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ECONOMIC EVALUATION OF PARTICIPATORY SOCIAL FORESTRY MANAGEMENT IN DHAKA AND TANGAIL FORETS DIVISIONS IN BANGLADESH

MOHAMMAD SAMAUN SAFA.

FH 2004 2

ECONOMIC EVALUATION OF PARTICIPATORY SOCIAL FORESTRY MANAGEMENT IN DHAKA AND TANGAIL FOREST DIVISIONS IN BANGLADESH

By

MOHAMMAD SAMAUN SAFA

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the requirements for the Degree of Doctor of Philosophy

February 2004

UPM

Dedication

To

My Parents

Mr. Mohammad Nurus Safa
And
Mrs. Nurer Nahar Begum

Who started dreaming of me to be a human rather than being an educated person and wished me to be a man of wisdom and positive thinking. Today what I am is just because of their love and affection.

To

The persons who I had liked I lost. I could not do anything for them except keeping quiet. They never came to know how much I liked them.

The only younger sister
***'Mita'** (04-11-'97)*

And

A friend
***'Ebtesam'** (20-07-01)*

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

ECONOMIC EVALUATION OF PARTICIPATORY SOCIAL FORESTRY MANAGEMENT IN DHAKA AND TANGAIL FOREST DIVISIONS IN BANGLADESH

By

MOHAMMAD SAMAUN SAFA

February 2004

Chairman: **Associate Professor Awang Noor Abd. Ghani, Ph.D.**

Faculty: **Forestry**

Sal (*Shorea robusta*) forests in Bangladesh comprise an area of 120,255 ha and are economically and environmentally important. Overexploitation has resulted in unsustainable use of timber and other non-timber forest products (NTFPs). The participatory social forestry management approach has been implemented by the Forest Department in order to protect the forests from encroachment and illegal exploitation.

The study was conducted in Dhaka and Tangail Forest Division, Bangladesh to examine the effectiveness of the participatory social forestry management. The specific objectives were: (i) to examine the financial and economic viability of agroforestry (AF) and woodlot (WL) program, (ii) to determine the distribution impact of both programs, and (iii) to estimate

the poverty reduction impact of both programs. The "with and without" approach was used in the study to estimate the net incremental benefit of the programs. Data required were obtained from primary and secondary sources. The respondents were the farmers. The sample size of the study was 375 comprise of the AF (118) and WL farmers (156). The cash-flow analysis approach was employed to determine the financial and economic viability of the participatory social forestry program. As an extension of cash flow analysis, the distribution impact and poverty reduction impact analyses were also carried out to examine the welfare perspective of the programs.

The results showed that the respondents were of the middle age class (mean: 47 years old). The income from timber varies significantly between agroforestry and woodlot program. The majority of the respondents had primary level of education and agricultural labour was their main occupation.

The results of the financial analysis showed that agroforestry program was feasible at 7 percent real discount rate. The financial net present value, benefit-cost ratio and financial internal rate of return were Tk. 20148.23, 1.32 and 15 percent, respectively. However, the WL was not feasible at 7 percent real discount rate. Both programs were found to be economically feasible with a different level of EIRR. The agroforestry program was

PERPUSTAKAAN SULTAN ABDUL SAMAD
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more feasible than the WL. The Economic Net Present Value, Benefit-cost Ratio and Economic Internal Rate of Return were Tk. 492687.06, 3.08 and 67 percent, respectively, for the agroforestry program. The Economic Net Present Value, Benefit-cost Ratio and Economic Internal Rate of Return were Tk. 285560.55, 2.55 and 41 percent respectively for the woodlot program. Financial sensitivity analysis of the AF indicated that the fluctuation in the values of the key variables namely, rotation period, establishment cost, price of intercrop did not affect the project decision. The economic sensitivity analysis showed that the variations in values of key variables, namely protection cost, benefits of by product did not affect project decisions substantially.

The results of distribution analysis showed that the benefit gained by the participants was greater than that of the government. The Poverty Impact Ratio was estimated at 0.95 for agroforestry program and 0.96 was for woodlot program. These values revealed that the impact of participatory social forestry management has been efficient in reducing the poverty level of the participants. Further research should focus on transaction costs and environmental aspects of the participatory social forestry management to encourage its extension.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PENILAIAN EKONOMI TERHADAP PENYERTAAN PENGURUSAN HUTAN SOSIAL DI DAERAH HUTAN DHAKA DAN TANGAIL, BANGLADESH

Oleh

MOHAMAD SAMAUN SAFA

Februari 2004

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Fakulti: **Perhutanan**

Sal (*Shorea robusta*) di Bangladesh terdapat di kawasan yang seluas 120,255 ha dan ianya penting dari segi ekonomi dan alam persekitaran. Pengeksploitasian yang berleluasa keatas hutan ini telah mengakibatkan kegunaan dan pemeliharaan kayu balak dan barangan hutan bukan kayu yang tidak berkekalan. Penyertaan dalam pengurusan hutan sosial telah pun dilaksanakan oleh kerajaan dalam usaha untuk melindungi hutan ini daripada kegiatan pencerobohan haram.

Kajian ini telah dijalankan di Daerah Hutan Dhaka dan Tangail, Bangladesh untuk menilai keberuntungan penyertaan pengurusan hutan sosial. Secara khususnya, objectif-objektif yang telah digariskan adalah: (i) untuk menilai keberuntungan ekonomi dan kewangan program

perhutanan tani dan tanaman pokok kayu, (ii) untuk menentukan impak taburan kedua-dua program, dan (iii) untuk menganggarkan kesan pengurangan kemiskinan bagi kedua-dua program. Pendekatan "dengan dan tanpa" telah digunakan dalam kajian ini untuk menganggarkan faedah tambahan bersih kepada program ini. Responden adalah pekebun-pekebun. Saiz sampel bagi kajian ini adalah sebanyak 375 pekebun yang terdiri daripada pekebun perhutanan-tani (118) dan pekebun tanaman kayu (157). Pendekatan analisis aliran tunai telah digunakan untuk menentukan keberuntugan ekonomi dan kewangan dalam penyertaan program ini. Sebagaimana pengembangan analisis tunai, analisi kesan taburan dan pengurangan kemiskinan juga telah dijalankan untuk memeriksa perspektif dari sudut kebajian bagi program ini.

Keputusan menunjukkan kebanyakan responden adalah di dalam klas umur pertengahan (purata umur: 47 tahun). Pendapatan daripada kayu balak mempunyai perbezaan yang siknifikan diantara program perhutanan tani (AF) dan tanaman pokok kayu (WL). Majoriti responden mempunyai tahap pendidikan pada peringkat pertama (primer) dan pekerja bidang pertanian adalah sebagai pekerjaan utama mereka.

Keputusan analisis kewangan menunjukkan program perhutanan tani adalah munasabah pada kadar diskaun 7 peratus. Nilai Kini Bersih Kewangan, Nisbah Kos Faedah dan Kadar Pulangan Dalaman Kewangan

masing-masing adalah Tk. 20148.23, 1.32 dan 15 peratus. Walaubagaimanapun, tanaman pokok kayu (WL) adalah tidah berdaya maju pada kadar diskaun 7 peratus. Kedua-dua program didapati munasabah dengan paras perbezaan Kadar Pulangan Dalaman Ekonomi (HERÍ). Program Perhutanan tani didapati lebih munasabah daripada tanaman pokok kayu (WL). Nilai Kini Bersih Kewangan, Nisbah Kos Faedah dan Kadar Pulangan Dalaman Kewangan masing-masing adalah 492687.06, 3.08 dan 67 peratus untuk program perhutanan tani. Nisbah Kos Faedah dan Kadar Pulangan Dalaman Kewangan masing-masing adalah Tk. 285560.55, 2.55 dan 41 peratus untuk program tanaman pokok kayu (WL). Analisis Kepekaan Kewangan bagi program perhutanan tani (AF) menunjukkan perubahan turun-naik dalam nilai-nilai pembolehubhah iaitu jangka pusingan, kos penubuhan dan harga tanaman tidak memberi apa-apa kesan terhadap keputusan projek. Analisis kepekaaan ekonomi menunjukkan terdapatnya variasi keatas nilai-nilai permbolehubah seperti kos perlindungan dan faedah barangan juga tidak memberi kesan kepada keputusan program.

Keputusan daripada analisis taburan menunjukkan peserta-peserta mendapat faedah yang lebih besar daripada pihak kerajaan. Kadar Impak Kemiskinan telah dianggarkan sebanyak 0.95 untuk program perhutanan tani dan 0.96 bagi program tanaman pokok kayu (WL). Nilai-nilai ini mendedahkan bahawa penyertaan pengurusan hutan sosial adalah efisien

dalam mengurangkan paras kemiskinan di kawasan pedalaman. Penyelidekan seterusnya mesti memfokuskan kepada kos-kos tranksaksi dan aspek-aspek alam persekitaran dalam penyertaan pengurusan hutan sosial bagi menggalakan pengembangannya.

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February 2004 **Mohammad Samaun Safa**

I certify that an Examination Committee met on February 28, 2004 to conduct the final examination of Mohammad Samaun Safa on his Doctor of Philosophy thesis entitled "Economic Evaluation of Social Forestry Program in Dhaka and Tangail Forest Divisions in Bangladesh" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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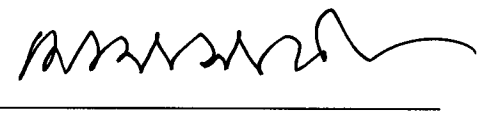
Date: 16 JUN 2004

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



MOHAMMAD SAMAUN SAFA

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