Pertanika J. Trop. Agric. Sci. 30(2): 165 - 168 (2007)

ISSN: 1511-3701

Understanding the Direction of Forest Plantation Management in Malaysia: A Cognitive Mapping Approach

AHMAD AINUDDIN NURUDDIN[1], AWANG NOOR ABDUL GHANI[2], KHAMURUDIN MOHD NOR[2] AND MOHD SHAHWAHID HAJI OTHMAN[1]

[1]*Institute of Tropical Forestry and Forest Products*

[2]*Faculty of Forestry, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia*

Keywords: Cognitive mapping, forest plantation, stakeholder analysis

ABSTRACT

Forest plantation industry is one of the components in forestry industry which is being developed to ensure continuing supply of timber and fibre resources. Currently, the total area of forest plantation is 250,000 ha and in the future Malaysia aims to double this area to 500,000 ha. In order to achieve this target, strategies need to be developed. With this in mind a multi-stakeholder analysis was undertaken. The objectives of the multi-stakeholder analysis were: to discuss the trend in forest plantation management in Malaysia, to understand the opportunities and obstacles present in the forest plantation management, and to formulate recommended actions for forest plantation management in Malaysia. The multi stakeholder analysis was conducted using the cognitive-group-mapping approach where a network of concepts and issues are linked to form chains of argumentation. The concepts and issues were aggregated, linked and prioritized to form strategy statements. From the strategy statements, recommended actions were proposed. The recommended actions can be used to help chart the future direction of forest plantation management in Malaysia.

INTRODUCTION

The forestry sector is important to the Malaysian economy and continues to play an important role in the country's socio-economic development. In 2004, about RM19 billion of timber and wood-based products were exported overseas. In order to sustain and provide raw materials to the manufacturers, a steady supply of timber is needed. One of the strategies of ensuring supply of timber is by planting fast-growing timber species.

In 1982, the Malaysian Government launched the Compensatory Forest Plantation Project (CFFP) with the target to establish approximately 188,000 ha of forest plantation within 15 years (Lim *et al.*, 2002). Currently the total area of plantation forests is 250,000 ha and in the future, Malaysia aims to double this area to 500,000 ha. In order to achieve this target, more efforts need to be done to encourage government-linked companies and the private sector to participate in this activity (Krishnapillay and Ong, 2003). With this in mind a multi-stakeholder analysis was undertaken. The objectives of the multi-stakeholder analysis were: to discuss on the trend of forest plantation management in Malaysia; to understand the opportunities and obstacles present in the forest plantation management, and to formulate recommended actions for forest plantation management in Malaysia.

METHODOLGY

The multi-stakeholder analysis was conducted using the cognitive-group-mapping approach where a network of concepts and issues are linked to form chains of argumentation. The concepts and issues were aggregated, linked and prioritized to form strategy statements. From the strategy statements, an action plan was developed. This approach has been used by many authors to analyze policy (Eden and Ackermann, 2004), public participation (Hjortso, 2004) and stakeholder analysis (Ahmad Ainuddin *et al.*, 2005).

The critical success factor in ensuring meaningful outcomes of the cognitive-group-mapping approach is the participation of all relevant groups of stakeholders. This is to make sure that issues, trade-offs, conflicting interests and their justifications, constraints, opportunities and other influential factors are all taken on board and thoroughly deliberated in the discussion, before consensus building is achieved. In this multi-stakeholder analysis, efforts were taken to bring in relevant stakeholders of various backgrounds. Nevertheless, a number of important stakeholders could not make it to the multi-stakeholder analysis. Yet, the deliberations have been very open and productive. A sequel and more detailed multi-stakeholder analysis could be suggested to further enrich the outcomes.

The first task of the participants was to discuss the issues concerning the industry from the group's perspectives. The participants were asked to write the issues on yellow Post-its and paste them on the wall. An hour was allotted for activity followed by a 15-minute break. A facilitator was appointed to guide the discussions and the activity. All the facilitators have been trained in this technique.

After the break, all the issues were aggregated. This was to avoid overlapping and redundancy among the issues. For each aggregated issue, a statement to represent the issue was created so that the issue could be transformed into a strategy statement.

After the aggregation of the issues and formulation of strategy statements, a prioritization process was done. This was to ensure that the strategy statements were categorized according to their importance. At the end of the activities, each group presented its results for the multi-stakeholder analysis. The multi stakeholder analysis ended with a note of thanks by the organizer.

RESULTS AND DISCUSSION

The group raised many issues related to the production, silviculture and management of forest plantation species. Among the issues raised were those related to:

- existing information available on rubber and *Acacia mangium;*
- potential of non-timber species such as bamboo and kenaf;
- policy on focal species using New Zealand's focus on *Pinus radiata* as an example;
- mass production techniques;
- species selection;
- species-site matching; and
- plantation forestry for protection.

The issues were aggregated and ranked into four strategic statements i.e.

1. to recommend three important existing timber and non-timber plantation species;
2. to recommend policy on focal species to cater for different needs;
3. to develop sound techniques for mass production of improved and quality materials;
4. to develop a sustainable and viable management system (silviculture and management).

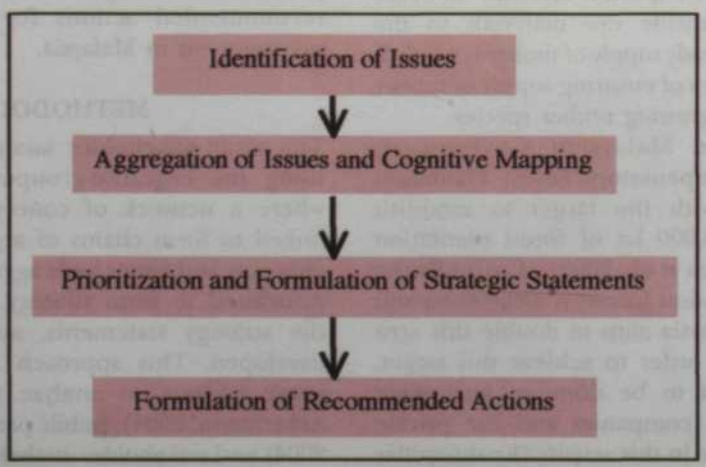

Fig. 1: Flowchart in formulation of the action plan

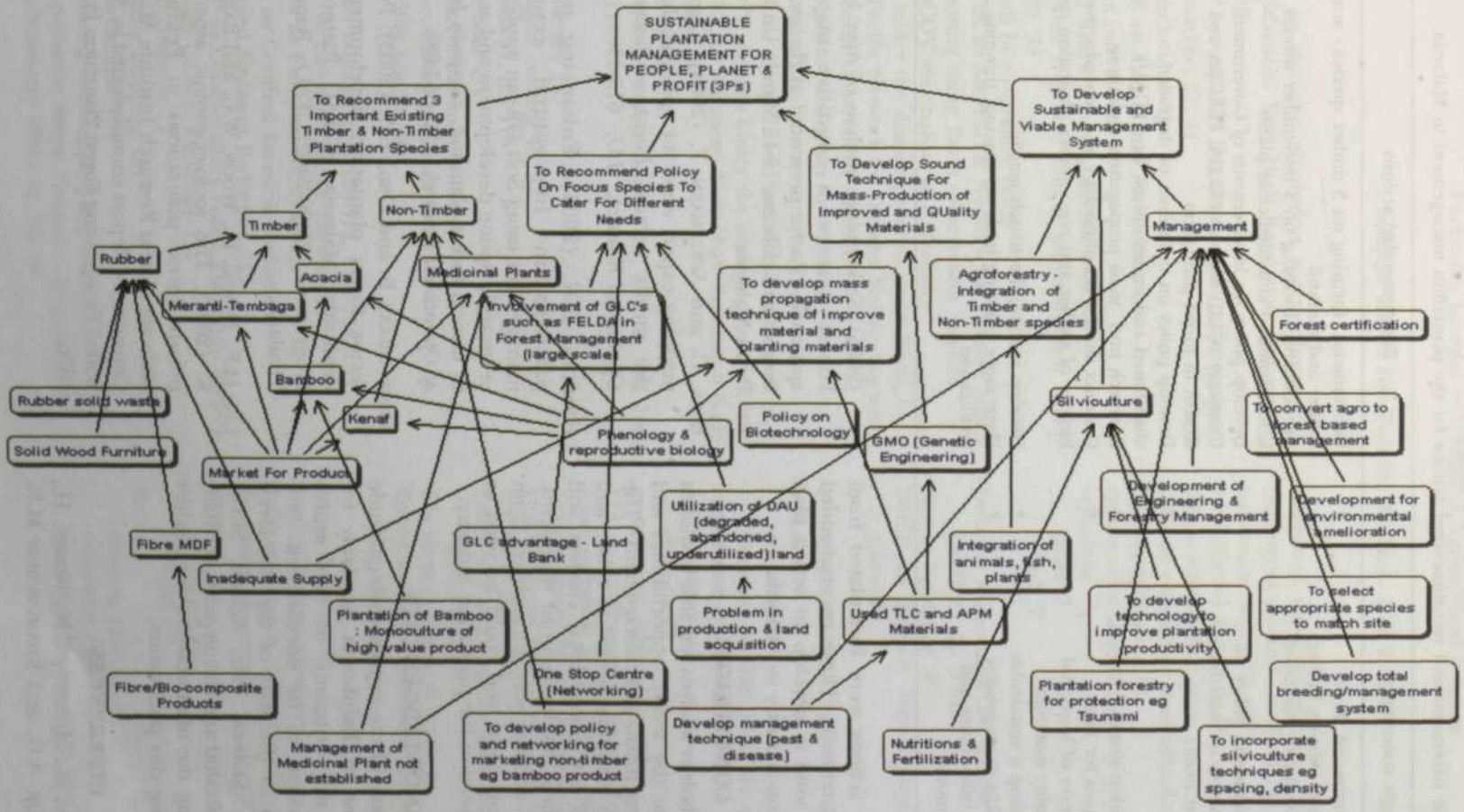

Fig 2: Cognitive map from multi stakeholder analysis

TABLE 1
Strategic statements and recommended actions for the plantation management in Malaysia

	Strategic statements		Recommended actions
1.	To recommend three important existing timber and non-timber plantation species	*	Recommend focusing on 3 timber species - acacia, rubber and meranti
		*	Recommend focusing on 3 non-timber species, i.e. kenaf, bamboo and medicinal plants
2.	To recommend policy on focal species to cater for different needs	*	Develop policy on involvements of Government Link Company (GLC) such as FELDA, FELCRA and RISDA in forest plantation
		*	Develop policy on utilization of degraded, abandoned and underutilized land (DAU)
3.	To develop sound techniques for mass production of improved and quality materials	*	Research into mass propagation technique
		*	Conduct studies on phenology and reproductive biology of timber and non- timber plantation species
4.	To develop a sustainable and viable management system (silviculture and management)	*	Develop species/site match matrix
		*	Have more planting trials on spacing, thinning and fertilization

Recommended actions were formulated from the strategic statements. These recommended actions can be used to develop an action plan for the plantation industry in Malaysia.

CONCLUSION

The multi-stakeholder analysis was able to discuss issues related to the trend, opportunities and obstacles of forest plantation management. The cognitive group mapping helped to relate and link issues and the hierarchical clusters and aggregation help to develop strategic statements. Recommended actions were formulated from the strategic statements and could be used to chart future direction for plantation industry.

ACKNOWLEDGEMENTS

The authors would like to express their gratitude to the Director of Rainforest Academy for encouraging the outcome of this multi-stakeholder analysis to be documented. Our thanks also go to the staff of the Rainforest Academy, Ana Salleza, Faiz, Azizah, Suria, Zaireen, Nasri, Rashid and Rosninawati, for their assistance during the multi-stakeholder analysis and in preparing this publication.

REFERENCES

AHMAD AINUDDIN, N., HJORSTO, C.N., NORINI, H., AWANG NOOR, A.G. and KHAMURUDDIN M.N. (2005). Stakeholder analysis of Ayer Hitam Forest Reserve: a cognitive mapping approach. Poster presented at *Research and Innovation Exhibition*, 16-18 March, Universiti Putra Malaysia.

EDEN, C. and ACKERMANN, F. (2004). Cognitive mapping expert views for policy analysis in the public sector. *European Journal of Operational Research, 153*, 615-630.

HJORTSO, C.N. (2004). Enhancing public participation in natural resource management using Soft OR- an application of strategic option development and analysis in tactical forest planning. *European Journal of Operational Research, 152*, 667-683.

KRISHNAPILLAY, B. and ONG, T.H. (2003). Private sector forest plantation development in Peninsular Malaysia. EC-FAO Partnership Programme (2000-2002). FAO. Bangkok, Thailand.

LIM, H.F., NORINI, H., WOON, W.C. and BASKARAN K. (2002). The socio-economic aspects of private forest plantations in Peninsular Malaysia. Forest Research Institute Malaysia Consultancy Report commissioned by Small-Scaled Fast-growing Forest Plantation Project. 137p.

Pertanika Journal of Tropical Agricultural Science

Subject Index for Volume 30 Nos. 1 & 2 2007