

SOIL-INHABITING ARTHROPOD COMMUNITIES AS BIOINDICATORS
FOR ASSESSMENT OF SOIL CONTAMINATION IN THE
SURROUNDING AREA OF MAE MOH POWER PLANT
LAMPANG PROVINCE

KISWORO

A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN ENVIRONMENTAL SCIENCE

GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
MARCH 1999

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KISWORD

**THIS THESIS HAS BEEN APPROVED
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EXAMINING COMMITTEE

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23 March 1999

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ACKNOWLEDGMENTS

My belief that " *The fear of the Lord is the beginning of knowledge; fools despise wisdom and instruction* " (Proverbs 1 : 7) has motivated me to finish all of my studies for the International Master of Science Program in Environmental Science (Environmental Risk Assessment/ERA Program), Faculty of Science, Chiang Mai University, Chiang Mai, Thailand. My study could not have been completed without the help of many individuals and institutions to whom I want to acknowledge.

First of all, I wish to thank Assoc. Prof. Saowapa Sonthichai, my thesis adviser, for her unselfish help, her generous guidance and support in guiding out this research since from the very beginning until the completion of this thesis. My heartfelt gratitude is extended to Assoc. Prof. Dr. Benjavun Ratanasthien, my thesis co-adviser, for her critical comments and valuable advice in the course of this work. Similarly, I am also very grateful to Assoc. Prof. Dr. Arayar Jatisatienr, my other thesis co-adviser, not only for her professional comments and suggestions, but also for her motherly care on my personal problems.

My study in the ERA Program of Chiang Mai University would not have materialized without financial assistance of my institution, Duta Wacana Christian University Yogyakarta, and the moral support of my colleagues in the Faculty of Biology, Duta Wacana Christian University Yogyakarta. I am sincerely grateful to them. My respectful appreciation also goes to the President of Chiang Mai University and the Chairman of the ERA Program for their help especially during my critical financial trouble.

The Director and staff of the Environment Division of the Mae Moh Power Plant are also sincerely acknowledged for permission, assistance, providing transportation, and accommodation that make my field work possible.

My gratitude is also extended to Mr. William G. Prewett and Mrs. Mayuree Promputha for their help and guidance during AAS analysis at the laboratory of

Geological Sciences Department, Faculty of Science, Chiang Mai University. Mr. Sulak and Mr. Sakhon are also deeply thanked for their help in providing analytical instruments and equipment.

Life in Chiang Mai would be very boring without my seniors of ERA batch 1996 namely Quynh (Vietnam), Boying (Philippines), Rejina (Nepal), Sudarat (Thailand), Bao (Vietnam) and the rest, especially my Indonesian friends Mulyono and Susanti. Likewise, my classmates of ERA batch 1997: Apirat, Viwat, Wipha (Thailand) and Cong (Vietnam) are also gratefully appreciated for being together during field and lab work, and enjoyable moments during parties and hangouts. My juniors of ERA batch 1997: Pam, Nut, Noi and Daecha are also thanked for their hospitality and cheerful company. I am also thankful to Mr. James F. Maxwell, my "drinking" acharn, not only for his finishing touch on my thesis but also giving me homely atmosphere while being a foreigner away from home. The experiences are memorable.

To my parents who love me so much and my brothers and sisters, and in-laws, thank you for your taking care of my family during my stay in Chiang Mai. Your endless supports and encouragement are very valuable.

Above all, special appreciation is offered to my beloved wife Chatarina Ari and my children Yayang, Ega, Elang who came a year ago without me in their side. Their patience and affectionate love are sources of my inspiration throughout my stay in Chiang Mai to complete this work. This thesis is dedicated to all of you.

Last, but not least, to the Supreme Being in Heaven who is always being in front of every one of my steps. Father, you never changed. Thanks a lot.

Kisworo

March, 1999

Thesis Title Soil-Inhabiting Arthropod Communities as Bioindicators for Assessment of Soil Contamination in the Surrounding Area of Mae Moh Power Plant Lampang Province

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ABSTRACT

The effects of heavy metal contamination on soil-inhabiting arthropod communities was studied in the area surrounding Mae Moh Power Plant in order to know their potential use as bioindicators. Six sites in the north (N1-N6) and six sites in the south (S1-S6) were studied during rainy season in 1998. Two soil samples were collected monthly from each study site using a quadrat (20 x 20 cm²). The soil samples were extracted by Tullgren funnels before sorting and identification of arthropods. Four soil samples were also collected monthly from each site for analysis of physicochemical parameters and heavy metal concentrations.

This study revealed that concentrations of heavy metals in soils were variable and significantly different among sites and collecting times. The highest concentrations of As and Ni were found in site S1; 48.14 and 19.78 mg/kg, respectively. Maximum concentrations of Cr (7.77 mg/kg) and Co (54.43 mg/kg) were recorded in sites S5 and N4, respectively. In contrast, the lowest concentrations of As (6.29 mg/kg) and Cr (3.78 mg/kg) were found in site N4. The lowest