

Amornwan Resanond 2011: Forest Conservation through Economic Mechanism of Carbon Credit Management. Doctor of Philosophy (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Assistant Professor Thanwa Jitsanguan, Ph.D. 241 pages.

The prime objective of the Study is to develop the policy recommendations in relation to forest conservation, employing the economics tools and the benefits of carbon credits.

The study reveals that the mean annual increment of teak forest is estimated to be in the range of 0.32-0.77 tons per Rai, equivalent to 0.60-1.46 tons of carbon dioxide sequestered. This is translated into mitigation costs of approximately -60.92 to -49.42 Euro per tons of carbon dioxide and the values of teak tree of 1,508.53-2,973.9 Baht per tree. Internal Rate of Return of teak plantation is in the range of 15.36-17.49 percent, depending on cultivation practices.

Four strategies to promote teak plantation are proposed. Firstly, the Fast Start Strategy. This aims to promote forest plantation on the public and community lands where opportunity cost is none and the internal rate of return (IRR) of the current practice exceeds the IRR hurdle rate of 13.86% . Hence, no subsidy is required. Secondly, Subsidy Strategy. An appropriated amount of subsidy will be allocated to the farmers who plant on land with low opportunity cost (500-1,200 Baht/Rai/Year) in order to trigger the project's IRR to reach the IRR hurdle rate. Thirdly, Case by Case Strategy. Consideration will be made on the case by case basis. Substantial amount of subsidy may be required for forest plantation on land with medium opportunity cost (2,500 Baht/Rai/Year). If the existing conditions offer the unfavourable internal rate of return, the private forest operator has an option to select other investment alternatives which yields the better financial returns. Lastly, No Go. Opportunity cost of land is high and resulted in a very low rate of return, hence, teak plantation is not a right option to go.

The level of subsidy in terms of tons carbondioxide sequestered for the low opportunity cost of land is in the range of 592-1,077 Baht and 1,780-2,405 Baht for land with medium opportunity costs, 1,200 and 2,500 Baht/Rai/Year respectively. Supports can be through the Clean Development Mechanism (CDM), the governmental process, the carbon exchange platform and the Corporate Social Responsibility (CSR) scheme of the private sectors.

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