

# Impacts on Fuel Security

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**Expert Meeting 5**

**Bioenergy policy, markets and trade and food security  
and**

**Expert Meeting 6**

**Global perspectives on fuel and food security**

**18-20 February 2008**

**Lebanon Room (D-209)-FAO HQ-Rome**

# Implications of Fuel Security ?

## OECD(IEA) VS Emerging Economies

- Implications Differ : living / social conditions
  - Cooking (fuelwood, charcoal, coke, kerosene, LPG, NG, DME)
  - Lighting (1.6 Billions without Electricity)
  - Urban Poor (comparative poverty : social exclusion)
  - Mobility (Personal and Mass)
  - Goods Transport



# Fuel security

- Accessibility, Availability, Reliability, Affordability
- Shifting of oil demand growth ---Dev. Asia : PRC, India, ASEAN : <5 MBD to 17 MBD in 2030
- PRC Stock-piling in 2008 : 30 Days Reserves in 4 locations (will need 100 MB) India will stockpile 20 days res. By 2010 and to increase to 60 days after that (will need ~36MB)
- ASEAN : Mandate of commercial stocks (Th. ~45 Days) : Government SPR is this affordable ?
- New Oil Diplomacy .. West Africa, Iran, Myanmar, South China Sea
- New Oil/Gas Pipelines & Infrastructure Developments

# Thailand's Economy in 2007

- 65 Millions Population ~1% of World; ~1% of World Oil Import; ~2% of Trades
- GDP \$240 Billions
- Agriculture: 8.9% of GDP, 39% of Employment
- Manufacturing: 39.3% of GDP, 15.1% of Employment
- 1<sup>st</sup> Import Item : Crude Oil (\$28 bn : 15.6% of import bill)



## East Asia Faces Mild Energy Security Risks

Security : Korea, Japan, Thailand

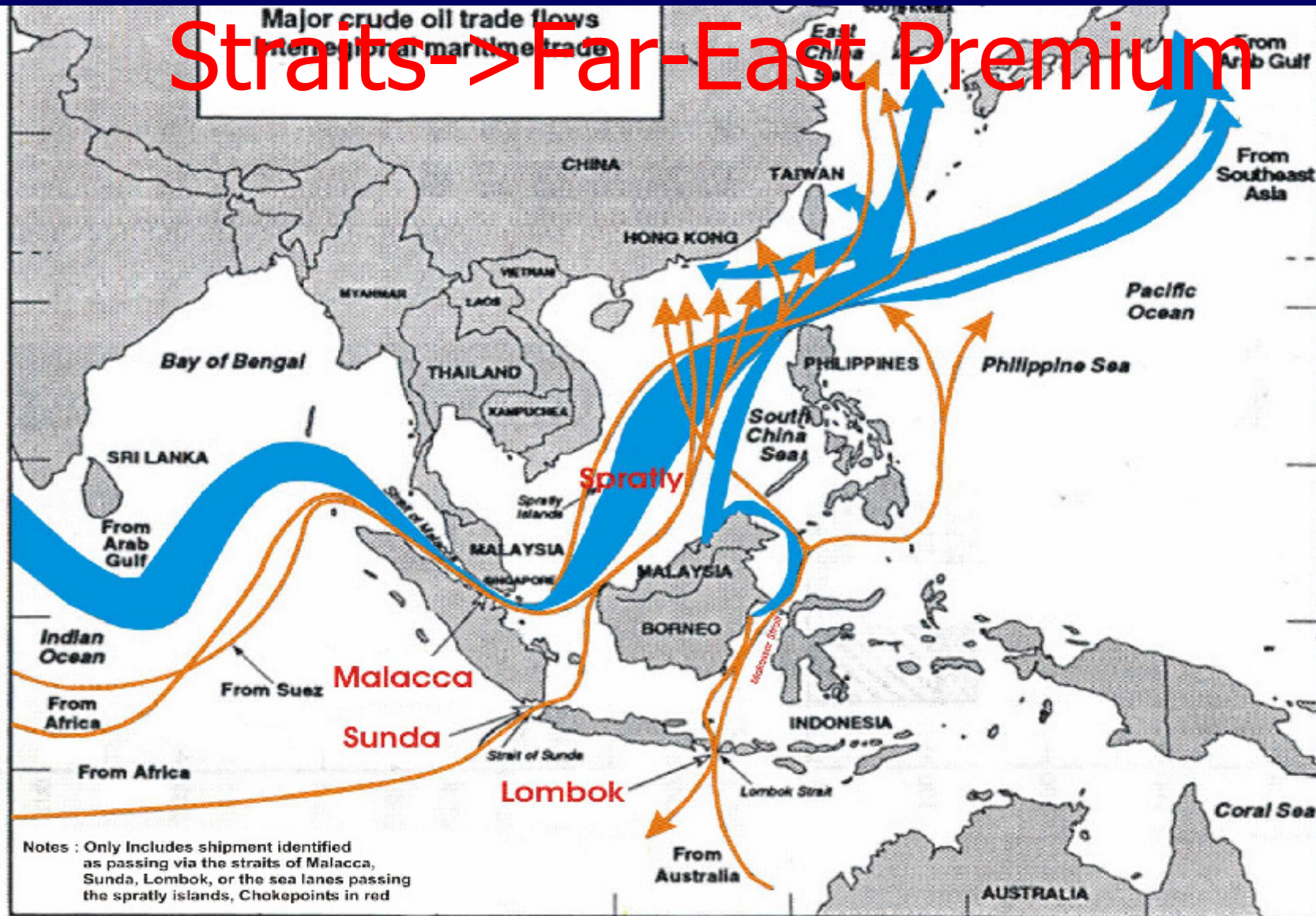
Climate Risk : Vietnam, Bangladesh, Thailand, Myanmar

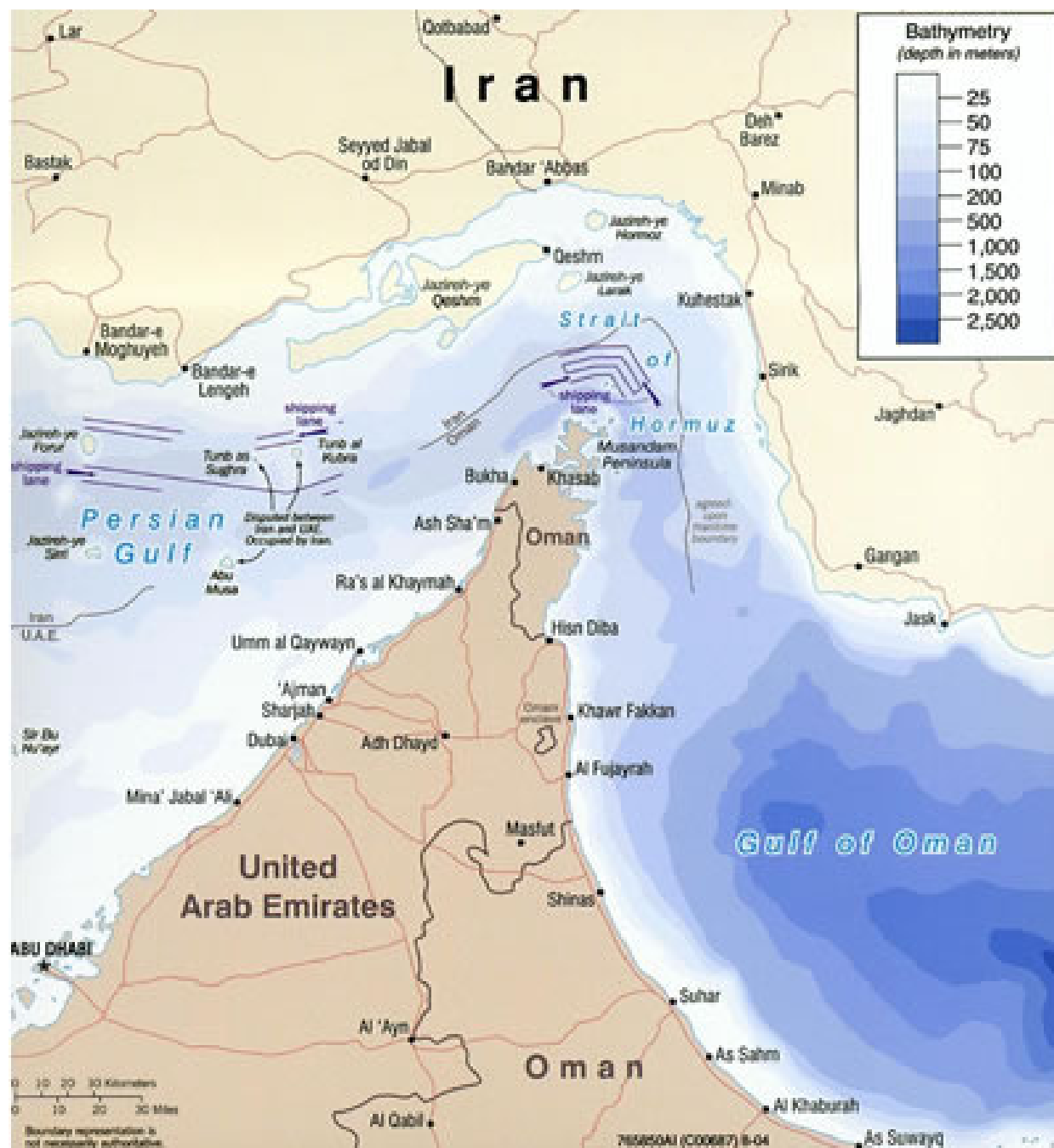


Source : World Economic Forum, 2007



# Maritime Chokepoints : Malacca Straits->Far-East Premium





From [www.defense-update.com](http://www.defense-update.com)



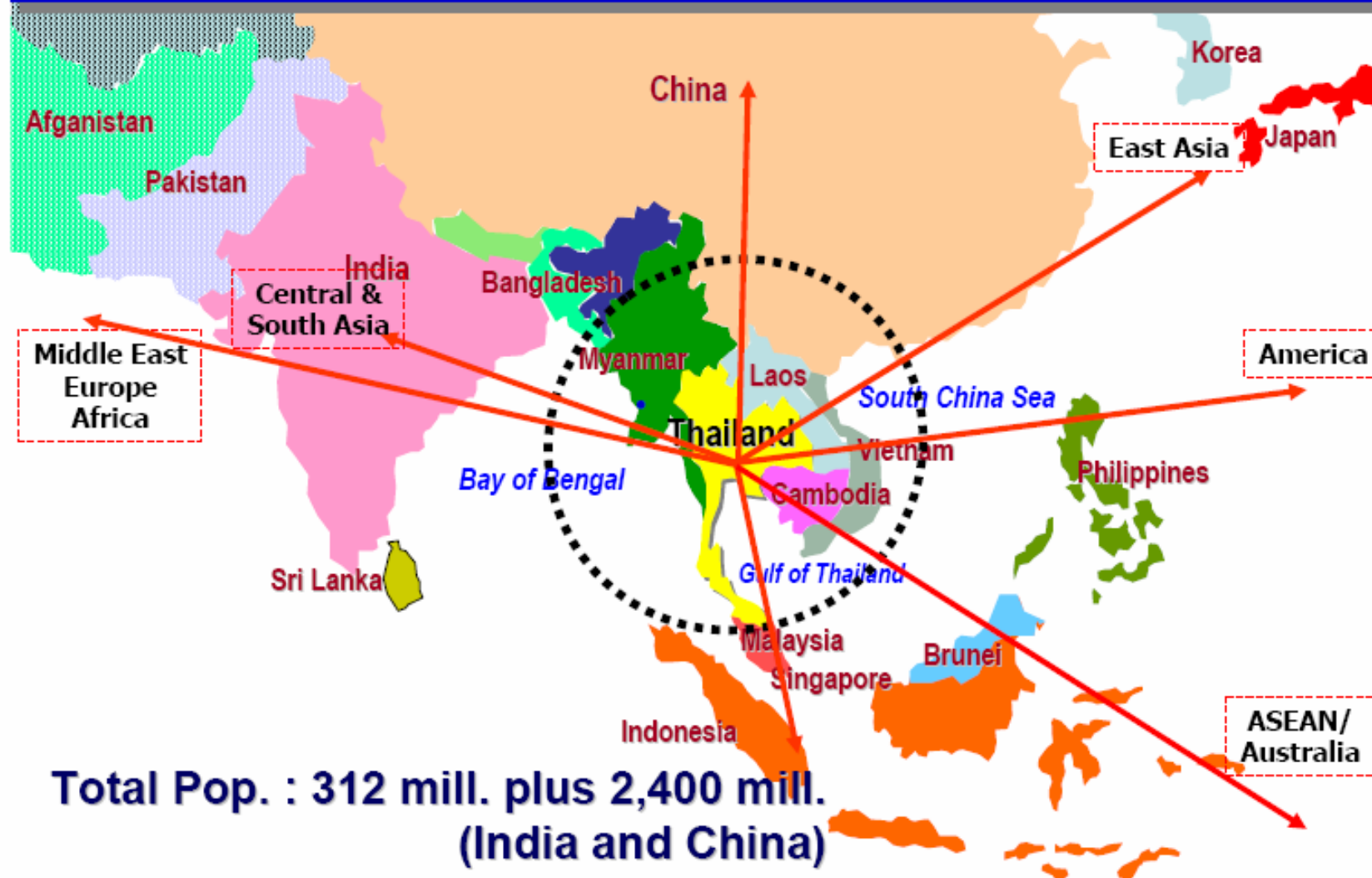
Greater Mekong  
Subregion : GMS  
PRC : Yunnan+Guangxi  
Myanmar  
Laos PDR  
Thailand  
Cambodia  
Vietnam

>320m population and  
growing

Joint  
Logistics/Infrastructure  
Development

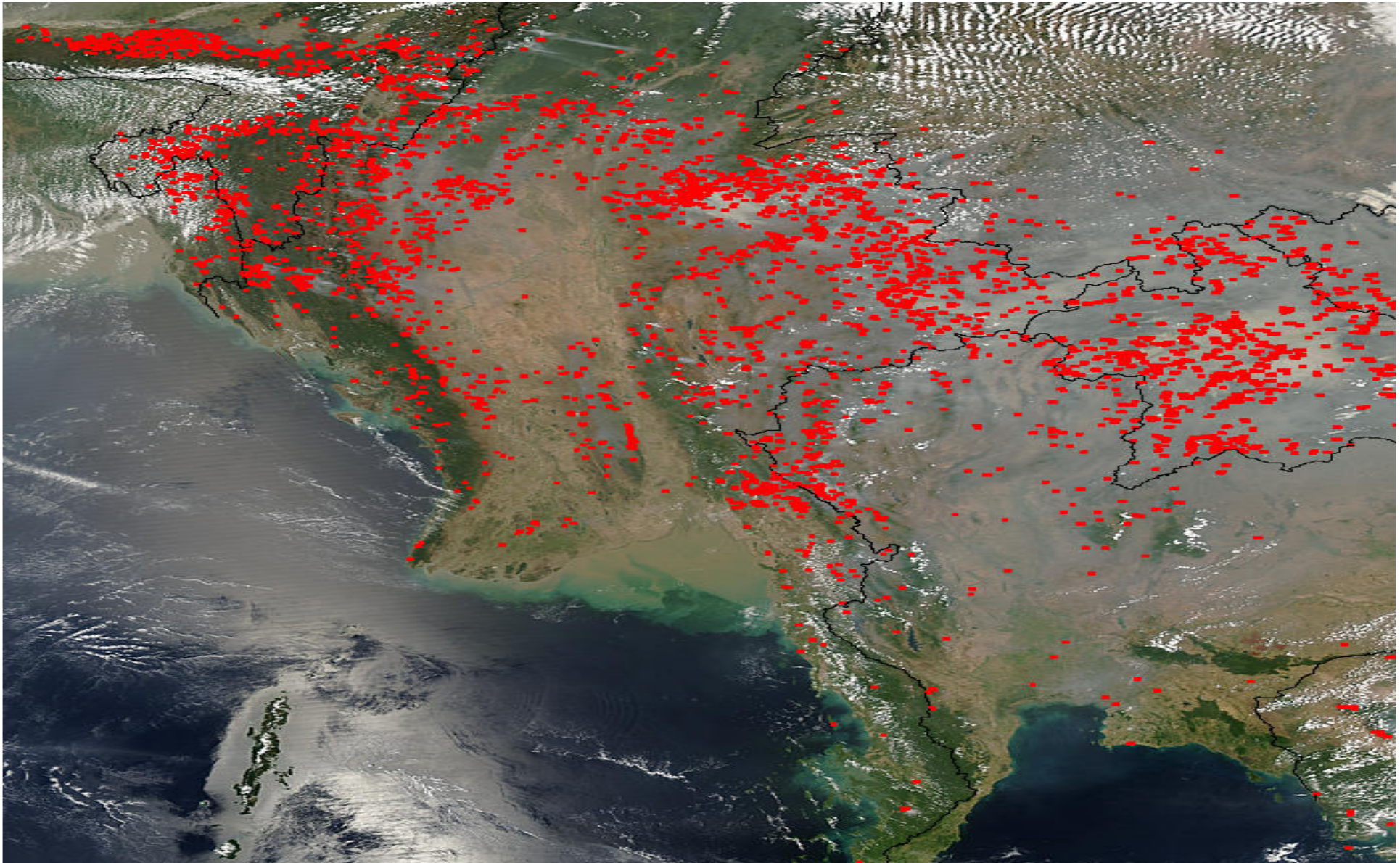


## Strategic Location of Thailand & the Mekong Region



Source: P.Vimolsiri, NESDB, Thailand

# ABC / Fires : Indochina 24.03.05 (NASA Terra Sat. Picture)







K.Sriroth, 4<sup>th</sup> Biomass Asia Workshop, Nov., 2007)

# Environmental Security ?



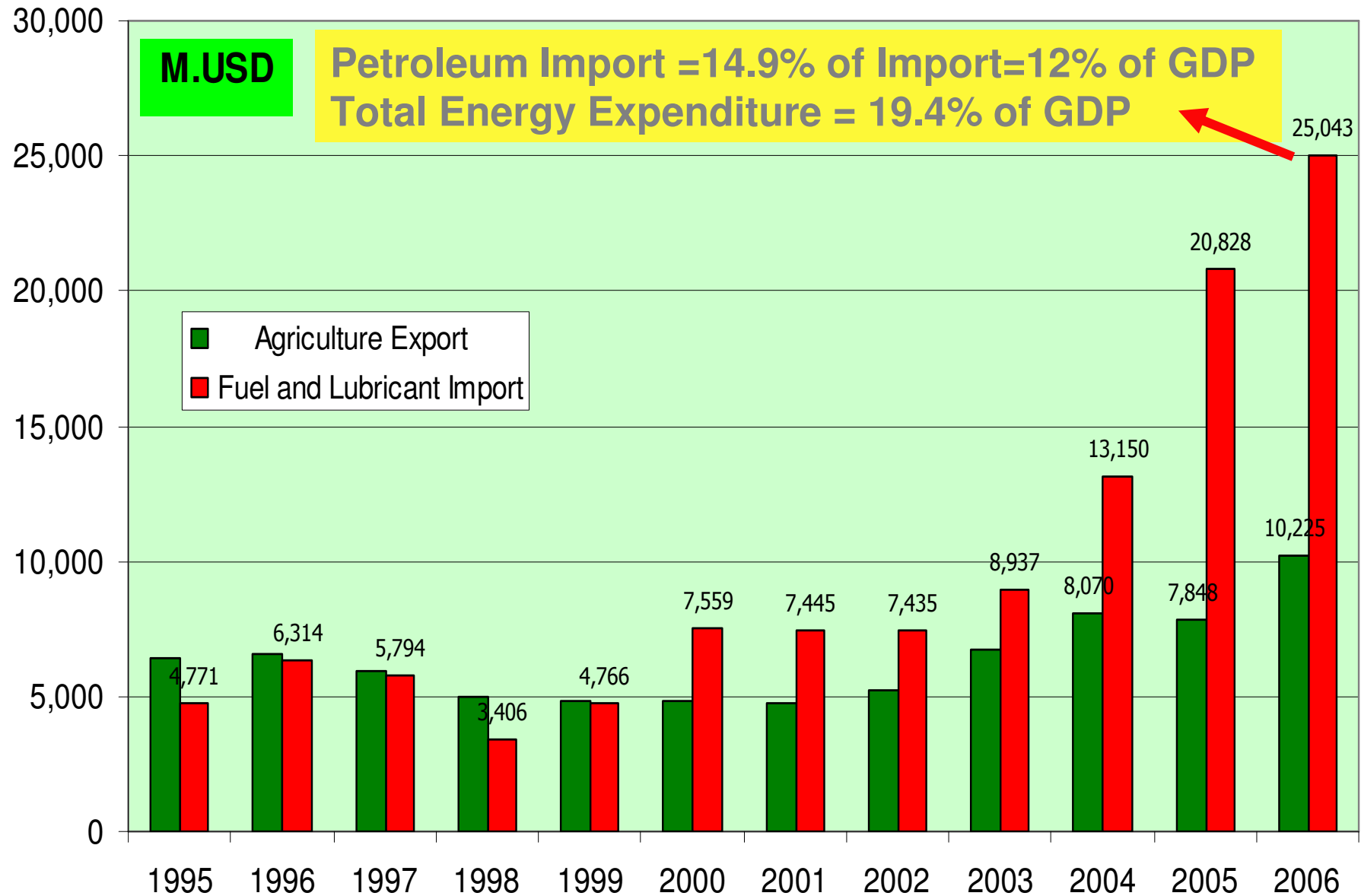
“Who is  
smoking!”

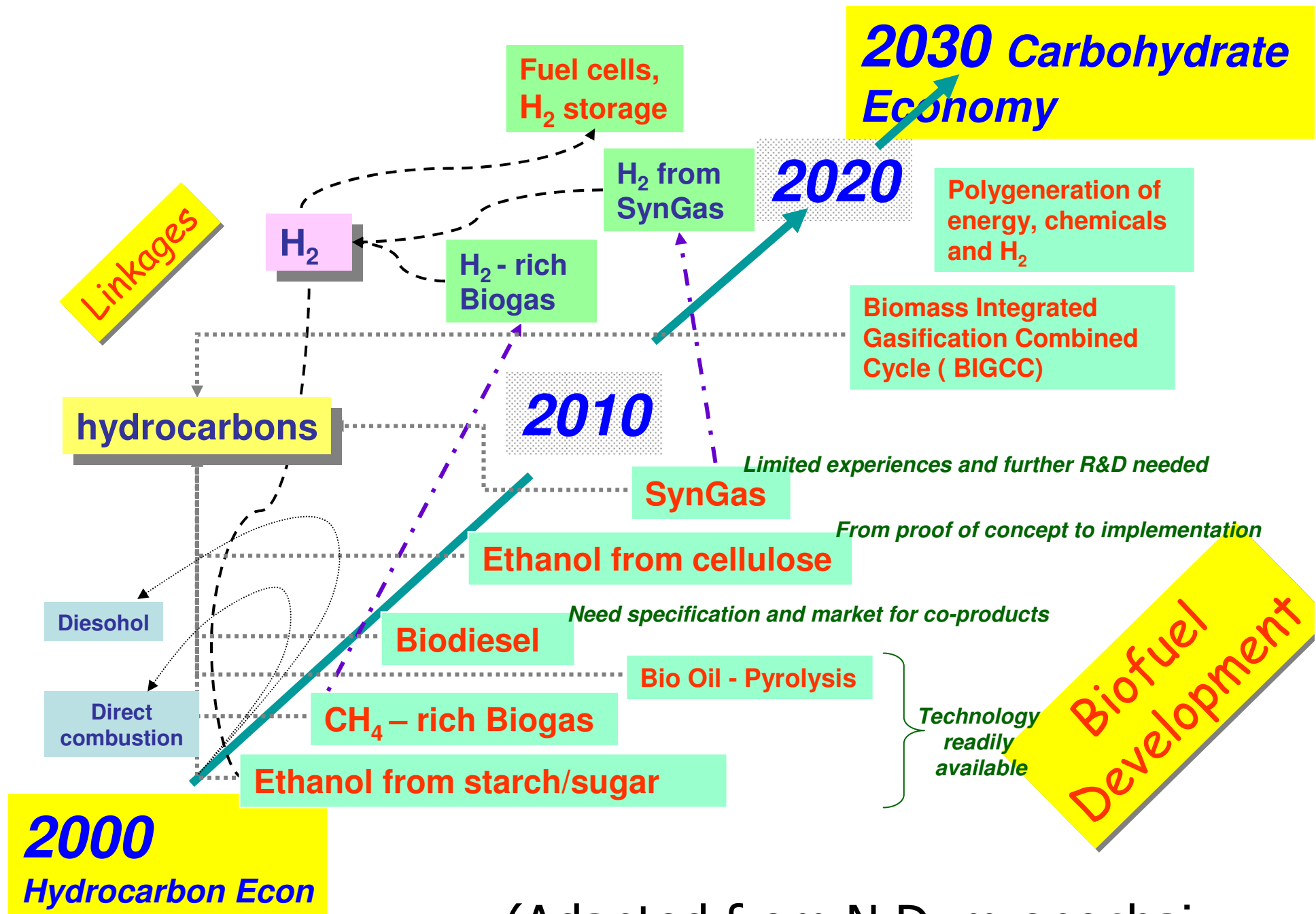




Mass-Transit : Sustainability?

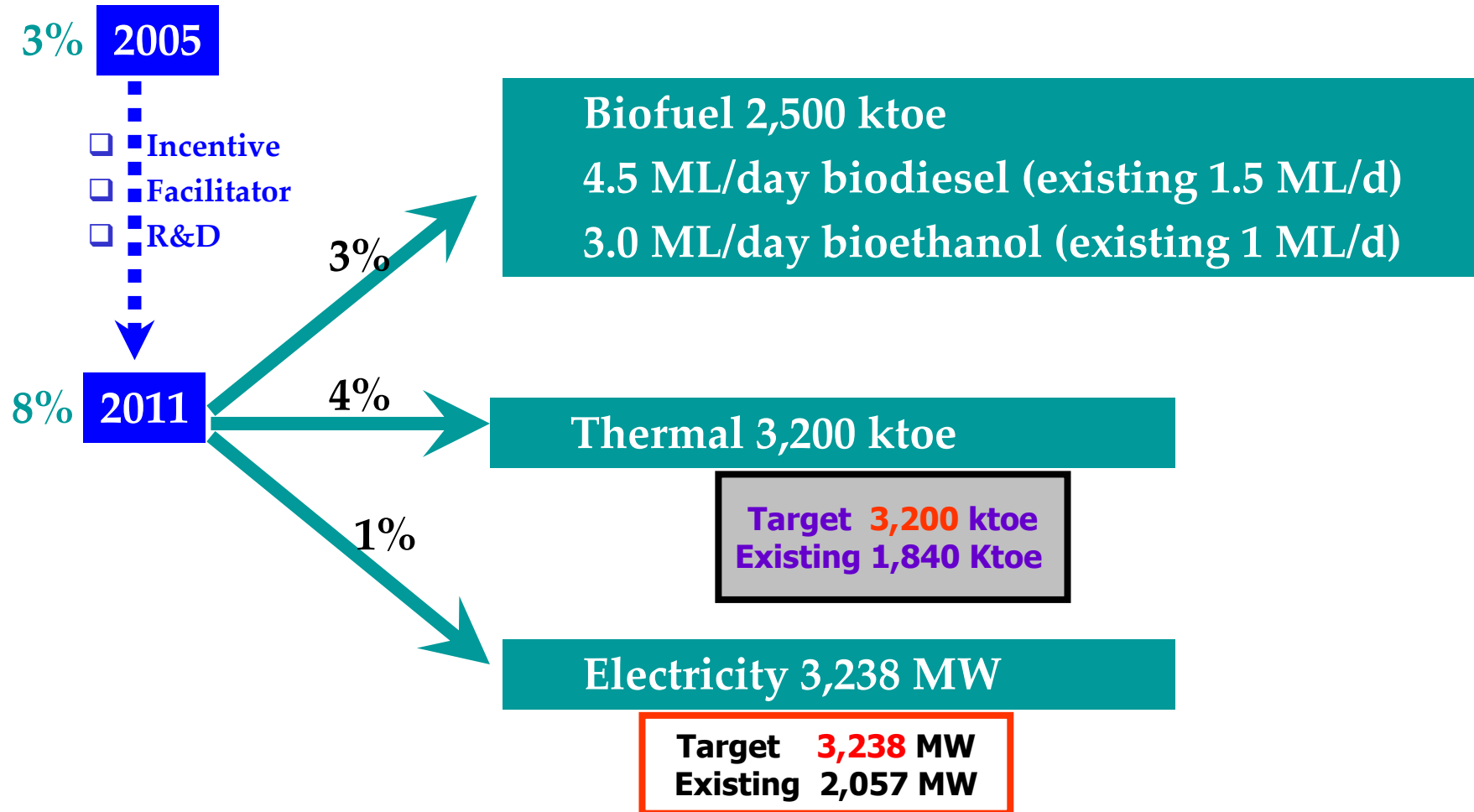
# Agriculture Export VS Fuel&Lub. Import (Data from The Bank of Thailand)





(Adapted from N.Dumrongchai,  
www.ncsta.or.th)

# Strategy for Renewable Energy Development



Source: [www.dede.go.th](http://www.dede.go.th)





## Target 2012

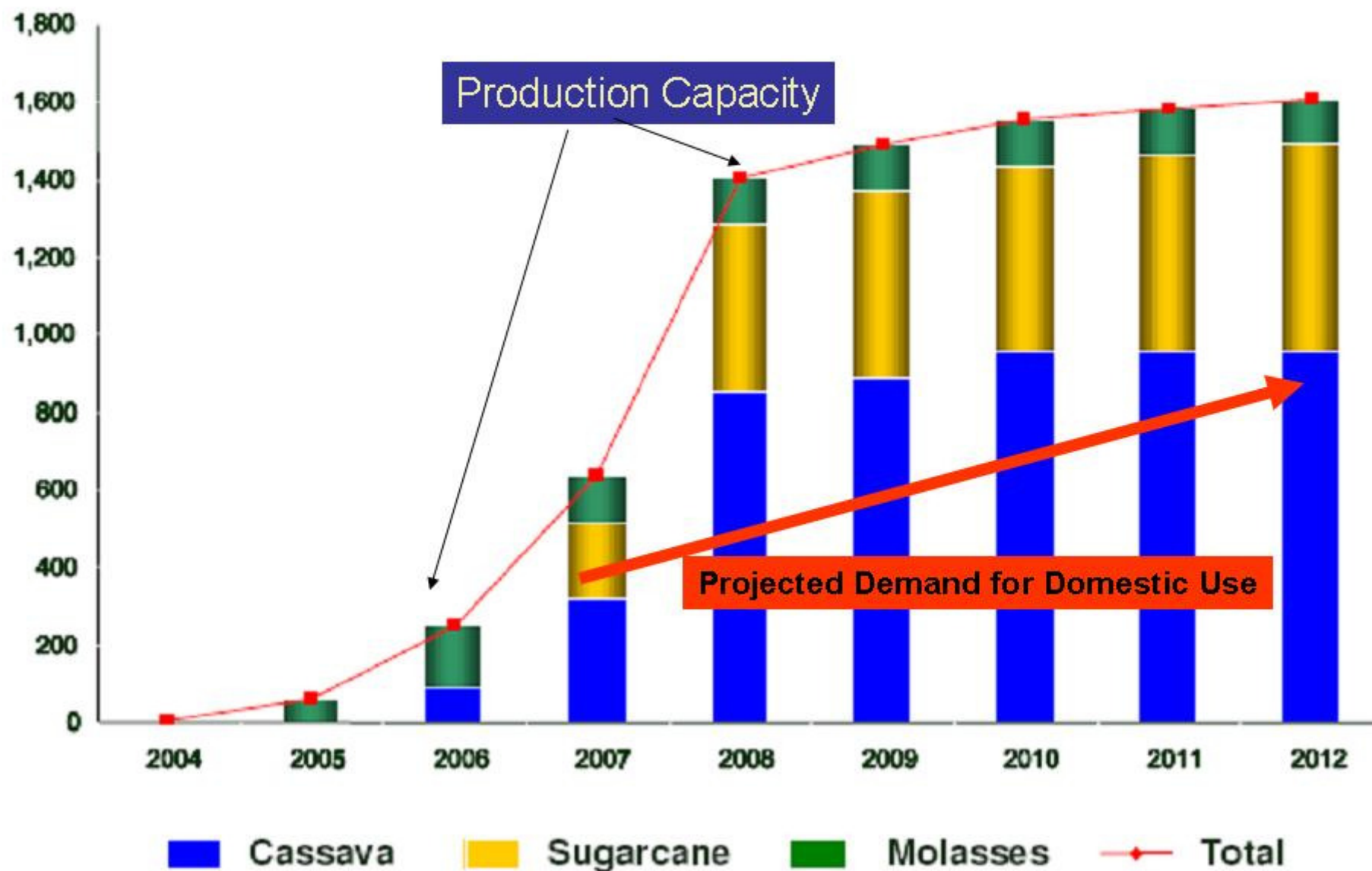
1. E10 : 10% of Ethanol in Gasoline
2. B10 : 10% of Biodiesel in Diesel
3. NGV : 20% of Transport Fuels

Long Term Policy

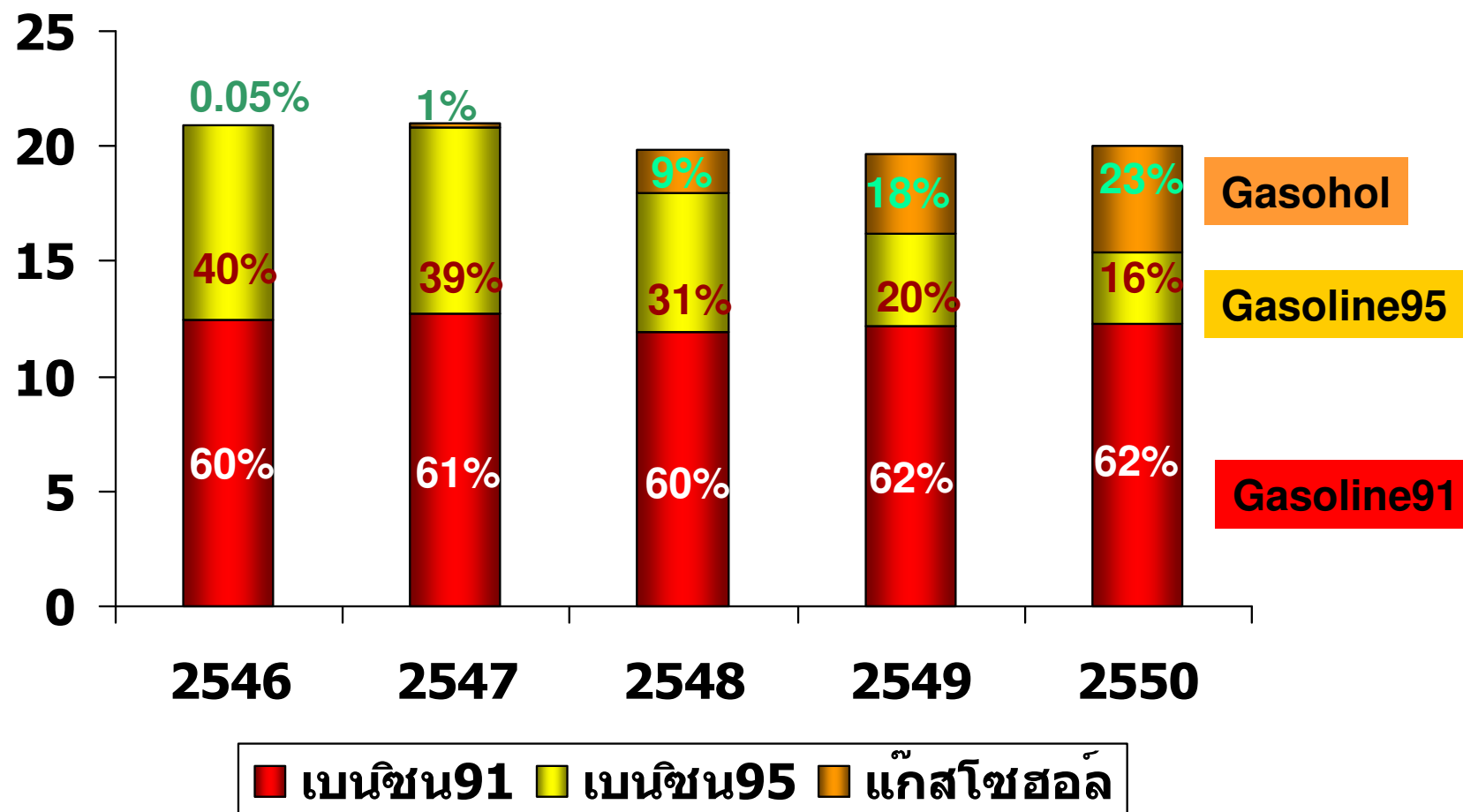
# Fuel Ethanol Production

M. litres

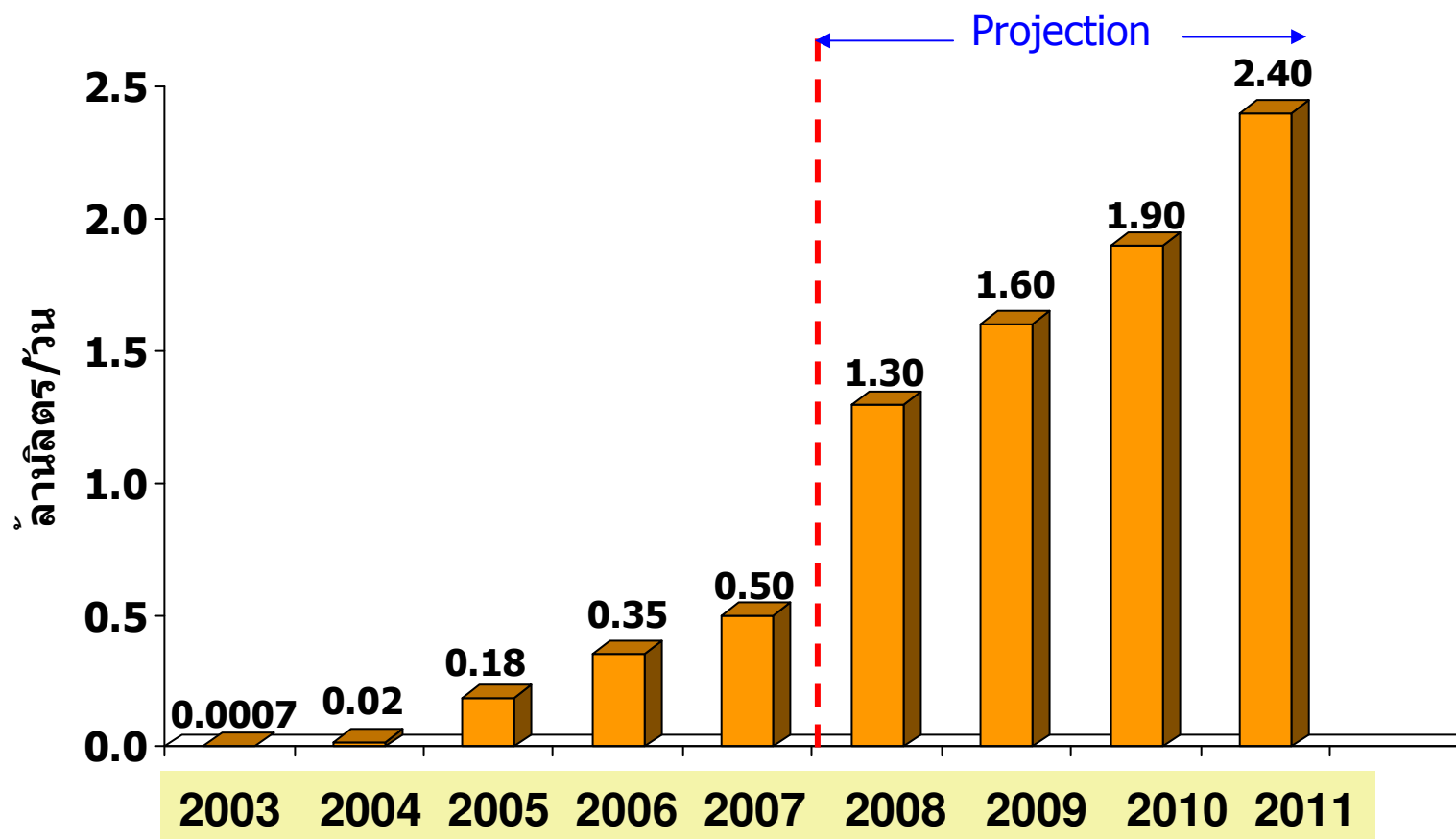
Source : N.Nattasomboon, Ethanol and Biofuels Asia 2006



# Gasoline Use (average, Million litres/day, source :EPPO, MOEN)



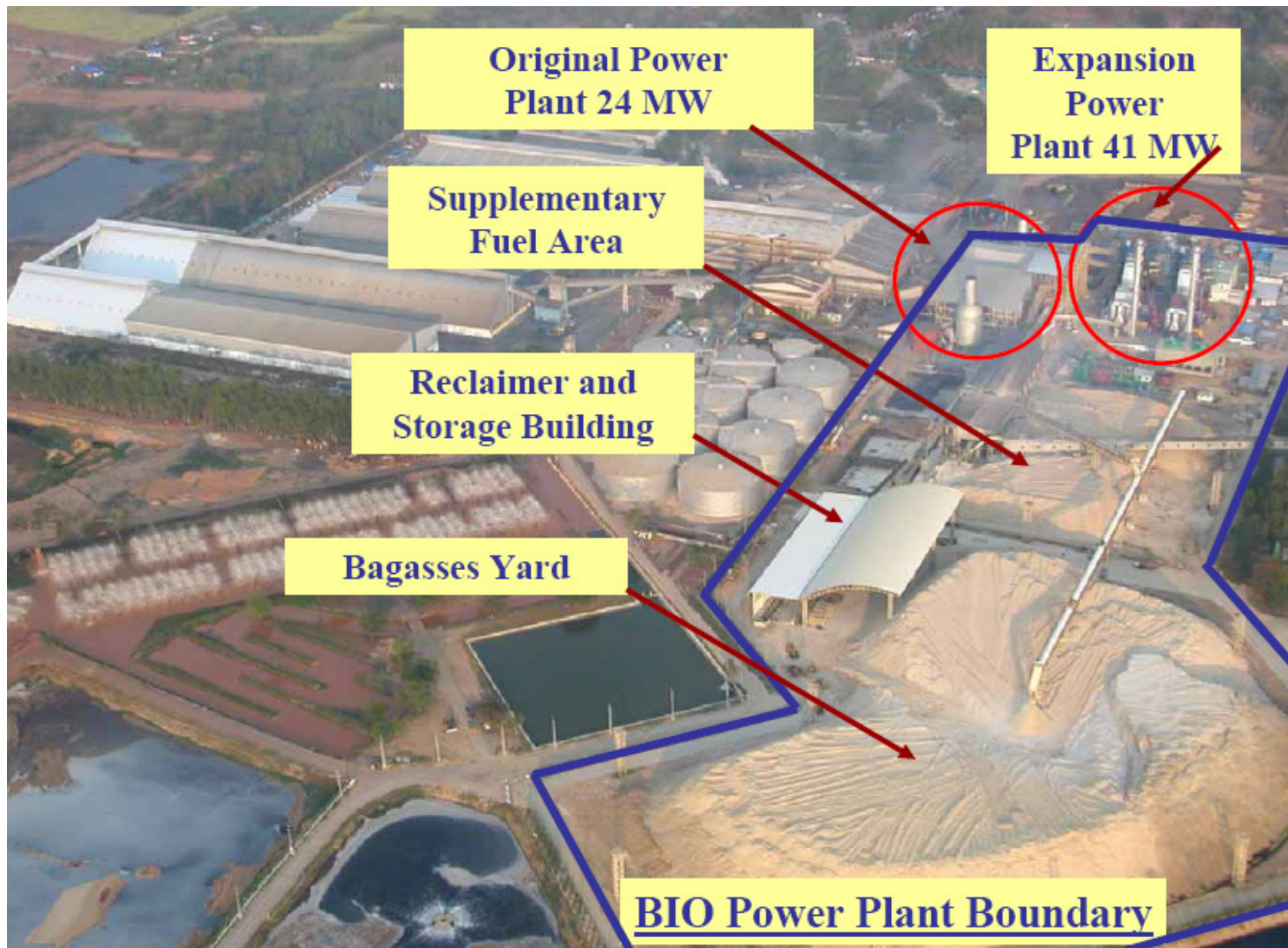
# Bioethanol Consumption Mil. Litres/day (source : EPPO, MOEN)







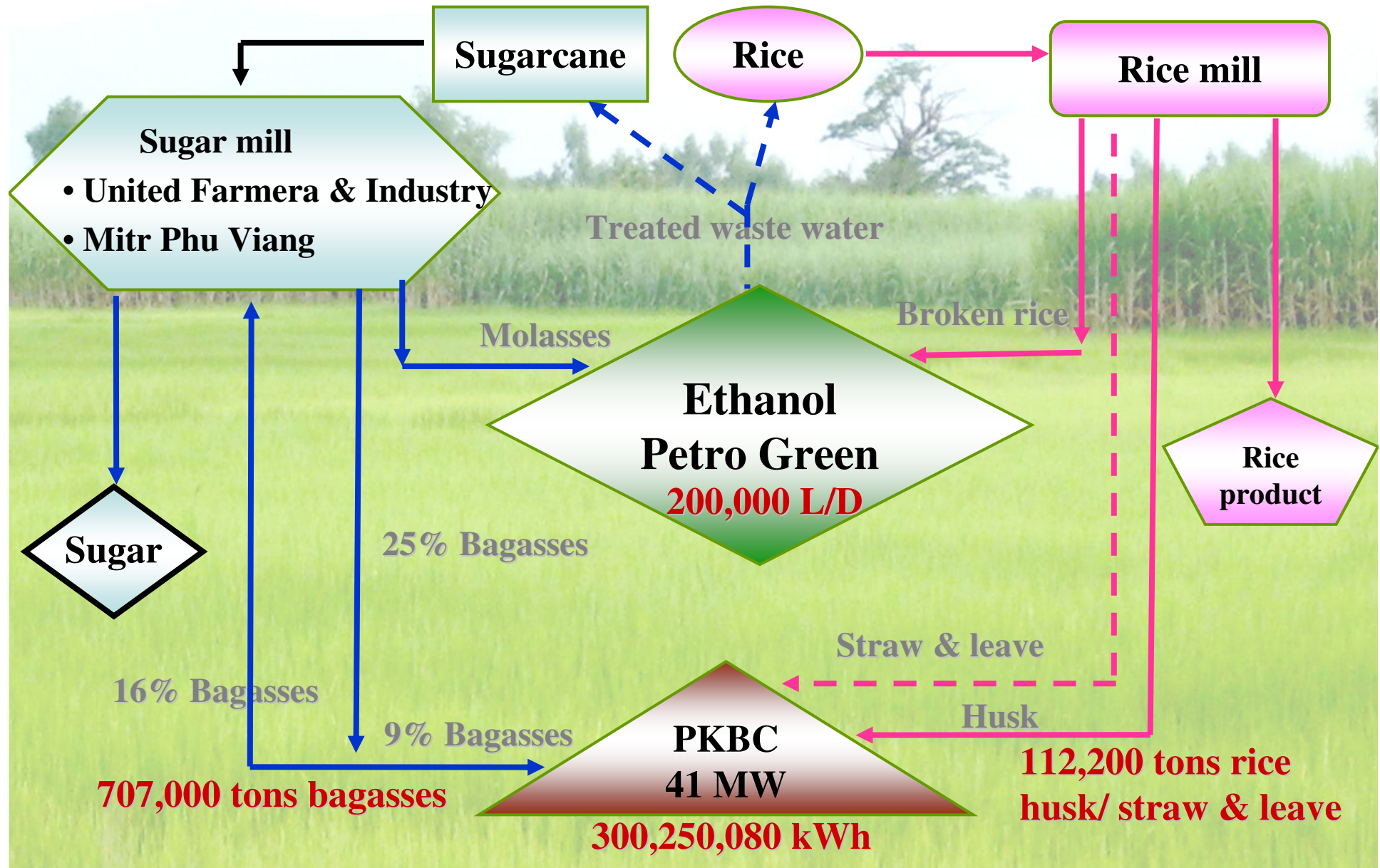




Mitr-Phol Power Plant (Annexed Sugar Mills),

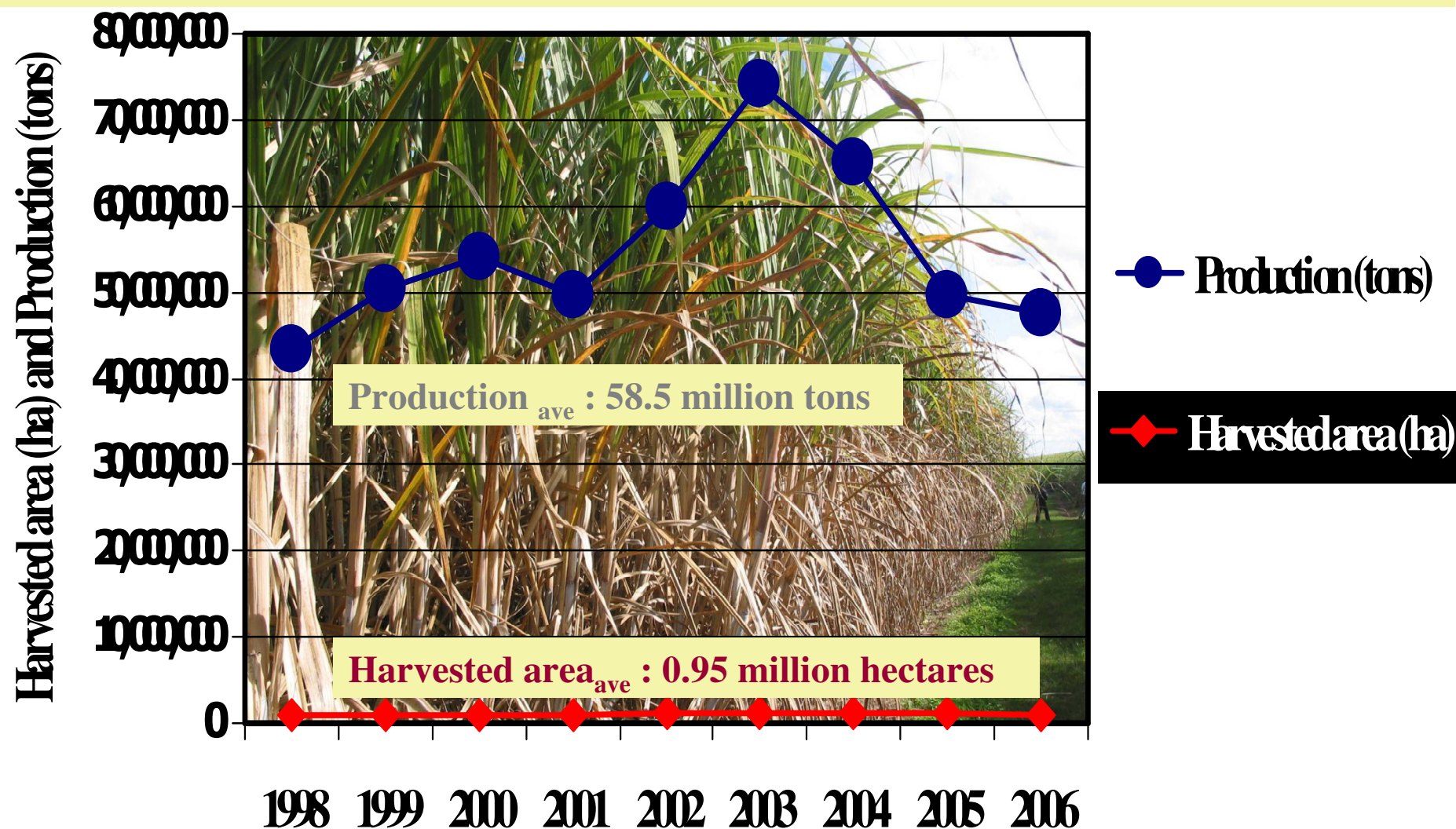
Preecha Prammanee : Asian Biomass Workshop 2006, Tsukuba, Japan.

# Rice-Sugarcane Complex Model in Chaiyaphum area (K.Sriroth, 4<sup>th</sup> Biomass Asia Workshop, Nov., 2007)





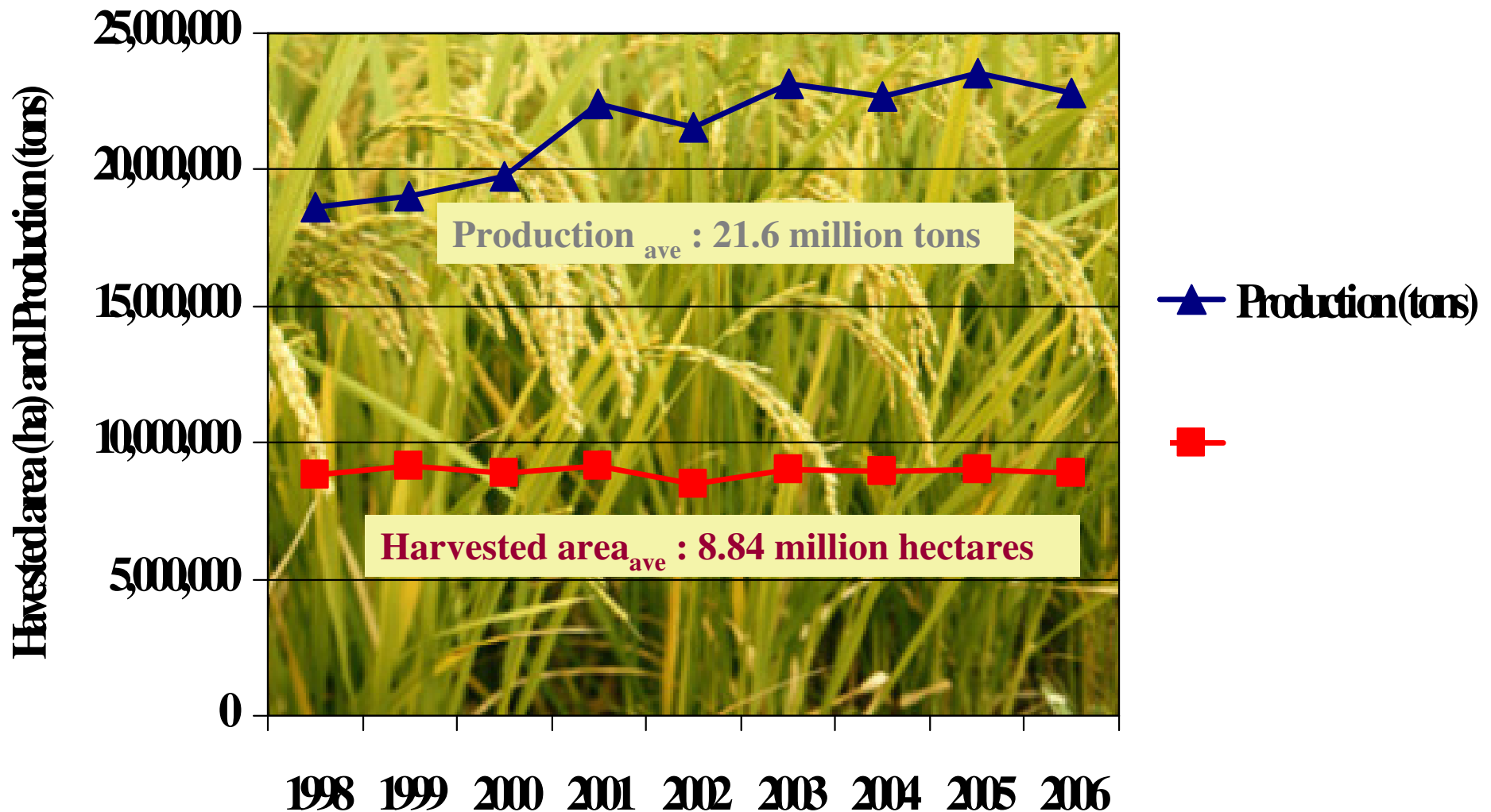
# Harvested area and production of sugarcane in Thailand during 1998-2006



Source : K.Sriroth, 4<sup>th</sup> Biomass Asia Workshop, Nov., 2007



# Harvested area and production of rice in Thailand during 1998-2006



Source : K.Sriroth, 4<sup>th</sup> Biomass Asia Workshop, Nov., 2007

# Opportunity for Improvement

Current Ethanol Yield: 3,687 L./Ha !



20.28  
tons/hectare



Year 2004

~32  
tons/hectare

Year 2007...

Productivity (tons/hectare, 2004)

World  
Thailand

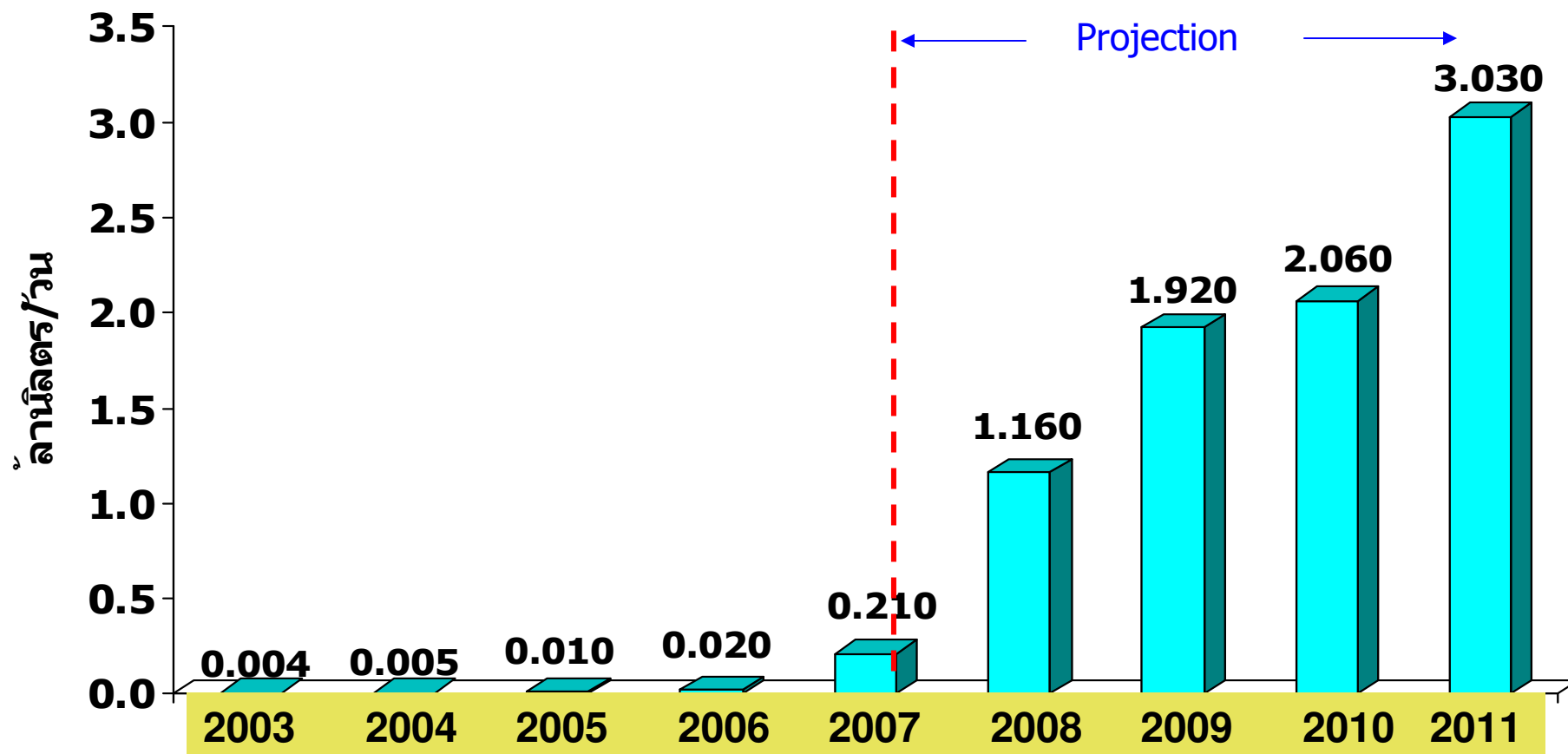
11.0

20.28

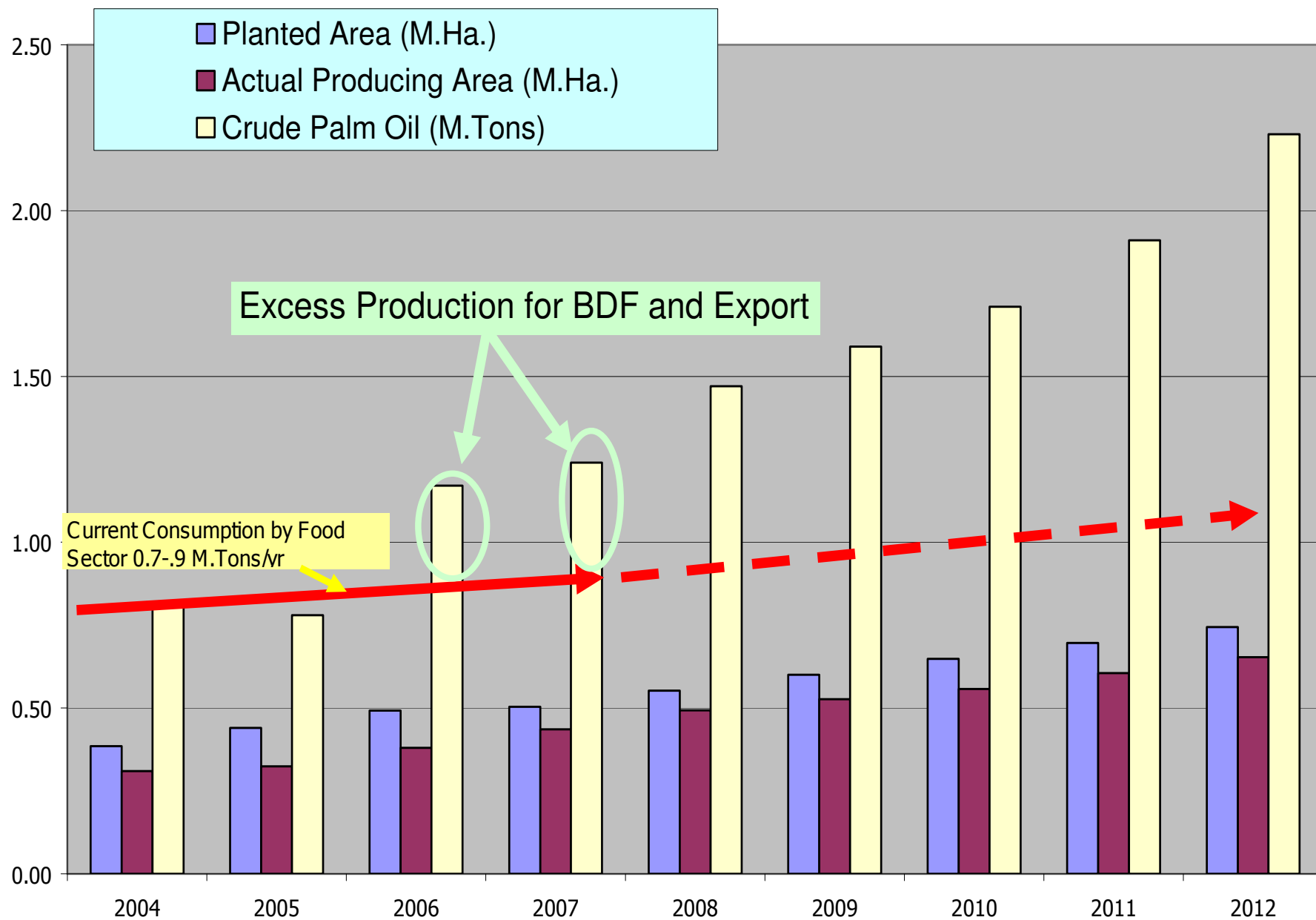
Source : K.Srirod, 4<sup>th</sup> FEALAC, Bangkok 2006

# Biodiesel consumption mil L/day (B100)

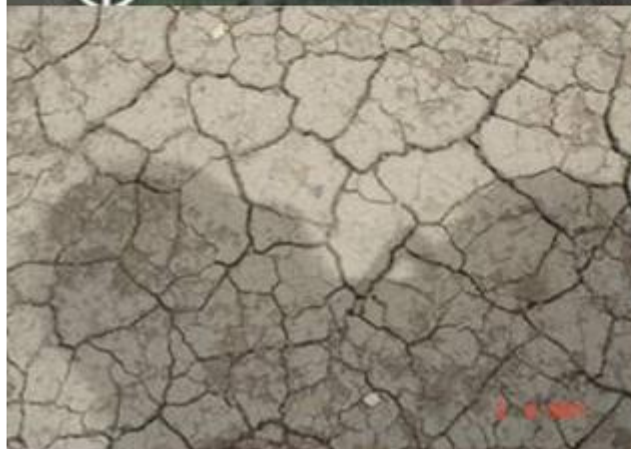
source : EPPO, MOEN



# Oil Palm Acreage and Crude Palm Oil Production in Thailand











April 2006





Jan 2007





Sept. 2007



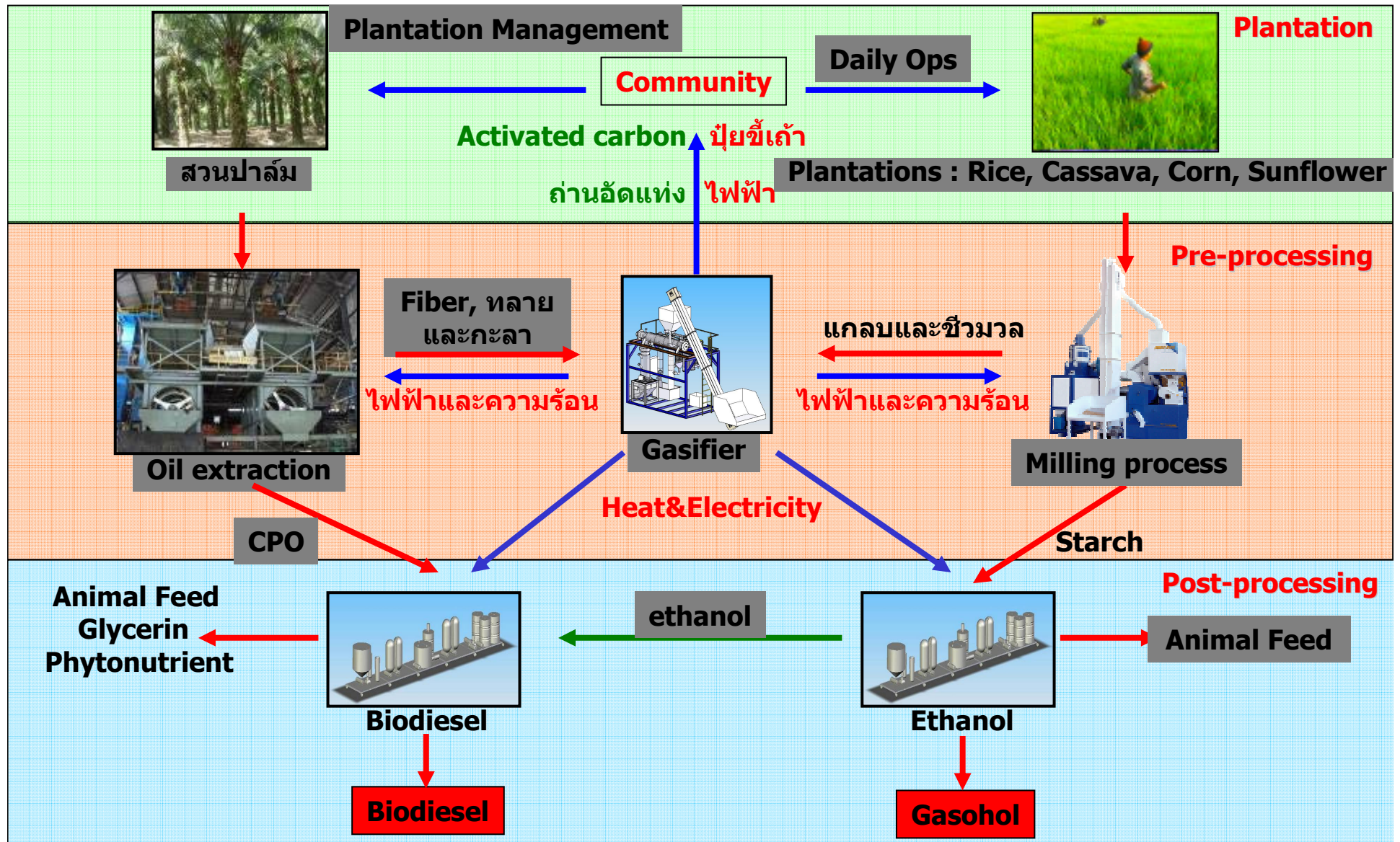
# Small Bioenergy Processing Units

‘small can be beautiful and competitive’





# Energy Complex Integrated Model



# Concluding Remarks

- Different Status / Places Require Different Solution (*The Economics of Influences*)
- 'Climate change' will narrow the window of opportunity
- Will hard work -'toil and soil'- approach work ?
- Will human ingenuity prevail ?
- Mitigation/adaptation/resource allocation/ tech dev. → Capacity building is much more urgent!

# Summary

- Fuel Security means different things to different people (cooking; lighting; heating; industry; mobility)
- Energy Security Issues : Can 'money' buy 'Security' ? Stockpiling, Geopolitics, SLOC
- Can 'Security at household level' be assured ?
- New Opportunity : biofuel/biomass refinery can help increase 'energy security', micro-level for now but 'Pro-alcool' level by 2020 onwards.
- By 2030 several 'agrarian economies' will move onto 'industrialized' status; bioenergy will be part of the transition tools.
- Security will become the issue : Competition of resources (water, land), Access & Power Projection (oilfields, infrastructures, SLOC, IPR)