



**Faculty of Resource Science and Technology**

**Environmental Conservation Practices Adoption among Independent Oil  
Palm Smallholders in Sarawak, Malaysia**

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**Doctor of Philosophy  
2021**

Environmental Conservation Practices Adoption among Independent Oil  
Palm Smallholders in Sarawak, Malaysia

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A thesis submitted

In fulfillment of the requirements for the degree of Doctor of Philosophy

(Environmental Science)

Faculty of Resource Science and Technology

UNIVERSITI MALAYSIA SARAWAK

2021

## DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.



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Date :7 June 2021

## ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this final semester project. Special appreciation goes to my supervisor, Prof. Dr Ismail Jusoh and former supervisor, Prof Dr Isa Ipor, for his supervision and constant support. His invaluable help of constructive comments and suggestions throughout the experimental and thesis works have contributed to the success of this research.

I also would like to express my appreciation to the Dean, Faculty of Resource Science and Technology, Associate Professor Dr Samsur bin Mohamad, the Senior Director, Centre for Graduate Studies, Prof Dr Fasihuddin Badruddin Ahmad and the Director General of the Malaysian Palm Oil Board, Dr Ahmad Parveez Ghulam Kadir and the Director of the Smallholder Development and Research Division, Dr Ramle bin Moslim to approved for the support and help towards my postgraduate affairs and financing. Also thank you to all MPOB's extension officers for the cooperation in collecting data.

Last but not least, my deepest gratitude goes to my beloved wife and sons. Also not forgetting, to all my parents highly thank you for support, love and caring. To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.

## ABSTRACT

Adoption of Malaysian Sustainable Palm Oil (MSPO) standard has been made mandatory by the end of 2019 to all oil palm players including Independent Oil Palm Smallholders (ISH). There have seven principles of MSPO certification, and the Environmental Conservation Practices (ECP) the fifth principle that was assessed for this study. This dissertation examines the ECP's adoption level among ISH in Sarawak, Malaysia. It's also identified the ISH's driving and constraining factors by examining ECP's adoption status. The primary data were collected using questionnaire surveys, face-to-face interviews, and farm observation on 807 ISH in Sarawak. Secondary data were obtained from reports, previous studies and annual reports. Likert scale and descriptive statistical analysis were used to examine and determine the ECP's adoption level, knowledge level and adoption perception. Chi-square tests were performed to determine the relationship between ECP's adoption level with a personal profile and farm profile. Simultaneously, the Pearson Correlation test was used to determine the relationship between ECP's adoption level with ECP's knowledge level and ECP's adoption perceptions. The Statistical Package for the Social Sciences (SPSS) 22 was used for data analysis. Results showed that the average age of respondents was 53 years old and dominated by male (86.1%). Most of them are full-time smallholders (61.0%) and attended primary and secondary school (39.3% and 38.9%, respectively). About 60.2% of them are Iban. The average monthly income of them is RM3, 246.48, and owning farm size less than four ha. About (99.1%) of them hold oil palm below fifteen years old with approximately produced 10.7 ton/ha/year in average. The majority of them planted oil palm on the flat and undulating mineral soil that previously so-called idle land. A total of 58.7% of them categorized as ECP's moderate-level adopters, 24.3% as low-level adopters and 17.0% as high-level adopters. Overall, ECP's adoption level among

respondents was categorized as moderate when the mean score was equal to 3.084 (Likert scale 1 to 5). Profitability and benefits were the top-ranked factor stated by respondents (29.3% of them) for adopting ECP. Meanwhile, 20% of respondents stated that biophysical and technical factors were the main constraints. ECP's adoption level had a significant relationship with gender, ethnicity, marital status, education, participation as an ISH, age group, household income, farm size, age of oil palm, oil palm yield and previous farmland use. ECP's knowledge level and ECP's adoption perception are also correlated and influence the ECP's adoption level. Future studies is needed by focusing to determine and create formulas or systems in strengthening contributing factors and overcome shortcoming in adopting ECP by ISH. Currently, awareness programs on the ECP's adoption are the best efforts, and relevant agencies should implement the promotion or campaigns of ECP on an ongoing basis effectively.

**Keywords:** Adoption level, constraining factors, driving factors, environmental conservation practices, independent oil palm smallholders

***Penerimgunaan Amalan-amalan Pemeliharaan Alam Sekitar di Kalangan Pekebun Kecil Sawit Persendirian di Sarawak, Malaysia***

**ABSTRAK**

*Pensijilan Minyak Sawit Mampan Malaysia (MSPO) telah diwajibkan pada akhir tahun 2019 kepada semua penggiat industri sawit termasuk pekebun kecil persendirian (ISH). Terdapat tujuh prinsip pensijilan MSPO, dan Amalan Pemeliharaan Alam Sekitar (ECP) adalah merupakan prinsip kelima dan dinilai untuk kajian ini. Disertasi ini mengkaji tahap penerimgunaan ECP di kalangan ISH di Sarawak, Malaysia. Ia juga mengenal pasti faktor pendorong dan penghalang yang dihadapi oleh ISH dalam penerimgunaan ECP. Data primer dikumpulkan melalui tinjauan soal selidik dan temubual secara bersemuka dengan 807 ISH di Sarawak. Data sekunder diperoleh dari laporan, kajian sebelumnya dan laporan tahunan. Skala Likert dan analisis statistik deskriptif digunakan untuk mengenalpasti dan menentukan tahap penerimgunaan ECP, tahap pengetahuan mengenai ECP dan persepsi terhadap penerimgunaan ECP. Ujian Chi-square dilakukan untuk menentukan hubungkait antara tahap penerimgunaan ECP dengan profil peribadi dan profil ladang. Manakala ujian Pearson Correlation digunakan untuk menentukan hubungkait antara tahap penerimgunaan ECP dengan tahap pengetahuan terhadap ECP dan persepsi terhadap penerimgunaan ECP. Pakej Statistik untuk Sains Sosial (SPSS) 22, digunakan untuk analisis data. Hasil kajian menunjukkan bahawa rata-rata usia responden adalah 53 tahun dan dikuasai oleh lelaki (86.1%). Sebilangan besar mereka adalah pekebun kecil sepenuh masa (61.0%) dan bersekolah rendah dan menengah (masing-masing 39.3% dan 38.9%). Sebanyak 60.2% daripadanya adalah orang Iban. Rata-rata pendapatan bulanan dari mereka adalah RM3,246.48, dan memiliki ukuran ladang kurang dari empat hektar. Kira-kira (99.1%) daripadanya memegang kelapa sawit di bawah umur lima belas tahun dengan*

kira-kira menghasilkan 10.7 tan / ha / tahun. Majoriti dari mereka menanam kelapa sawit di tanah mineral rata dan beralun yang sebelumnya disebut tanah terbiar. Sejumlah 58.7% daripada responden dikategorikan sebagai pengguna ECP tahap sederhana, 24.3% sebagai pengguna tahap rendah dan 17.0% sebagai pengguna tahap tinggi. Secara keseluruhan tahap penerimgunaan ECP di kalangan responden dikategorikan sebagai sederhana apabila skor min bersamaan 3.084 (skala Likert 1 hingga 5). Keuntungan dan faedah adalah faktor tertinggi yang dinyatakan oleh responden (29.3% daripadanya) sebagai pendorong dalam penerimgunaan ECP. Sebanyak 20% responden menyatakan bahawa faktor biofizik dan teknikal adalah faktor penghalang yang utama. Tahap penerimgunaan ECP mempunyai hubungkait signifikan dengan jantina, etnik, status perkahwinan, pendidikan, penyertaan sebagai ISH, kumpulan umur, pendapatan isi rumah, saiz ladang, umur pokok sawit, hasil sawit dan penggunaan tanah ladang sebelumnya. Tahap pengetahuan dan persepsi terhadap ECP juga berhubungkait dan mempengaruhi tahap penerimgunaan ECP. Kajian masa depan diperlukan dengan menumpukan pada menentukan dan membuat formula atau sistem dalam memperkuat faktor pendorong dan mengatasi faktor menghalang. Pada masa ini, program kesedaran penerimgunaan amalan ECP adalah usaha terbaik dan agensi berkaitan harus melaksanakan promosi atau kempen ECP secara berterusan dengan berkesan.

**Kata kunci:** Amalan pemeliharaan alam sekitar, faktor menghalang, faktor pendorong pekebun kecil sawit persendirian, tahap penerimgunaan



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