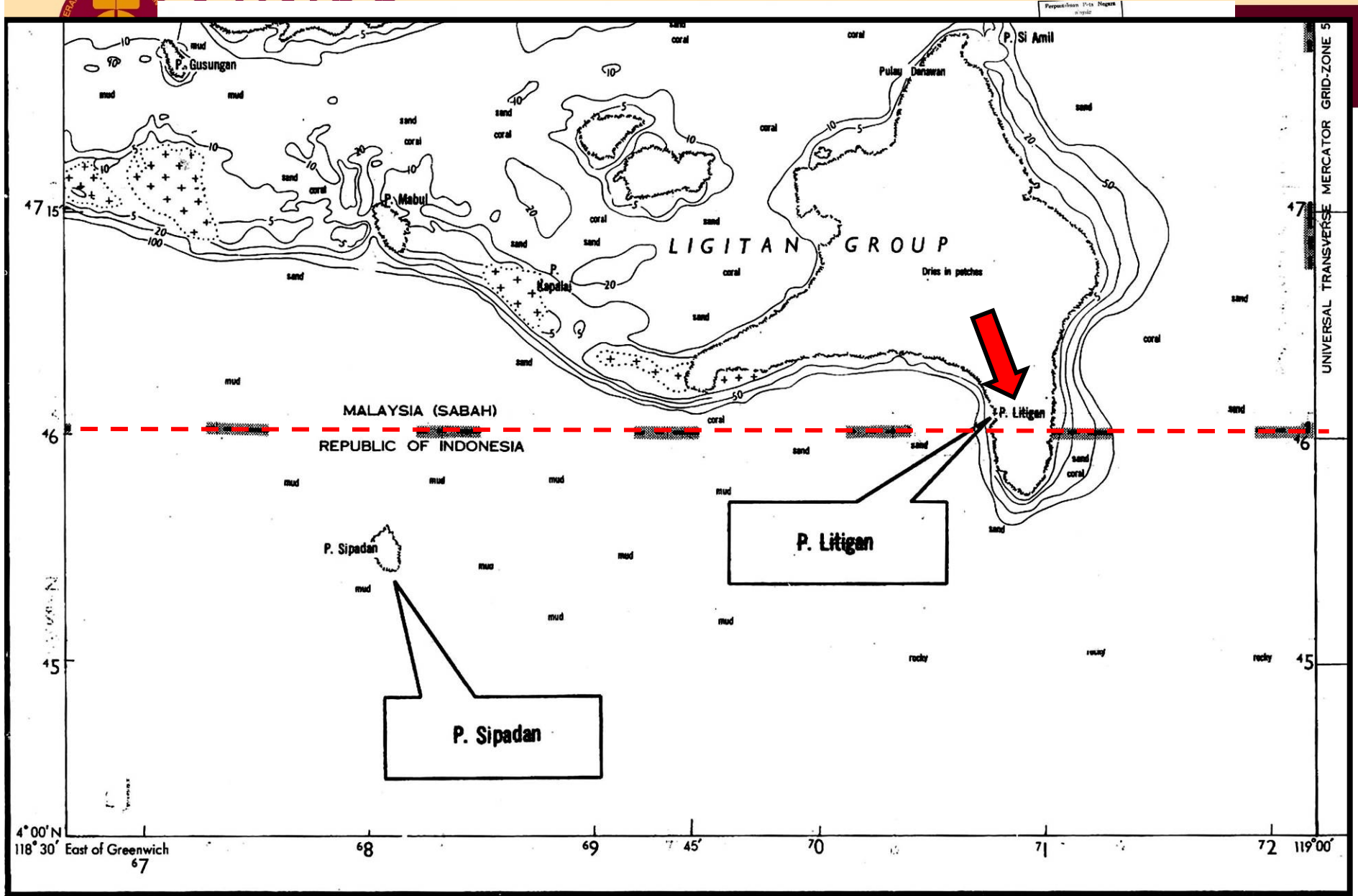
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# Malaysia Timor Sabah, 1967



Source IM, Map Atlas, Map No. 14 **G CREATIVE AND INNOVATIVE MINDS**

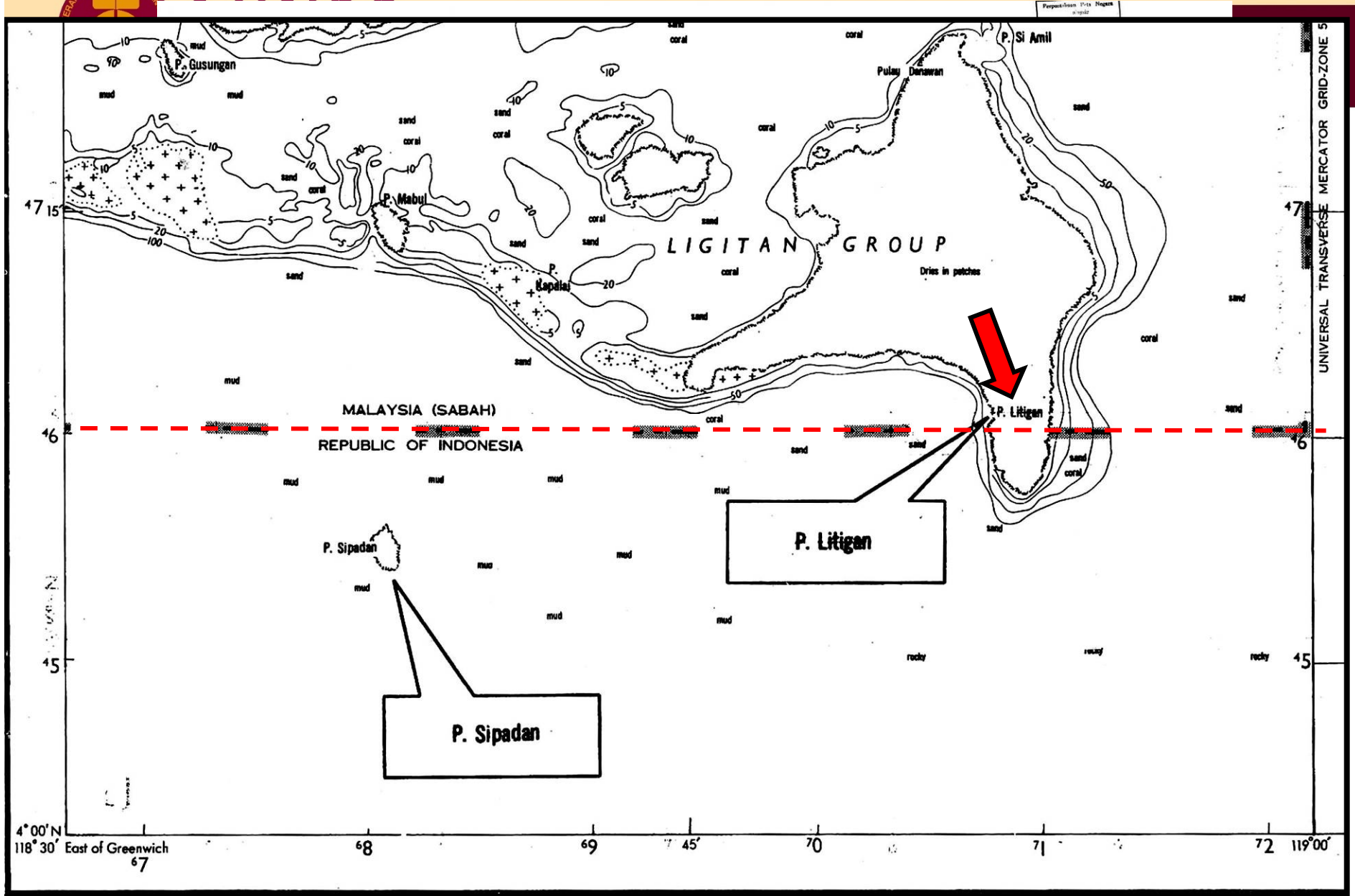
# Map of Semporna (1967)



Source MM, vol. 5, Map 20

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# Map of Semporna (1967)



Source MM, vol. 5, Map 20

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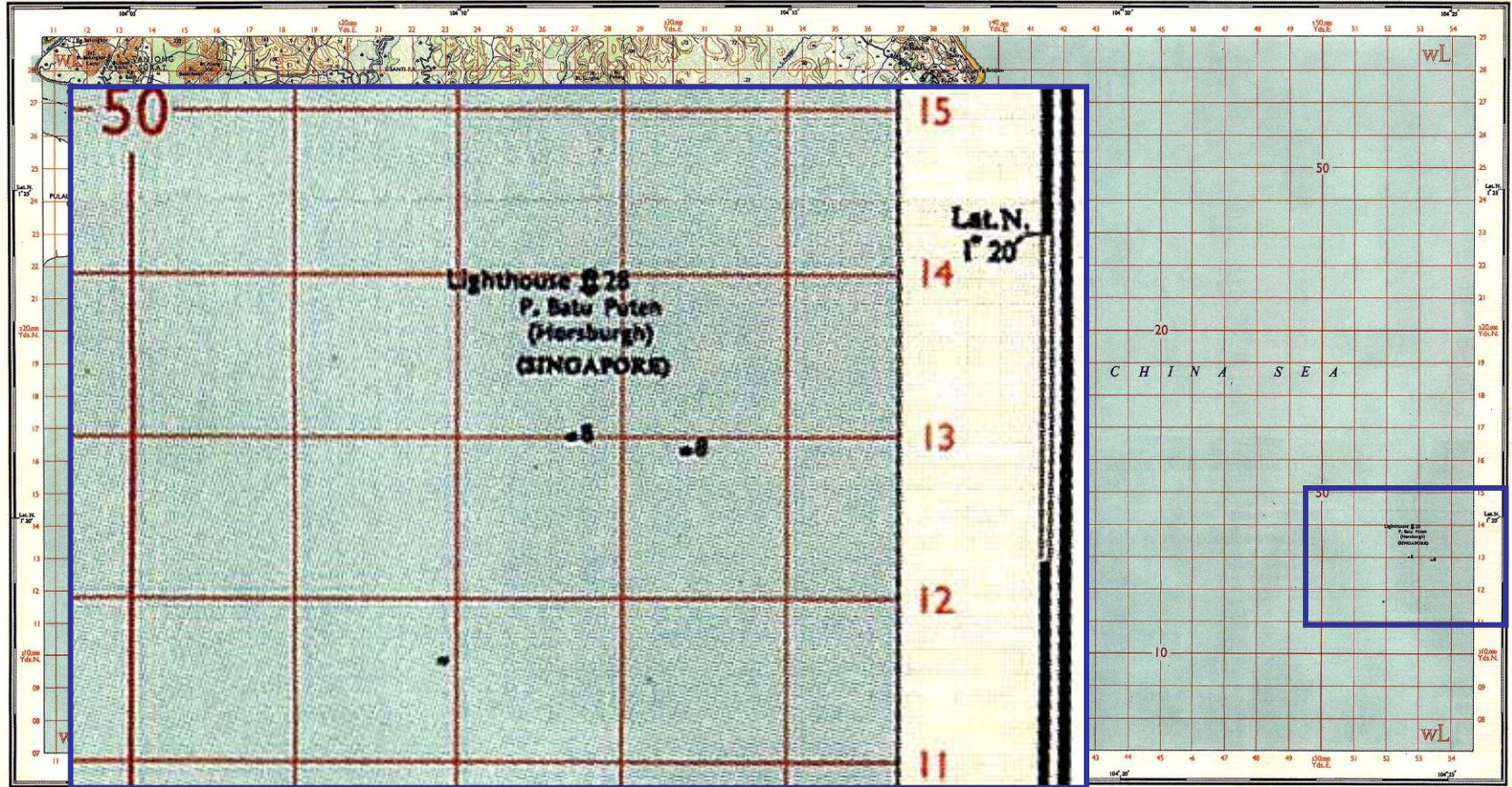
- As to the dispute with that of her neighbour Singapore, *depiction of erroneous information* on old maps produced by Malaysia, showing the island of Pedra Branca with the lighthouse symbol together with the annotation “Singapore”, has been argued to indicate that Malaysia recognizes the island to be Singapore-owned, albeit Malaysia insisted that the annotation is just to indicate that only the lighthouse is operated and owned by Singapore.

# Pengerang, Malaya, Series L 7010, Sheet 135, Edition 1-SDFM, 1962

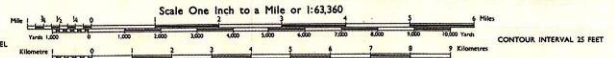
## PENGERANG

MALAYA 1:63,360

SERIES L 7010  
SHEET 135  
EDITION 1-SDFM  
SHEET 135



Series L 7010  
Published by the Surveyor General, Federation of Malaya, 1962  
Edition 1-SDFM



Single Track	1. Embankment	2. Cut
Double Track	3. Under Construction	4. Tunnel
Light Rail	5. Road Level	6. Level Crossing
Light Railway	7. Single Track	8. Double Track

Metalled surfaced	Two way	One way	One way
Metalled unsurfaced	Two way	One way	One way
Unmetalled	3. Cut or jeep track	4. Footpath	5. Causeway
Unmetalled	6. Path	7. Footpath	8. Footpath

Well	1. Public	2. Private
Cistern	3. Rain	4. Windmill
Waterfall	5. Dam	6. Dam
Swamp	7. Marsh	8. Marsh

State	Sheet No.	Sheet Name
Malaya	L 7010	Sheet 135
Johore	J 7010	Sheet 135

Jungle	1. Primary	2. Secondary
Open Forest	3. Dipterocarp	4. Dipterocarp
Open Forest	5. Dipterocarp	6. Dipterocarp

SERIES L 7010  
SHEET 135  
EDITION 1-SDFM

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**TO GIVE A TRIANGULAR REFERENCE ON THIS SHEET TO ADJUSTED OR UNADJUSTED DATA**

**SAMPLE POINT - M. Mean (100)**

**SAMPLE POINT - W. West (100)**

**SAMPLE POINT - E. East (100)**

**SAMPLE POINT - S. South (100)**

**TO GIVE A TRIANGULAR REFERENCE ON THIS SHEET TO ADJUSTED OR UNADJUSTED DATA**

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**SAMPLE POINT - S. South (100)**

Prepared under the direction of the Surveyor General, Federation of Malaya, from the following source materials:

(1) A.S. Survey 1955

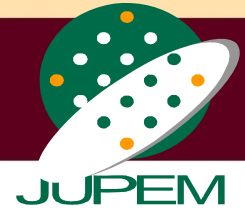
(2) A.S. Air Survey photographs of whole sheet issued 1951 & 1957

(3) Topographical field sketches of whole sheet during 1959



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# Issues and the law on geospatial data in Malaysia

- Issue 1: Multiple data providers (public and private)
- Issue 2: Identifying liability of parties involved
- Issue 3: Users right to know and able to assess data quality





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## Issue 1

### Multiple data providers (public and private)

- How the law ascertain that the data provided are accurate and reliable
  - Public sector data producers- Malaysian National Spatial Data Committee formed to coordinate the data acquisition and production of government data to ensure data quality*
  - imposed by government circulars, not legislation, not legally binding

*Activities of private geospatial data producers uncoordinated, uncontrolled except for the conduct of cadastral surveys and production of cadastral survey data,*

- *vetting of geospatial data by JUPEM limited to filtering security sensitive information NOT QUALITY / ACCURACY INSPECTION*



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## Issue 2:

# Identifying liability of parties involved in the handling of geographic information data

- ascertaining liability of parties in the data information chain (from original data providers, software producers, secondary data producers, finally the users)  
Both JUPEM and private data providers provide disclaimers exempting them from liability on both their printed and digital maps and products
- Law will look at those in the information chain and consider whether they have exercised appropriate standard of duty to prevent the occurrence of damages (law of torts and contract)
- This traditional legal theory is limited in its application due to the wide array of current as well as potential application of geographic information technology
- In addition, data providers are subject to code of conduct imposed by their profession (eg. Licensed Land Surveyors Act 1958) and the Consumer Protection Legislation

## Issue 3

### Users right to know & able to assess data quality

- legal issues that has to be tackled by JUPEM and other data providers should include identifying duties which are mandatory as data providers regarding the quality of data; duties that every professional is expected to do
- Responsibilities of informing users about the datasets, that not only provide users with information pertaining to the content of the data but the limitation or defect or potential risk in the data utilisation - the data producers need also consider users' intended usage of the data and warn them accordingly.



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## The need for legislation on geospatial data accuracy in Malaysia

- No specific law on data quality/accuracy
- Depends on the traditional law of contract and law of torts
- No statutory mandate to ensure compliance
- No consistent legal framework on GIS or geospatial data management and policy
- What exist is merely a patchwork of self regulation in the form of government circulars, standards which are not legally binding
- Rapid growth of GIS users in Malaysia raises the need for data accuracy and the appropriate management of these data and hence the need for a codified legislation on managing geospatial data as the country moves towards a spatially enabled government.

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