

**Enrichment/line planting initiatives
in Peninsular Malaysia.
*Lessons learnt.***

***By
Hon Tat Tang***

Forest estate

Pre-1960's:

Lowland Dipt forests,

to 300m elevation

high stock Dipt. trees

abundant seedlings that respond

vigorously to canopy opening

Land use changes

- 1957 *Merdeka* (Independence)
5-year Devt. Plans launched
- Land : Class 1 – Mining
 Capability Class 2 – Agriculture
 Class'n. Class 3 – Forestry
- 1957-76: 800,000 ha prime lowland
 forests converted to agric.
- 1976-90: 1.2 million ha forests to
 agriculture.

Forest estate

Post-1960:

hill forests, 300 – 1,300m
difficult terrain, poorer soils,
poorer stock timber trees
& regeneration

Forest Management Systems

- **Pre-1960** *Malayan Uniform System (MUS)*
lowland Dipt. fts., *pre-F LSM/seedlings*,
- **mid-1960s** Hill forests, difficult terrain, poorer trees/seedlings; larger areas logged, more mechanised logging.
- *post-F LRS – regeneration not a consideration in overall development of forestry*

Forest Management Systems

- **Late 1970s:** *Selective Mgt. Sys (SMS)*
- *Pre-F inv. to select,*
 - a) economic cut to leave residual stand
min. 32 t/ha, 30-45 cm dbh,
or
 - b) remove trees 45/50 cm dbh,
& apply modified-MUS

Selective Management System SMS

- *Post (2-5 yrs) - F inv. to select silviculture treatment for,*
 - a) adv. growth (30-45 cm dbh)
 - b) seedlings/saplings, or
 - c) enrichment planting.

Enrichment Planting

- Pre-1960s Small scale activity supplement N.R.

- *Mid-1960s Up-scaled to reforest logged hill fts with poor N.R under Intensive Ft. Mngt. Scheme*

- 1972 Half of untreated logged fts of 235,000 ha needed E.P.
Selangor total E.P. = 2,400 ha
Perak total E.P. = 3,100 ha

Enrichment Planting

- 1972 E.P. becoming routine silv. intervention for logged fts with poor N.R.
- *1972 F.R.I. systematic survey of line-planted forests in Selangor & Perak.*

1972-73 E.P. Survey Results

- Effective survival low
 - Selangor: 25 – 40%
 - Perak: 26 – 43%
- Costs high: USD57-93/ha
- Priority on meeting planting targets led to poor planting stock used and post-planting treatment neglected.

1972-73 E.P. Survey Results

- State Forestry Directors briefed on survey results
- E.P. in Selangor, Perak scaled down.
- Guide to Artificial Regeneration with Particular Reference to Line-planting in Peninsular Malaysia produced.

Re-emergence of Enrichment Planting

- 1995-1997: GoM/ITTO project (Phase I) *to undertake & refine E.P. techniques to increase productivity of forests.*
- 2000-2004: GoM/ITTO Project Phase II *to further refine E.P. techniques, & include non-Dipts.*

GoM/ITTO project

Achievements:

- Established 200 ha logged fts with E.P. & line-planting.
- Estb'ed seed production & collection system
- Produced clonal material via V.P.
- Guidelines, manuals, tech. papers on nursery estabt. & practices, V.P. of Dipts.
- Training programmes.

GoM/ITTO Findings

- E.P. of logged forests requires:
 - intensive management
 - species selection
 - healthy planting stock
 - proper planting technique
 - regular tending

GoM/ITTO Findings

- Review use of contractors for ptg/silv
- Dev teams for technical inputs & experience
- Use contractors only for manual work
- Dev nursery capability & grading stds
- Maintain E.P. area, SPA, G&Y plots, nursery facilities post-project.

Discussion

- **Role of E.P. changed from**
 - limited activity to *supplement* N.R.
 - tend plantings to size & vigour of N.R.
 - then treat plantings as part of N.R.

Role of Enrichment/line planting

- to rehabilitate whole compt after logging by line planting.
- plantings are basis of new timber crop.
- need regular tending, incur high costs
- to produce high volume of high value timber

Enrichment/line planting

- 1972-73 E.P. survey showed:
 - planting trees with no tending is waste of time & money
 - E.P. not a simple admin. exercise.
- GoM/ITTO project confirmed:
 - E.P. needs intensive management.
needs tech. inputs & experience.
 - develop FD capacity, fewer contractors.

Logged areas needing E.P.

- 1972: 50% of untreated logged fts. (of 235,000 ha) needed E.P.
- 1990: 996,000 had been silv. treated.
- 2016: logged areas needing E.P. very high (how high?).

Total area enrichment/line planted

<u>Year</u>	<u>E.P. needed</u>	<u>E.P'ted</u>
<i>1972</i>	<i>115,000 ha</i>	5,500 ha Selangor & Perak
1978		12,950 ha
<i>1990</i>		<i>18,120 ha</i>
2016	??	??

Resources available & strategy for E.P.

- Modest area planted reflects limited manpower & funding available.
- But, large area in need of E.P.

Strategy

focus limited resources on targeted accessible areas on better soils & terrain.

- *successfully established E.P. forests can lead to more resources provided.*

Next Steps

1. Review status of recommendations of GoM/ITTO project, & impact on E.P. practices & programmes in various states.
2. Scoping survey of E.P. areas to determine regeneration status of plantings.
3. Based on (1) & (2), determine next steps, incl strategy for intensive (E.P.) & extensive management of logged fts with poor N.R.

THANK YOU

- ***SALAMAT***

- ***TERIMA KASIH***