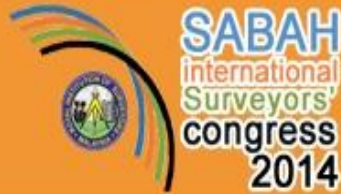




MALAYSIA  
GEOSPATIAL  
FORUM



11-12 March 2014

Sutera Harbour Resort, Kota Kinabalu, Sabah

*Theme: Fostering Domestic Capacity for Economic Growth*

# THE ROLE OF POIC LAHAD DATU IN INDUSTRIALIZING SABAH AND HOW GEOSPATIAL AND SURVEYING COMMUNITIES CAN CONTRIBUTE



**Pang Teck Wai and Lee Ming Tong**

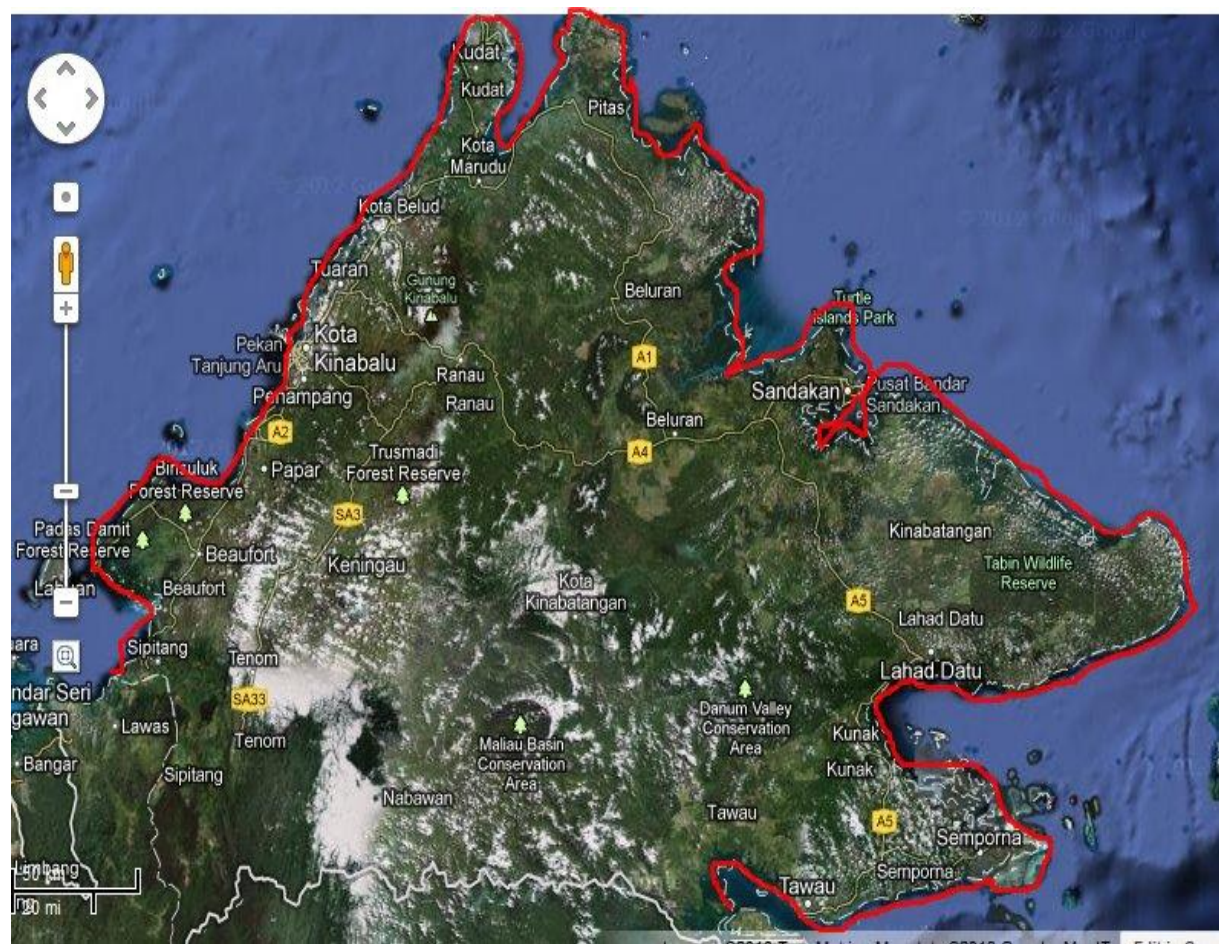
POIC Sabah Sdn Bhd

- 1) Introduction
- 2) The role of POIC Lahad Datu in Industrializing Sabah
- 3) How geospatial and surveying communities can contribute in sustainable development of POIC Lahad Datu?
- 4) Concluding remarks

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# INTRODUCTION

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- **Vast land area (73,620 km<sup>2</sup>)** (Agriculture/Forestry)
- **Long coastline (1,743 km)** (Aquaculture)



**Abundant Bio-feedstock**



**Development of Bio-economy through Industrial Biotechnology**

# POIC Forestry & Agriculture Dominate The Land Use in Sabah

Land use	(000' ha)	(%)
National Forests & State Land	4,091	55.6
Plantation Forest	214	2.9
Oil Palm Plantations	1,415	19.2
Rubber Holdings	87	1.2
Rice Fields	43	0.6
Coconut Farms	18	0.2
Cocoa Holdings	7	0.1
Other Crops	27	0.4
Other Land Uses	1,460	19.8
<b>Total</b>	<b>7,362</b>	<b>100.0</b>

A red bracket on the right side of the table groups the following categories: National Forests & State Land (55.6%), Plantation Forest (2.9%), Oil Palm Plantations (19.2%), Rubber Holdings (1.2%), Rice Fields (0.6%), Coconut Farms (0.2%), Cocoa Holdings (0.1%), and Other Crops (0.4%). The total percentage for these categories is 80.2%.

Source : Department of Statistics Malaysia (2012)

	Sabah	Malaysia
Oil Palm Planted Area (Mil. Ha)	<b>1.48 (28.2 %)*</b>	5.23
Palm Oil Mill (No.)	<b>124 (28.9%)</b>	429
Refineries (No.)	<b>14 (27%)</b>	52
Palm Kernel Crusher (No.)	<b>14 (30.4 %)</b>	46
Crude Palm Oil Production (Mil. Tonnes)	<b>5.78 (30%)</b>	19.21
Crude Palm Kernel Oil Production (Mil. Tonnes)	<b>0.61 (27 %)</b>	2.27

\* Percent National Total

Source: Malaysian Palm Oil Board (MPOB) website, 2013 Statistics



Palm Oil Tree



Fronds

Fresh Fruit Bunches



Trunks

Milling Process

Biomass

Palm Kernel Oil

Crude Palm Oil



Empty Fruit Bunches (EFB)



Palm Kernel Shells (PKS)



Mesocarp Fiber (MF)



Palm Oil Mill Effluent (POME)



## BIOMASS TYPE

## Mil. Dry Tonnes/Year



Oil Palm Fronds

**16.4**



Oil Palm Trunks

**4.5**



Empty Fruit Bunches

**2.3**



Mesocarp Fibres

**2.5**



Palm kernel Shells

**1.4**



Palm Oil Mill Effluent

**1.0**

**Total :**

**28.1**



Estimated oil palm biomass\*  
generated in Sabah (2012)

\*Computation Of Biomass Raw Materials Supplies based on MPOB formula.



## Products Currently Exported

Crude Palm Oil

Refined Palm Oil

Palm Olein

Palm Stearin



Crude Palm Kernel Oil

Refined Palm Kernel Oil

Palm Kernel Olein

Palm Kernel Stearin

**Value Adding Opportunities**

## Downstream Opportunities

### Food Based Products

- Cooking Oil
- Shortening
- Margarine
- Vanaspati
- Confectionary
- Bakery fats
- Ice cream
- Cocoa butter alternatives



### Phytonutrients

- Carotenes
- Tocols (Vitamin E)
- Co-enzyme Q<sub>10</sub>
- Squalene
- Phytostrols
- Lecithin



### Oleochemicals

- Personal care products
- Cosmetics
- Plastics
- Textile processing
- Metal processing
- Lubricants
- Emulsifiers
- Soap
- Degreasers
- Protective coatings
- Explosives



## Feedstocks Currently Underutilised

### Oil Palm Fronds



16.4 million dry tonnes

### Oil Palm Trunks



4.5 million dry tonnes

### Empty Fruit Bunches



2.3 million dry tonnes

## Downstream Opportunities

**Value Adding Opportunities**



Bioethanol



Biobased Chemical



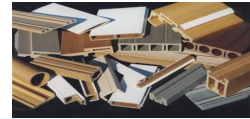
Biofuels



Pellets



Furniture from Oil Palm Lumber



Wood Plastic Composite



Plywood



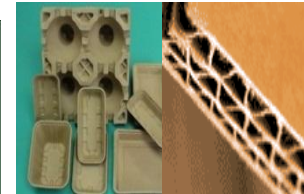
Particle Board / Moulded Particle Board



MDF



Pulp & paper



Finished Paper Product



Compost



Fibre



Animal Feed from Oil Palm Fronds

**Current Focus at POIC Lahad Datu:**

- **Bio-refinery**
- **Sugars**
- **Bio-fuels**
- **Bio-chem**
- **Bio-pellets**

- With the massive oil palm-based resources and limited downstream activities, Sabah State Government established Palm Oil Industrial Cluster (POIC) Lahad Datu to spearhead state industrial efforts in accelerating the state economy.
- Estimated to worth about RM 100 billion in development potential.
- The surveyor community has an important role to play in this growth path.

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# **THE ROLE OF POIC LAHAD DATU IN INDUSTRIALIZING SABAH**

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## Background:

- ✿ Set-up in Jan 2005 as the 1<sup>st</sup> comprehensively developed (infrastructure) palm oil industrial cluster in the world.
- ✿ Owned by State Government of Sabah.

## Aim:

- ✿ Value-add to palm oil and palm biomass.
- ✿ Development of other downstream industries.

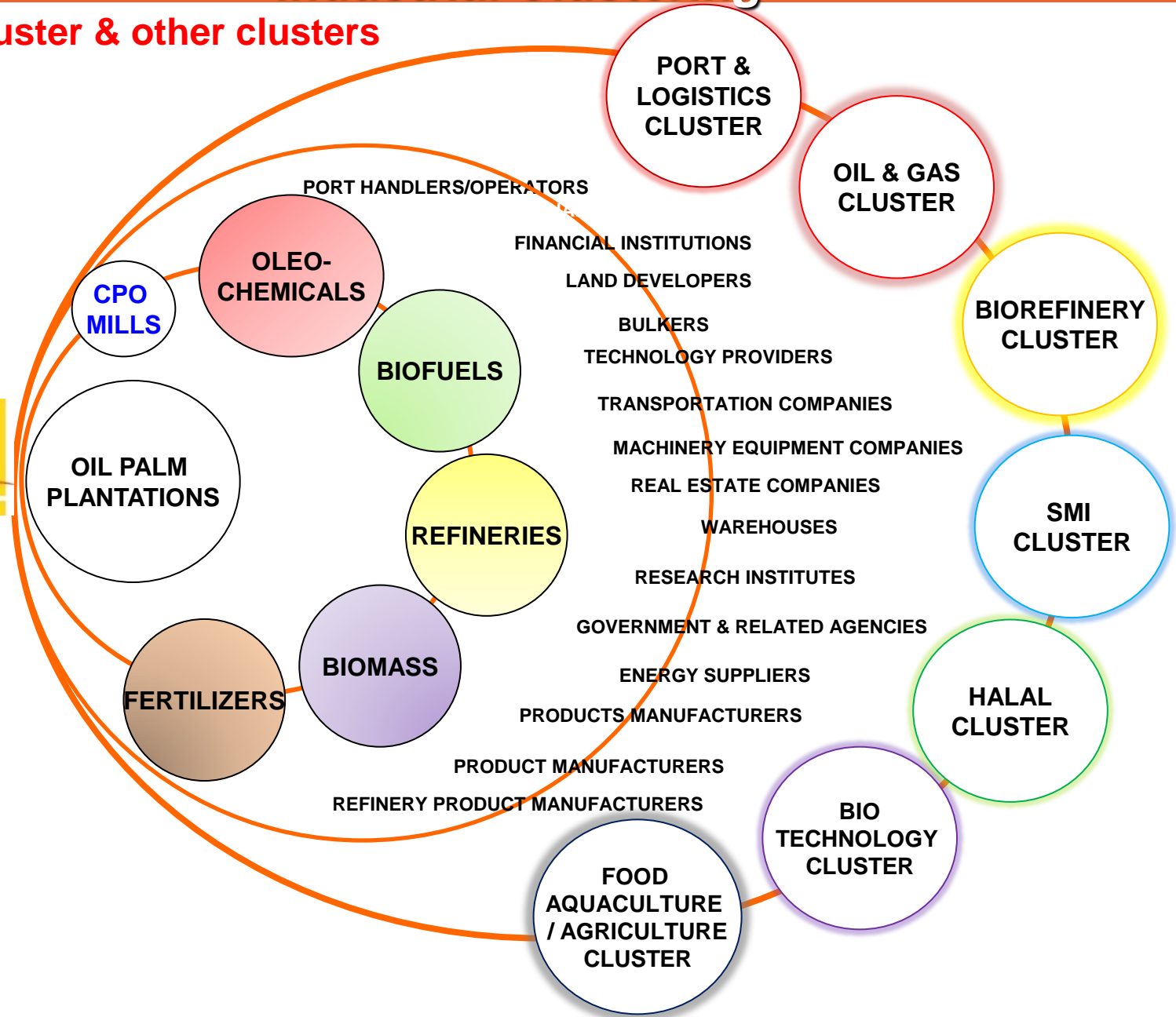
# POIC Lahad Datu

Located at the centre of oil palm growing belt in Sabah



- Availability of raw materials:**
- \* 1.48 million hectares oil palm planted area(28% of Malaysia's total).
  - \* 5.78 million tonnes of Crude Palm Oil production (30% of Malaysia's total production).
  - \* 124 palm oil mills in Sabah (28.9% of 429 palm oil mills in Malaysia).
  - \* 14 refineries in Sabah (27% of 52 refineries in Malaysia).
  - \* 28 Mil tonnes (dried) palm biomass (empty fruit bunches, palm trunks and palm fronds, palm kernel shells and palm oil mill effluent)

**Palm oil cluster & other clusters**

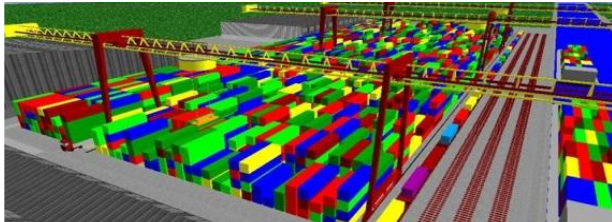


# Deep Sea Port & Large Industrial Area For Development





# POIC Port & Industrial Infrastructure at POIC Lahad Datu



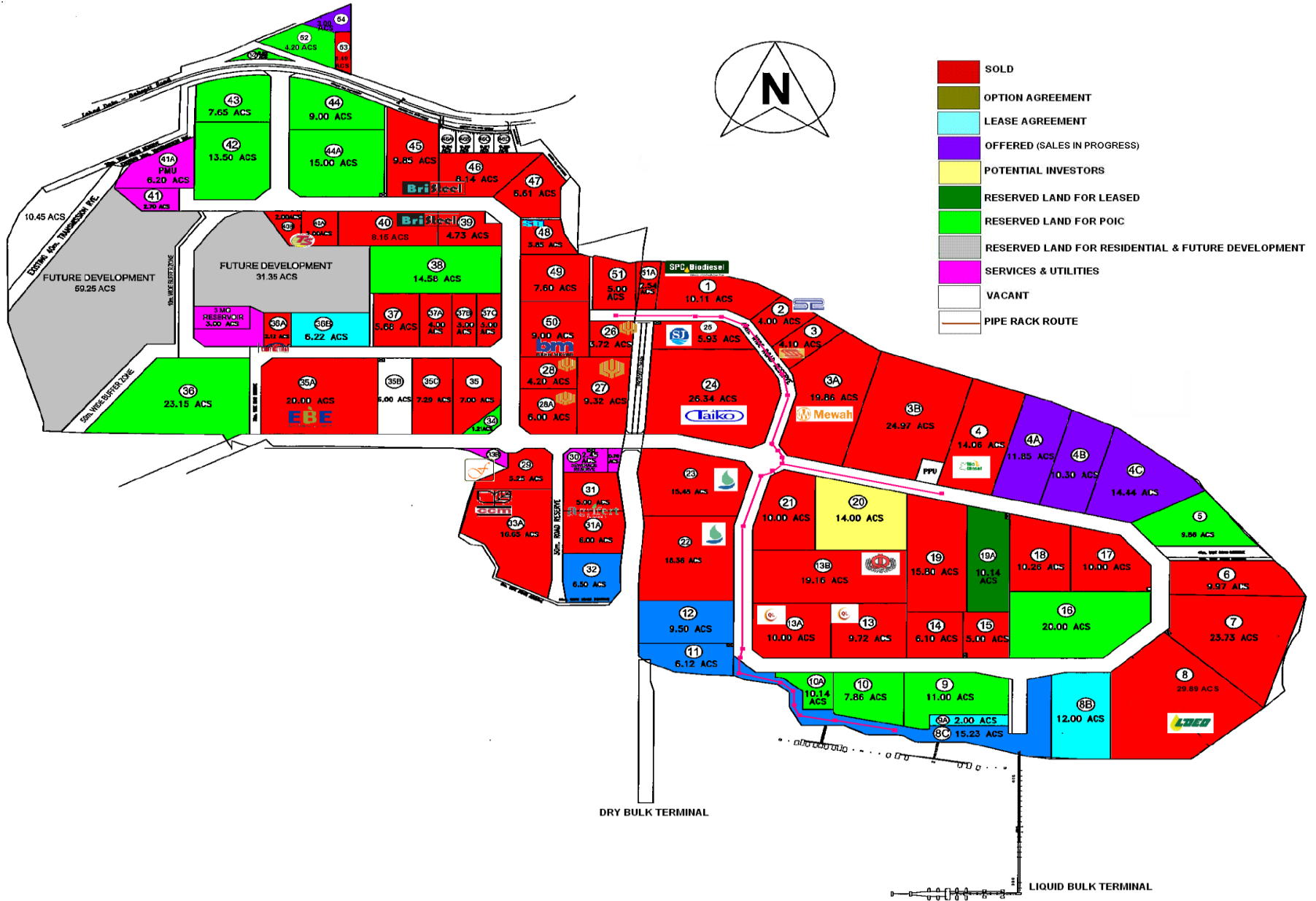
**Container Terminal** Ready by 2016



**LNG Terminal – In Progress**

Phase	Land area (Acres)	Industrial Cluster Activities	Status
1	600	Oil-based Industries, Bulking, Port & Logistics, Supporting Industries	Developed
2	550	Fertilizer, Supporting Industries, Commercial. Port & logistics	Developed
3A	547	Biomass, Oil & Gas, SMI, Supporting Industries, Port & Logistics, Commercial.	On going
3	2,753	Lahad Datu Integrated bio refinery cluster, Ship Building & Repair, Renewable Energy, Food Industry, Port & Logistics, Petrochemical, SMI, Commercial, Supporting Industries	Planning

# Status of Sales as at February 2014



**POIC**

**Collaboration  
with  
Strategic  
Partners**



Lahad Datu Integrated  
Bio Refinery Cluster



Biomass Joint Venture  
Cluster Model  
(EFB raw material  
for Biomass)

Biomass Purchaser &  
Enduser

POIC Biomass  
Collection Center



Centralized Utility Facility  
(CUF) & Liquefied Natural  
Gas (LNG)

Geospastial Surveying  
Communities

Precision Management  
Solutions for  
Sustainable Development

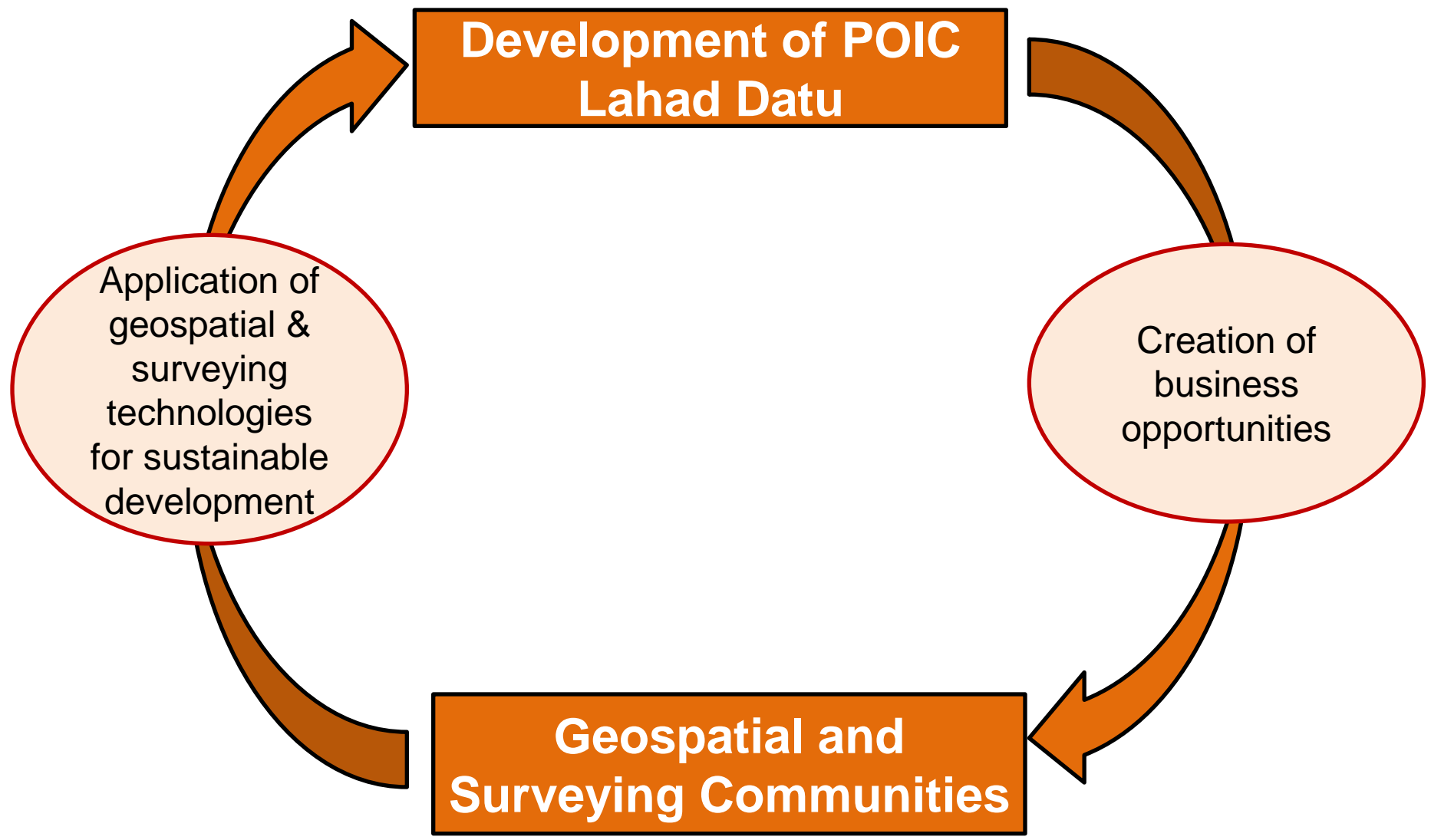
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**HOW GEOSPATIAL AND  
SURVEYING COMMUNITIES  
CAN CONTRIBUTE IN  
SUSTAINABLE  
DEVELOPMENT OF POIC  
LAHAD DATU?**

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# Partnering With Surveying Communities for Sustainable Development of POIC Lahad Datu





# Key Activities Related to Sustainable Development of POIC Lahad Datu

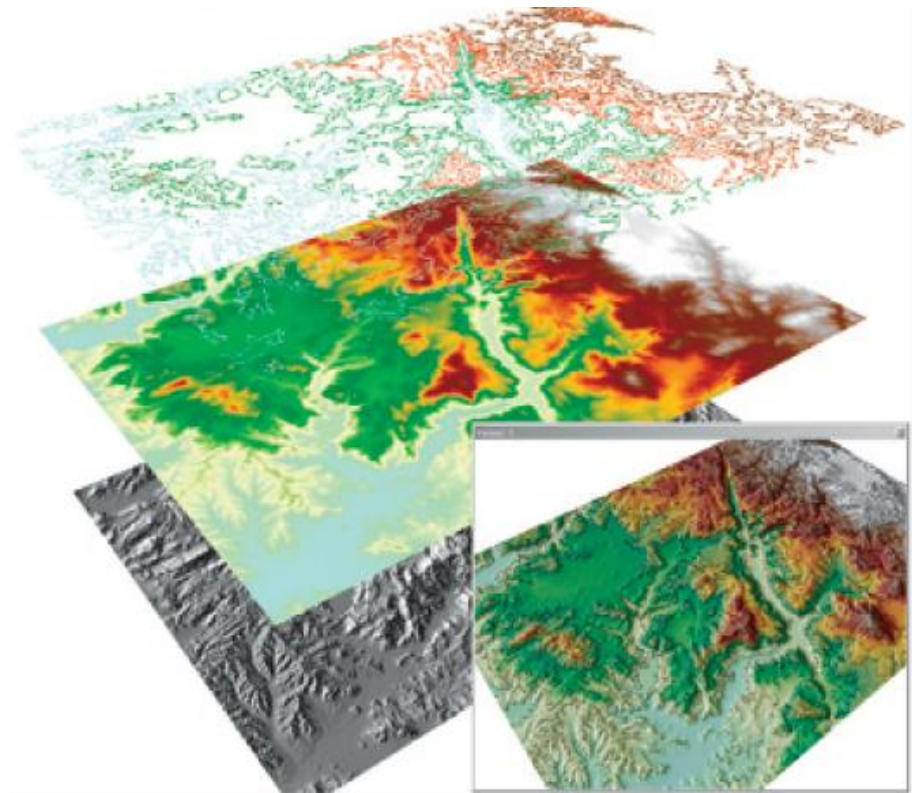
Activity	Objective
Land development	Provide basic development of land, infrastructure & port facilities for industrial development
Environmental management	Ensure meeting the environmental requirements.
Land logistics management	Improve road and transport system to facilitate cost effective collection and delivery of feedstock for industrial use
Port & sea logistics management	Facilitate efficient sea traffic management
Public safety management	Crime prevention & security protection
Sustainable oil palm cultivation	Ensure adequate supply of oil palm feedstock through productivity improvement, optimal fertilizer use, reduce crop loss due to pest and diseases among others.
Natural resources management	Exploring the forestry, agriculture and marine bio-feedstock for industrial use

- ✿ By applying advanced surveying and geospatial technologies (remote sensing, geographic information systems and global positioning systems) to various development activities related to POIC Lahad Datu.
- ✿ Could lead to area-wide, cost effective, labor and time saving solutions in its application.



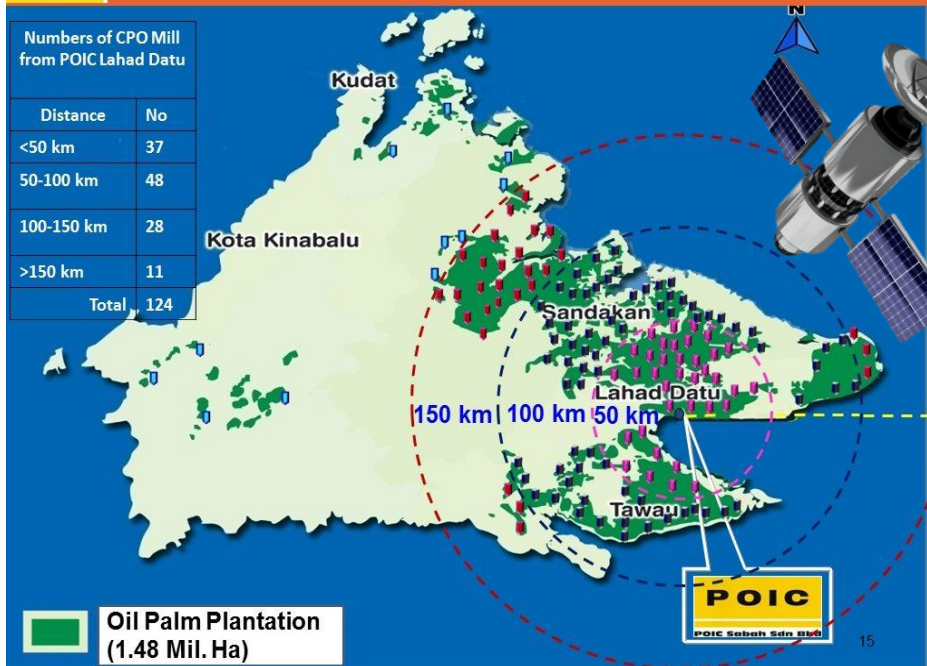


Land surveying for land development and infrastructure installation.



Environmental management at industrial and vicinity area.

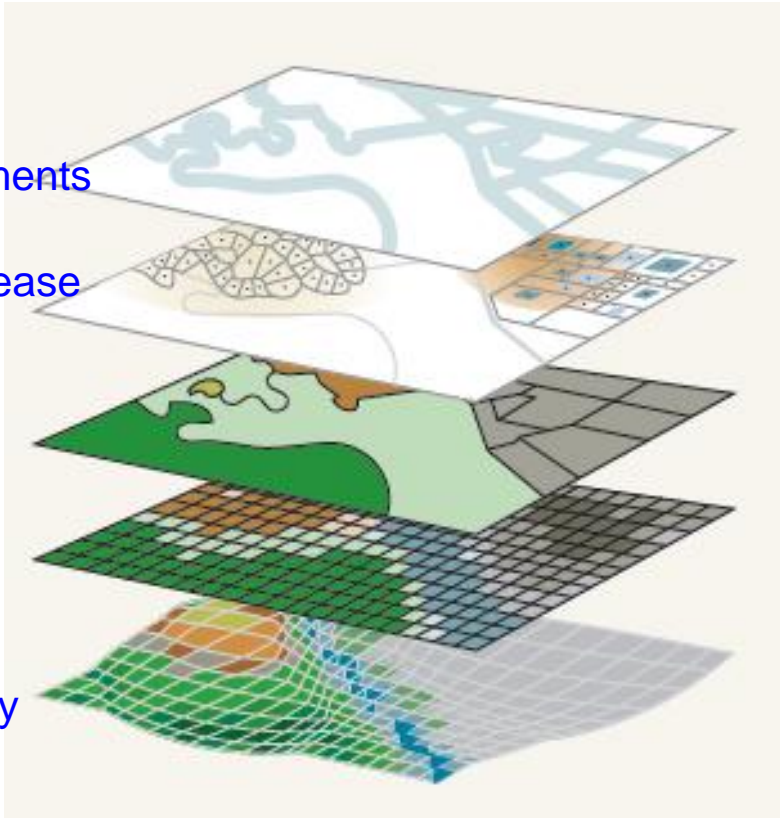
## POIC Location of POIC Oil Palm Growing Area and Oil Palm Mills



Land logistics management (road and transport system improvement)

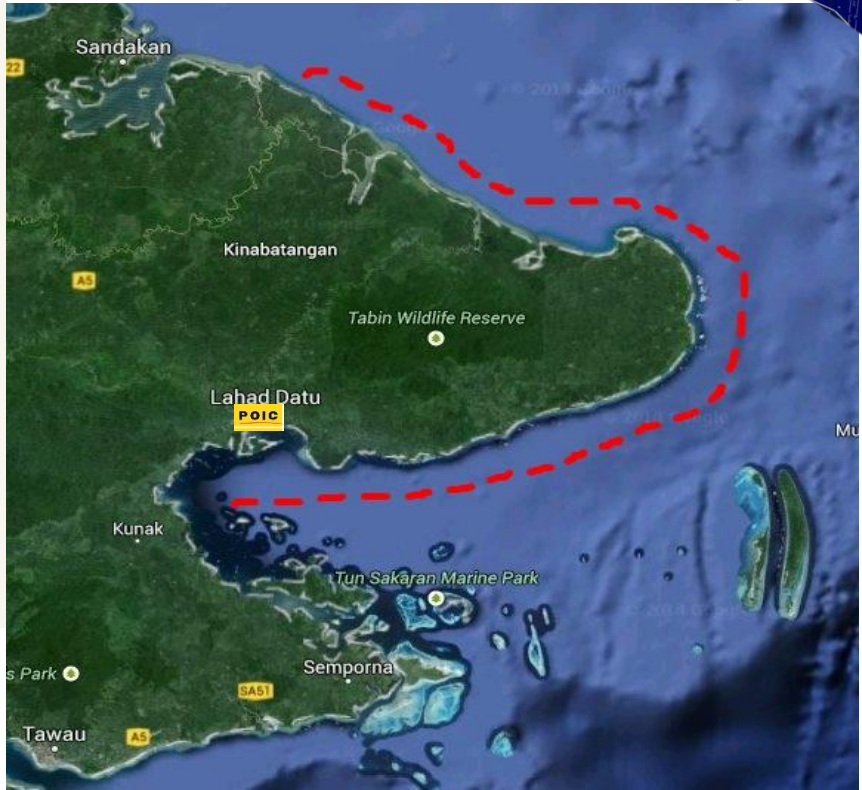


Port & sea traffic management



Soil Treatments  
Pest & disease monitoring  
Crop yield  
Soil Types  
Topography

Sustainable oil palm cultivation (precision farm management)



Natural Resource Management (Forestry, agriculture and marine resources utilization)

- ✿ POIC Lahad Datu has geared up to kick off the Sabah state industrialization efforts in speeding up the value-adding oil palm and other downstream industries for enhancement of the state economy.
- ✿ The development of POIC Lahad Datu creates business opportunities for the surveying communities to contribute in this economic growth path.
- ✿ And in return, optimal application of advanced geospatial and surveying technologies could facilitate cost effective and competitive sustainable development of POIC Lahad Datu.



# COME AND DISCOVER POIC YOUR GLOBAL INVESTMENT HUB.

# THANK YOU

We invite individuals and corporations to explore the various business opportunities in POIC especially in Palm oil downstream activities, Oil, Gas & Petrochemical, Manufacturing, Ship Building, Education, Commercial Development, etc

*For more information please contact :*

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