การวิเคราะห์คำศัพท์จากคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อม

CORPUS-BASED LEXICAL ANALYSIS ON ENVIRONMENTAL SCIENCE RESEARCH ARTICLES

ปิยะนุช เจริญศรี
PIYANUCH CHAROENSRI

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาภาษาศาสตร์ประยุกต์-ภาษาอังกฤษเพื่อวิทยาศาสตร์และเทคโนโลยี
คณะครุศาสตร์อุตสาหกรรม
สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง
พ.ศ. 2556
KMITL-2013-ED-M-252-078

การวิเคราะห์คำศัพท์จากคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อม

CORPUS-BASED LEXICAL ANALYSIS ON ENVIRONMENTAL SCIENCE RESEARCH ARTICLES

ปิยะนุช เจริญศรี

PIYANUCH CHAROENSRI

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาภาษาศาสตร์ประยุกต์-ภาษาอังกฤษเพื่อวิทยาศาสตร์และเทคโนโลยี
คณะครุศาสตรอุตสาหกรรม
สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง
พ.ศ. 2556

ENVIRONMENTAL SCIENCE RESEARCH ARTICLES

PIYANUCH CHAROENSRI

A THESIS SUBMITTED IN PARTTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE OF
MASTER OF ARTS IN APPLIED LINGUISTICS
(ENGLISH FOR SCIENCE AND TECHNOLOGY)
FACULTY OF INDUSTRIAL EDUCATION
KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG
2013

KMITL-2013-ED-M-252-078

คณะครุศาสตร์อุตสาหกรรม
สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง
ใบรับรองวิทยานิพนธ์

หัวข้อวิทยานิพนธ์ การวิเคราะห์คำศัพท์จากคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อม
Corpus-Based Lexical Analysis on Environmental Science Research Articles

นักศึกษา นางสาวปิยะนุช เจริญศรี
รหัสประจำตัว 53631525
ปริญญา ศิลปศาสตรมหาบัณฑิต
สาขาวิชา ภาษาศาสตร์ประยุกต์-ภาษาอังกฤษเพื่อวิทยาศาสตร์และเทคโนโลยี
อาจารย์ที่ปรึกษาวิทยานิพนธ์ รศ.ดร.จิราภา วิทยาภิรักษ์
อาจารย์ที่ปรึกษาวิทยานิพนธ์ร่วม -

คณะกรรมการสอบวิทยานิพนธ์		ลายมือชื่อ
ผศ.ดร.อำนาจ	ตั้งเจริญชัย	
รศ.ดร.จิราภา	วิทยาภิรักษ์	
รศ.ปรียาภา	จิตต์บุญ	
รศ.สุขุมาลย์	นิลรัตน์	
ดร.ปัทมา	พัฒนพงษ์	

วัน / เดือน/ ปี ที่สอบ 9 พฤษภาคม 2556 เวลา 09.00 น. เป็นต้นไป
สถานที่สอบ ณ ห้องเรียนปริญญาเอก คณะครุศาสตร์อุตสาหกรรม

คณะครุศาสตร์อุตสาหกรรมรับรองแล้ว

(รองศาสตราจารย์ พีระวุฒิ สุวรรณจันทร์)
คณบดี คณะครุศาสตร์อุตสาหกรรม
วันที่ 31 **เดือน** พฤษภาคม **พ.ศ.** 2556

หัวข้อวิทยานิพนธ์	การวิเคราะห์คำศัพท์จากคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อม
นักศึกษา	นางสาวปิยะนุช เจริญศรี
รหัสประจำตัว	53631525
ปริญญา	ศิลปศาสตรมหาบัณฑิต
สาขาวิชา	ภาษาศาสตร์ประยุกต์
พ.ศ.	2556
อาจารย์ที่ปรึกษาวิทยานิพนธ์	รศ.ดร.จิราภา วิทยาภิรักษ์

บทคัดย่อ

งานวิจัยครั้งนี้มีวัตถุประสงค์เพื่อวิเคราะห์ คำศัพท์จากคลังข้อมูลภาษาของ บทความในวารสารวิทยาศาสตร์สิ่งแวดล้อมโดยทำการเก็บรวบรวมข้อมูลของวารสารตั้งแต่พ.ศ. 2550 ถึง 2555 คลังข้อมูลภาษาของบทความในวารสารสงแวดล้อมนี้ประกอบด้วย 1,883,197คำ (Tokens) จาก จำนวนบทความทั้งสิ้น 285 ฉบับ จำแนกออกได้เป็น 5 ส่วนคือ 1) พิษวิทยาสิ่งแวดล้อม และการปนเปื้อน 2) ธรณีวิทยาสิ่งแวดล้อม 3) อนามัยสิ่งแวดล้อม 4) การจัดการสิ่งแวดล้อม และ 5) การติดตามประเมินผลสิ่งแวดล้อมเครื่องมือที่ใช้วิเคราะห์คำศัพท์ได้แก่โปรแกรมจำแนกศัพท์ตามความถี่ (WordSmith Tools) รุ่นที่ 6.0 โดยScott (2012) และโปรแกรมจำแนกคำศัพท์ทางวิชาการ (RANGE_GSL_AWL) โดยNation (2005) ค่าสถิติที่ใช้ในการศึกษาครั้งนี้คือ ค่าความถี่และค่าร้อยละ

ผลจากการวิเคราะห์คำศัพท์พบว่าอัตราส่วนของการพบคำซ้ำในคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อมมีอัตราส่วนเท่ากับ 1:43.45 ประกอบด้วยคำศัพท์ทางวิชาการร้อยละ 11.90% คำศัพท์พื้นฐานที่ปรากฏมากที่สุดใน 10 อันดับแรกได้แก่ “the, of, and, in, to, a, for, is, as, that” พบมากถึงร้อยละ 22.08% ของจำนวนทั้งหมด คำนามที่พบมากที่สุดคือ คำว่า‘water’ พบมากถึง 5,412 ครั้งนอกจากนยังพบคาว่า ‘metal(s)’,‘concentration(s)’, ‘data’ และ ‘risk’ เป็นคำที่พบมากใน10 อันดับแรกของคำนาม สำหรับคำศัพท์ทางวิชาการที่พบ

มากที่สุด 10 อันดับแรกคือคำว่า “environmental, data, site(s), exposure, monitoring, assessment, analysis, concentration, area และ potential” นอกจากนี้คำศัพท์ทางวิชาการของคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อมยังปรากฏเป็นกลุ่มคำที่ต้องเขียนร่วมกันตั้งแต่ 3 ถึง 5 คำ ซึ่งเป็นกลุ่มคำที่ใช้มากในการเขียนบทความวิชาการได้แก่คำว่า as well as (ความถี่ 878 ครั้ง) on the other hand (ความถี่ 207 ครั้ง) และ at the end of the (ความถี่ 43 ครั้ง)

ผลที่ได้จากการศึกษาความถี่ของคำศัพท์ทางวิชาการจากคลังข้อมูลภาษาของบทความในวารสารวิทยาศาสตร์สิ่งแวดล้อมในครั้งนี้ สามารถนำมาประยุกต์ใช้ในการจัดการเรียนการสอนทางด้านวิทยาศาสตร์สิ่งแวดล้อม สามารถนำไปใช้ในการเขียนบทความทางวิชาการด้านวิทยาศาสตร์สิ่งแวดล้อมในภาคภาษาอังกฤษได้ต่อไป.

Thesis Title	CORPUS-BASED LEXICAL ANALYSIS ON ENVIRONMENTAL SCIENCE RESEARCH ARTICLES
Student	PIYANUCH CHAROENSRI
Student ID	53631525
Degree	Master of Art
Program	Applied Linguistics-English for Science and Technology
Year	2013
Thesis Advisor	Assoc. Prof. Dr. Jirapa Vitayapirak

ABSTRACT

This study aimed to analyze vocabulary used in environmental science research articles. The samples of this study were collected environmental science research articles during the year 2007-2012. The environmental science research article corpus consisted of 1,883,197 tokens or running words. 285 articles were collected and grouped into five subcategories, i.e. environmental contamination and toxicology, environmental geology, environmental health, environmental management and environmental monitoring. The corpus was analyzed by WordSmith 6.0 by Scott (2012) and RANGE_GSL_AWL Programs by Nation (2005).The WordSmith Tools was used to find out word frequencies, the Range_GSL_AWL was used to find out academic wordlists and kfNgram programmed was used to find out collocations.

The result of the study revealed that a word type to tokens ratio is 1:43.45. The function words occur in the top ten ranks. Those words were "*the*, *of*, *and*, *in*, *to*, *a*, *for*, *is*, *as*, *that*". They are accounted for 22.08% of the total list. The most frequent content words, i.e. noun, verb, adjective and adverb were '*water*', '*based*', '*environmental*', and '*also*' respectively. The overall corpus consisted of 65% general, 11.90 % academic, and 22.12% technical and other vocabularies The ten most frequent academic words were '*environmental, data, site(s), exposure, monitoring, assessment, analysis, concentration, area* and *potential*'.

The lexical collocations in the corpus mostly consisted of nouns with proceeding nouns or adjectives plus nouns, e.g. *'in-pipe water quality'*, *'environmental performance'*. The top ten of 3-5 grammatical collocations in the corpus were *'as well as'*, *'on the other hand'*, and *'at the end of the'* respectively.

An important finding was that the academic vocabulary in the ESRs corpus was higher than the other corpora. Collocations mostly consisted of compounds and multiword lexical units focusing on its specificity of environmental science. These findings have applications for environmental science students and suggest the need to produce environmental science academic word list which is necessary for writing academic research articles. The finding also has applications for language teaching and materials development in EAP and ESP.

ACKNOWLEDGEMENTS

The present work is one of the outcomes of a lengthy process. It would not have been possible without the support of numerous people. I wish to thank my adviser, Assoc. Prof. Dr. Jirapa Vitayapirak, first, for introducing me to the field of corpus linguistics; second, for guiding and supporting me throughout the duration of this project; and third, but most importantly, for setting the standard for helping me become a researcher.

I would like to acknowledge Dr. Pattama Patpong (Mahidol University), Assoc. Prof. Sukumal Nilrat, Asst. Prof. Dr. Amnard Tungcharoenchai and Assoc. Prof. Preeyapha Jitboon for their encouragement and valuable feedback on this study.

For their efforts in corpus collection, my sincere appreciation goes to the main library and Industrial Education library of King Mongkut Institute of Technology Chaokuntahan Ladkrabang; many thanks also to Ms.Piyarom Subsuwan for her precise and careful data collection.

I was also fortunate to have the support from several departments and schools at King's Mongkut Institute of Technology Chaokuntahan Ladkrabang and Office of Vocational Education Commission. From Agricultural Faculty, I would like to acknowledge Assoc. Prof. Kriengsak Suwannaphosri, Ajarn Saowaree Trapontong (both of who gave fellowship to me that I will always remember). From the Office of Vocational Education Commission and Department of Petchaburi Vocational Education Commission section I would like to acknowledge secretary, directors and everyone who concern for their mentorship. From my M.A. friends, I would like to acknowledge our group for encourage and assistance.

Last but not least, I'd like to thank my mother, my sister and my family for their constant love, support; I would like to dedicate this work to them.

PIYANUCH CHAROENSRI

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure **Page**

CHAPTER I
INTRODUCTION

1.1 Statement and Significance of the Problem

Nowadays great numbers of environment issues have grown in size and complexity threatening the survival of mankind on earth. The science of environment is a multi-disciplinary science because it comprises various branches of studies like chemistry, physics, medical science, life science, agriculture, public health, sanitary engineering and so on. Environmental studies have become significant since environment issues affect everyone on earth like global warming and ozone depletion, acid rain, marine pollution and biodiversity (Singh, 2006).

English for science, especially environmental science has acquired the status of an International language (Dudley-Evan and St. John 1998). The environmental scientists from around the world need to read the English journals to achieve a wide range of innovative ideas to create new knowledge. The research articles written in English have become one of the main channels for distributing advanced scientific knowledge. The competency of scientists in using English is important for succeeding in their career. Writing and publishing research articles (RAs) is essential for academic socialization of scientists (Huang, et. al., 2010).

To understand the scientific research articles, non-native speakers of English need to be aware of both the rhetorical organization and the linguistic conventions associated with the research articles in their fields of scientific interest (Kanoksilapatham, 2005). She also said that in particular, they must understand the communicative purpose of scientific research articles and the appropriate lexical and grammatical choices that are conventionally used to express the communicative purposes of each section of a research article. Moreover, to get research articles published, they have to follow the typical structure of standard article, i.e. introduction, methods, findings and conclusions.

According to Swales (2006), 80% of the world's scientific production is written in English. Pérez-Eid (1990) also showed that 75% of scientists in editorial boards of 433 journals with a high impact factor were English-speakers and 8 out every group of 10

were American. The highly-cited Institute for researcher in publication is the Institute of Scientific Information (ISI). The largest bibliometric tool is the *Science Citation Index* (SCI), which scans about 4,000 journals. The most commonly used databases for studies of publications carried out by the ISI are: the Science Citation Index Expanded (SCI Expanded), articles with their references and other material in about 8600 journals are registered. Nearly 2000 journals a year are reviewed but only 10 to 12% are sorted out to be included in the database.

In order to get published in a high impact factor journal, a number of researchers have examined the typical structure of standard article and academic vocabulary in terms of notions and functions. Lim (2006) provided a very detailed move-and-step analysis linked to linguistic features, following the ESP approach to genre.

Martin (1983) classified academic vocabulary in scientific texts into: a) research process, b) vocabulary analysis, and c) vocabulary evaluation. Coxhead (1998) suggested the Academic Word List (AWL) consists of 570 word families based on 3,500,000 tokens from a corpus of academic English. The corpus is divided into four groups namely Arts, Science, Law and Commerce. Both range and frequency were used for choosing the words with all word families in the list occurring at least 100 times in the corpus. The academic vocabulary represented an extension of the general service vocabulary and suitable for learners' taking up academic courses (Nation, 2001).

Since there is a strong need to develop English skills in writing research articles in environmental science especially for Thai scientists and students. The collection of research articles in this field can benefit them. This study is an attempt to compile a specialized corpus for environmental science research articles which enables us to find out academic lexicon used in the texts: word frequency, word distribution, contents words, collocation and meaning of words in the four moves of research articles, i.e. Introduction, Methods, Results, and Discussions (IMRD). In this research, Abstracts were excluded because an abstract is a short summary of a completed research and the basic components of an abstract in any discipline repeat the IMRD pattern of the research articles.

1.2 Goal and Objectives

The purpose of this study is to compile a corpus of environmental science research article and analyze English vocabulary in four moves of research articles, i.e. Introduction, Methods, Results, and Discussion.

1.2.1 To analyze vocabulary in environmental science research articles in terms of nouns, verbs, adjectives and adverbs.

1.2.2 To examine general, academic and technical vocabulary in the corpus of environmental science research articles.

1.2.3 To identify a list of the most frequent relevant academic collocations from environmental science research articles.

1.3 Research Questions

The following research questions serve as a guide in the study:

1.3.1 What are the important vocabulary used in environmental science research articles in terms of nouns, verbs, adjectives and adverbs?

1.3.2 What are the overall general, academic and technical vocabularies in environmental research articles?

1.3.3 What are the most frequent relevant academic collocations in environmental science research articles?

1.4 Scope and Limitations of the Study

1.4.1 The vocabulary inputs of the study were taken from environmental research articles published during 2007-2012.

1.4.2 The environmental research articles were collected from search engine of Scidirect website in URL www.scidirect.com.

1.4.3 The environmental science research articles were classified into four moves based on Swales' move theory (Swales, 1990, 2001): Introduction, Methods, Results and Discussion (IMRD).

1.4.4 The General Service List (Bauman and Culligan, 1995) was used as the guidelines for identifying the general vocabulary.

1.4.5 The Academic Word List (Coxhead, 2000) was used as the guidelines for identifying the academic vocabulary.

1.4.6 Pearson International Corpus of Academic English (PICAE, 2010) and The Lexical Bundles (Biber et.al, 1999) were used as the guidelines for identifying the academic collocations.

1.5 Conceptual Framework

The conceptual framework of this research was designed as follows:

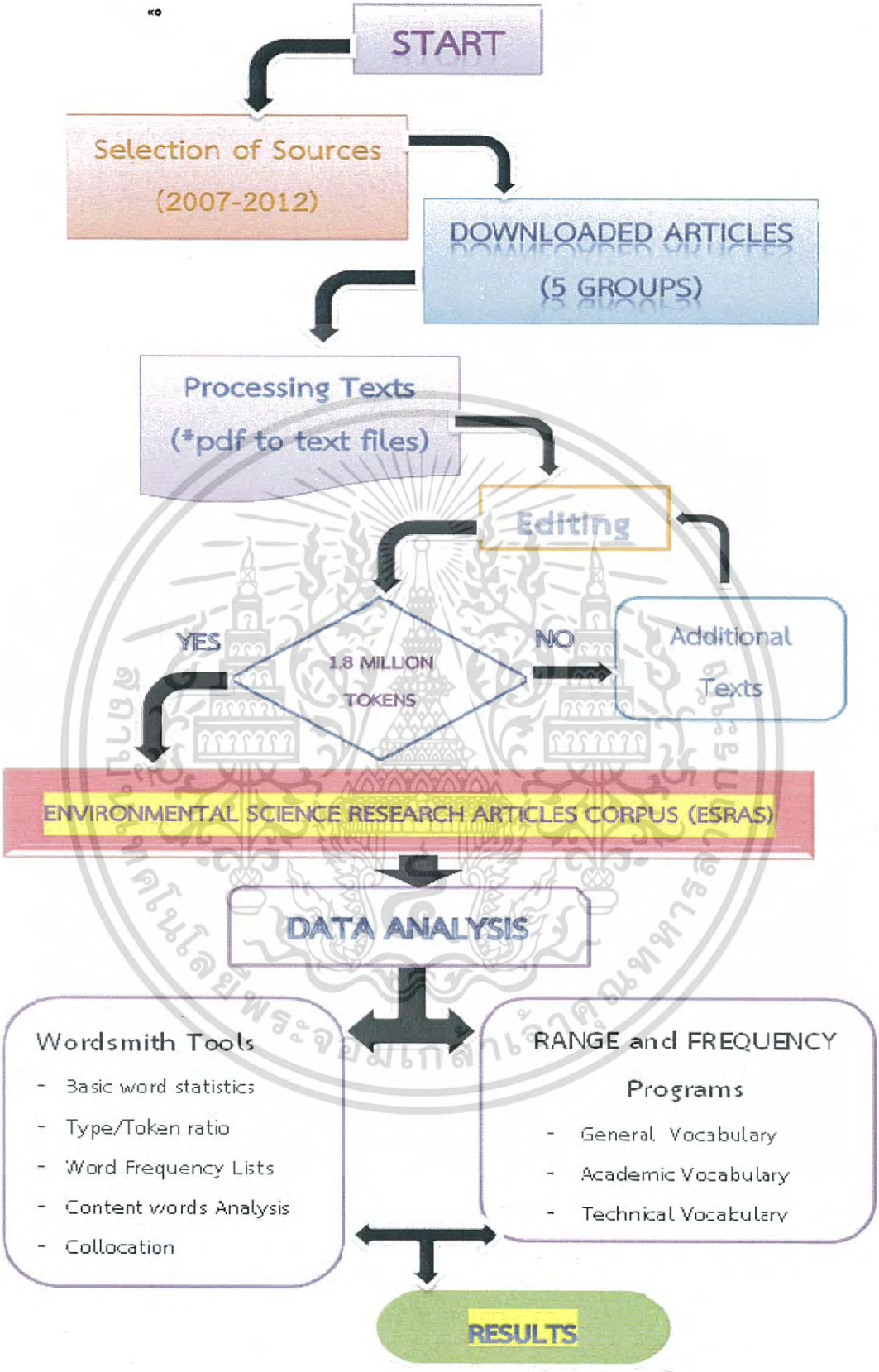

Figure 1.1 Conceptual Framework (adapted from Vitayapirak and Ratiroch-anant, 2006)

1.6 Process of the Study

The process of the study is as follows:

1.6.1 Literature Review

The literature and related research concerning to lexical studies and corpus-based approach were studied.

1.6.2 Data Collection

1.6.2.1 The relevant material and data in this study will mainly obtain from Science Direct Online (http://www.sciencedirect.com). The top 25 mostly downloaded research articles published during the year 2007-2012 in five journals of environmental science: (1) Energy & Environmental Science, (2) Environmental Science & Policy, (3) Journal of Environmental Sciences, (4) Science of The Total Environment and (5) Environmental Science and Technology. These journals are the top five journals based on the market research from ScienceWatch.com (Reuters, 2012: online) and all of research articles retrieved on June 1st -August 10th 2012.

1.6.2.2 Environmental science research articles were grouped into five categories, namely (1) environmental contamination and toxicology (2) environmental health (3) environmental monitoring (4) environmental geology and (5) environmental management (Reuters, 2012: online).

1.6.2.3 Corpus Compilation: After environmental science research articles were downloaded from the online journal via website Scidirect, all of them were grouped and stored as text files (*.txt).

1.6.2.4 Each research articles were divided into four separated moves: Introductions, Methods, Results, and Discussions based on Swales' move theory (Swales, 1990, 2006).

1.6.3 Data Analysis

1.6.3.1 Corpus Tools

The computer software program, Wordsmith Tools Version 6.0 were used to examine tokens and word types and calculate type/token ratio and word frequency of the whole corpus. Then words were categorized into the levels of vocabulary,

namely general, academic, and technical vocabulary. They were presented in terms of percentage of word occurrence.

1.6.3.2 Content Words Analysis

The general vocabulary, academic vocabulary and technical vocabulary were classified into nouns, verbs, adjectives, and adverbs. From the word lists, the identification of general vocabulary is based on the General Service List provided by Bauman and Culligan (1995). The identification of academic vocabulary is based on the Academic Word List provided by Coxhead (2000).

Finally, academic collocations were identified (Chung and Nation, 2003).

1.6.4 Results and Discussion

The results were presented as follows:

1.6.4.1 The overall results were presented in terms of number of tokens and word types, type/token ratio, and word frequency list.

1.6.4.2 The frequency and percentage of occurrence of the general, academic, and technical vocabularies were presented.

1.6.4.3 The classification of general, academic, and technical vocabulary was presented in terms of nouns, verbs, adjectives, and adverbs.

1.6.4.4 The academic collocations were listed according to KWIC concordance findings in terms of lexical collocations and grammatical collocations.

1.6.4.5 Discussions were provided.

1.6.5 Conclusions and Recommendations

Conclusions and recommendations for further studies were given.

1.7 Definitions of Terms Used

Academic Vocabulary:	the specialized vocabulary used in academic settings. Words included in the Academic Word List (AWL) created by Coxhead (2000).
Collocations:	A sequence of words or terms that co-occur more often than would be expected by chance. A word combination whose semantic and syntactic

properties cannot be fully predicted from those of its components. There are about six main types of collocations: adjective+noun, noun+noun (such as collective nouns), verb+noun, adverb+adjective, verbs+prepositional phrase (phrasal verbs), and verb+adverb.

Concordance: a list of all the words which are used in a particular text or in the works of a particular author, together with a list of the contexts in which catch word occurs.

Corpus (plural corpora): a collection of the written or spoken word, which is stored and processed on computer for the purposes of linguistic research (Renouf, 1987).

Content words: Words that have meaning. Nouns, main verbs, adjectives and adverbs are usually content words. Auxiliary verbs, pronouns, articles, and prepositions are usually grammatical words.

Environmental Science: A multi-disciplinary science which comprises various branches of studies like chemistry, physics, medical science, life science, agriculture, public health, sanitary engineering, etc.

Function words: The words which have a little meaning of their own, but which shows grammatical relationship in and sentences. Conjunctions, prepositions, articles, e.g. *and*, *to*, *the*, are function words.

General Vocabulary	A set of general lexical items (words) that used freely in a language, also called the lexicon.
Lemma (plural Lemmas):	The word without all inflexional and derivational affixes. For example; the lemma of the words *works, worked, working is work.*
Lemmatization:	The process or result of dividing a text into lemma.
Move:	A segment of research articles. Each move demonstrates a particular intention or purpose while contributing to the overall communicative purpose of texts (Swales, 2006).
Word frequency lists:	The list of vocabulary items in a corpus of language. This information can be shown in alphabetical order or frequency order.
Technical Vocabulary	The technical terms in single field. They are only used in one domain and the meanings are restricted.
The Academic Word List (AWL):	The list of academic words which are selects for tertiary level students who need to read and write academic prose. The AWL contains 570 word families based on a 3,500,000 token corpus of academic English.
The General Service List (GSL):	The most frequent 2,000 words of English (West, 1953).
Token or Running Words:	The 'token' of a corpus refers to the simple word count, the number of running words in the corpus.

Type/Token Ratio: The relative proportions of types and tokens.

Vocabulary: A set of lexical items (words) in a language, also called the lexicon.

Word Type: A token which occur more than once in different position was counted as one word type. For example, the sentence *'Analyzing both societal and environmental components of the issues—global warming, ozone depletion, acid rain and drought—the book offers a valuable integrative approach'* consists of 24 tokens. The word *'the'* and *'and'* occurs 2 times. Therefore, there are totally 22 word types since the same word is counted only once.

1.8 Anticipated Outcomes

The anticipated outcomes would have implications for ESP and Pedagogy. In particular, the findings are beneficial to technical writers who need to develop writing skills in terms of important vocabulary used in environmental science research article and their most frequent relevant academic collocations.

CHAPTER 2
LITERATURE REVIEW

This study intends to explore the English vocabulary in environmental science articles. This chapter is divided into sixth main parts. The first part begins with characteristics of research articles. The second part describes background of Linguistic Corpora. The third part concentrates on vocabulary levels. The fourth part focuses on word classes. The fifth part concentrates on collocations. The last part of this chapter, previous research on corpus-based specialized texts is illustrated.

2.1 Characteristics of Research Articles

This section is divided into five parts: definitions of research articles, the evolution of research articles, genre and discourse community, the structure of research articles, and adaptation of the conventional I-M-R-D model and the analysis of the "moves" to the environmental science corpora.

2.1.1 Definition of Research Article

A research article reports the results of original research, assesses its contribution to the body of knowledge in a given area, and is published in a peer-reviewed scholarly journal. A given academic field will likely have dozens of peer-reviewed journals (Hall, 2012: online).

2.1.2 The Evolution of Research Articles

The scientific articles were a deliberate invention that took place during 17th century. It was created in England and France by Henry Oldenburg and Denis de Sallo. The scientific articles have evolved and changed with time; in fact in 1920 Fulcher suggested the inclusion of an abstract for manuscripts in the Astrophysical Journal. This should imply time-saving for researcher that would get the information on the manuscripts faster. This idea was accepted and is still recognized today in scientific articles (Gross, 2002).

Bazerman (1998) has become well-known for his study of the development of single types of texts through repeated use in similar situations. In his book, he describes the evolution of the scientific article from 1665 to 1800, from uncontested reports of observations and events, to arguments over results, to accounts of claims and experimental proofs.

2.1.3 Environmental Science Disciplines

Environmental Science is a broad category covering interrelated disciplines. It includes resources dealing with pure and applied ecology, ecological modeling and engineering, ecotoxicology, and evolutionary ecology. In environmental science, some of the many areas covered are environmental contamination and toxicology, environmental health, monitoring, technology, geology, and management. Other fields covered are soil science and conservation, water resources research and engineering, climate change, and biodiversity conservation. Regional naturalist resources are also covered (Reuters, 2012: online).

2.1.4 Genre and Discourse Community

Genre analysis is the study of how language is used within a particular social setting. Examples of genres in academic written English are research articles or papers, abstracts, theses and dissertations. Genres can be described as referring to a conventional category of discourse based on large scale typification of rhetorical action. Swale (1990) has defined *genre* and the concept of *discourse community* as follows:

> *"A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. The rationale shapes the schematic structure of the discourse and influences and constrains choice of content and style".*
>
> Swales (1990:45)

Bathia (1993) considers Swales' definitions on genre incomplete. Bathia widens Swales' definition of genre in the following manner:

> *"It is a recognizable communicative event characterized by a set of communicative purpose(s) identified and understood by the members of the professional or academic community in which it regularly occurs. Most often it is highly structured and conventionalized with constraints on allowable contributions in terms of their intent, positioning, form and functional value. These constraints, however, are often exploited by the expert members of the discourse community to achieve private intentions within the framework of socially recognized purpose/s".*
>
> Bathia (1993)

Genre analysis has devoted much attention to Research Articles (further referred to as RAs), which should be considered a kind of genre. In fact, they consist of a communication act in which its participants, namely, researchers, share a common interest of conveying their scientific findings. This purpose leads these experts, i.e. the discourse community, to determine the characteristics of that genre in the sense that they establish standardized criteria or schematic structures. They use a specific kind of language, style, etc. within this particular setting.

2.1.5 The Structure of RAs: Introduction, Method, Results and Discussion model (I-M-R-D model)

This organizational patterning in Research Article sections has continued up to the present and has developed into the prototypical I-M-R-D model. This model has been readily accepted and taken for granted by most researchers in their articles (Brett, 1994; Holmes, 1997; Stanley, 1984; Swales, 1990). In the Introduction, researchers typically make topic generalizations, review items of previous research, mention their findings and justify the development of their study. In the Method section, they explain the procedure of their study. In the Result section, analysis conveys results. Finally, in the Discussion section they focus on "commenting results" by interpreting, accounting for evaluating or comparing with previous work (Ruiying and Allison, 2003).

The I-M-R-D model was later on connected with the analysis of Moves and steps of each section of the research article. In this sense, Swales (1990) introduces the terms "move" and "step", which can be defined according not only to Swales, but also to Dudley-Evans, Holmes and others, as follows: Moves are made up of steps. Sometimes there is only one step in a move, but a move can be divided into a number of steps. The concept of *move* captures the function and purpose of a segment of text at a more general level, while *step* spells out more specifically the rhetorical means of realizing the function of the move. The set of steps for a move is the set of rhetorical choices most commonly available to RA authors to fulfill a certain purpose. Thus, move analysis, as articulated by Swales, represents academic RAs in terms of hierarchically organized text made up of distinct sections; each section can be subdivided into moves, and each move can be broken into steps (Kanoksilapatham, 2005: 271).

2.2 Background of Linguistic Corpora

2.2.1 The Definition of Corpus

A corpus is anybody of text with the aim of analyzing its features (Landau, 2001). Nowadays the term 'corpus' (plural: corpora) refers to a collection of the written or spoken word, which is stored and processed on computer for the purposes of linguistic research (Renouf, 1978).

Before having the electronic corpus, Quirk (1986) of University College London had begun his Survey of English Usage, although it was not done by computers and still exists in the form of endless trays of 4x6 inch paper slips stored in file cabinets.

The first major, computer-based study designed to be representative was the Standard Corpus of Present-Day Edited American English (better known as "the Brown Corpus"), assembled by W.Nelson Francis and Henry Keera in 1963-64 at Brown University. It was destined to become a landmark in the development of corpus linguistics. The Brown Corpus paved the way for similar studies of British English and for much larger corpora in the decades that followed (Landau, 2001).

Modeled on the Brown Corpus, a study of British English was undertaken by Geoffrey Leech in 1970 at the University of Lancaster and completed in 1978 by the

University of Oslo in collaboration with the Norwegian Computing Center in Bergen; it has come to be known as the LOB Corpus (for Lancaster-Oslo/Bergen).

During the first half of the 19th century, the early corpora were produced to help language teachers trying to teach English systematically, and to simplify English for their learners (Jeffrey, 1953). In the field of ESL and EFL, language learners' corpora have been developed by various institutions, Longman and Cambridge University Press. However, working on large corpora consumed a large amount of time, as electronic or computer tools were not available. Frequency lists such as Thorndike and Loge's List (1944) in the United States and West's General Service List of English words (1953) in Britain were both derived from manually compiled corpora. Studies of word frequency and word frequency lists have become more interesting and challenging to English teachers and learners, with the development of the computer and information technology.

2.2.2 Types of Corpora

A corpus is compiled for a particular purpose, and the types of corpus will depend on its objective. Corpus linguistics attempting to describe particular types of corpora has used a number of different terms to refer to them. In order to study features of the language in general, it is necessary to use a general corpus or a collection of texts of as many different types as possible. In order to investigate the linguistic features that characterize a particular type of text, such as modern short stories in general, or newspaper, reports, or advertisement, it is necessary to use a corpus consisting of several examples of the appropriate type which is called a specialized corpus (Tribble and Jones, 1990). Hunston (2002) stated that a corpus is always designed for a particular purpose, and the type of corpus will depend on its purpose.

2.2.2.1 General corpus

A general corpus is a collection of texts of as many types as possible. It may include written or spoken language, or both and unlikely to be representative of any particular 'whole', but will include as wide a spread of text as possible. A general corpus is usually much larger than a specialized corpus. It may be used to produce reference materials for language learning or translation. And it is often used as a

base-line in comparison with more specialized corpora. It is also called a reference corpus because of this second function. Some well-known general corpora are such as the Brown Corpus, the LOB corpus, COBUILD.

2.2.2.1.1 The Brown Corpus

The first modern, electronically readable, corpus was the Brown Corpus of Standard American English. The corpus consists of one million words of American English texts printed in 1961. To make the corpus a good standard reference, the texts were sampled in different proportions from 15 different text categories: Press (reportage, editorial, reviews), Skills and Hobbies, Religious, Fiction (various subcategories), etc.

2.2.2.1.2 The LOB Corpus

The Lancaster-Oslo/Bergen Corpus (LOB) was compiled by researchers in Lancaster, Oslo and Bergen. The LOB corpus (British English) consists of 1 million words of written language, (500 texts of 2,000 words each) sampled in the same 15 categories as the Brown Corpus. For a long time, the Brown and LOB corpora were the only easily available computer readable corpora. Much research within the field of corpus linguistics has therefore been based on these corpora.

2.2.2.1.3 The COBUILD

In 1980, the compilers of the Collins COBUILD English Language Dictionary started to collect a corpus of texts on computer for dictionary making and language study. They had daily access to a corpus of approximately 20 million words. New texts were added to the corpus, and in 1991 it was launched as the Bank of English (BoE). More and more data have been added to the BOE, and the latest release (1996) contained some 320 million words.

2.2.2.2 Specialized corpus

A specialized corpus is a collection of texts of a particular type, such as newspaper editorials, geography textbooks, academic articles in a particular subject, lectures, a matter in environmental leaflets, and so on, it is used to investigate a particular type of language. Researchers collect their own specialized corpora to reflect the kind of language they want to investigate (Hunston, 2002). (See section 2.6 previous researches on corpus-based specialized texts)

In this study, the corpus of environmental science research articles is the specialized corpus because it is relevant to one particular interest or discipline, i.e. environmental science research articles collected from scientific journals.

2.3 Vocabulary Levels

Vocabulary is a set of lexical items (words) in English (Christie, 1999). According to Nation (2001), there are three main levels of vocabulary: General, Academic and Technical vocabulary.

2.3.1 The General Service List (GSL)

In 1953 Michael West (West, 1953) published his well-known General Service List of English words. This was a list of the 2000 most useful word families of English. The GSL is based on a 5 million word written corpus, excluding months, days of the week and numbers. Each word in the list is accompanied by its inflected forms together with a list of common derivatives and compounds with the frequency and percentage of each major meaning of each word indicated. An updated version of the GSL was published by Bauman and Culligan in 1995. The list contains 2,284 words and presents in frequency order based on the Brown Corpus. Although the list has been criticized for many reasons, research into academic texts by Coxhead 2000 has shown that the GSL covers almost 80% of the academic texts she studies. It would seem essential for any students to know these word families.

2.3.2 The Academic Word List (AWL)

L2 learners are faced with learning various kinds of vocabulary, e.g., high-frequency words, low-frequency words, and technical words. High-frequency words are defined as words which appear in all types of texts and entail 80% of a text (Nation, 2001). A few examples of high-frequency words are *clock, days, message, decision,* and *have*. On the other hand, low-frequency words consist of *"a very large group of words that occur very infrequently and cover only a small portion of any text"* (Nation, 2001).

Coxhead (2000) studied over 3.5 million words of academic text from 28 subject-areas and identified another 570 word families that were commonly used in

academic texts from all subjects. The Academic Word List (AWL) by Coxhead was developed from a corpus of written academic texts by examining the range, frequency and uniformity of occurrence of words outside the first 2,000 words of English (West, 1953). This corpus contains four disciplines (arts, commerce, law and science) and each discipline is made up of seven subject areas as shown in Table 2.1 below:

Table 2.1 Subject Areas in the Academic Corpus

Arts	Commerce	Law	Science
Education	Accounting	Constitutional Law	Biology
History	Economics	Criminal Law	Chemistry
Linguistics	Finance	Family Law and Medico-Legal	Computer Science
Philosophy	Industrial Relations	International Law	Geography
Politics	Management	Pure Commercial Law	Geology
Psychology	Marketing	Quasi-Commercial Law	Mathematics
Sociology	Public Policy	Rights and Remedies	Physics

(Nation, 2001)

The AWL contains 570 words which have both high frequency and high coverage in academic texts, irrespective of subject area and discipline and accounts for approximately 10% of the total words (tokens) in the corpus described above. The words in AWL are ones which university students of English must be thoroughly familiar with for both reading and writing academic prose. It contains 570 words which have both high frequency and high coverage in academic texts, irrespective of subject area and discipline. It would also necessary for any English for Academic Purposes students to know these words.

Therefore, the General Service List plus the Academic Word List cover nearly 90% of the academic texts. English for Specific Purposes students would also need to know the specific word related to their subjects-around 5% of the words in an academic text and some of the less frequent words used in English about 5% (Nation, 2001).

2.3.3 Subject Specific Vocabulary

Adapt from the two types of words students need to know, i.e. general words and the academic words, they also need to know the specific words for subject of learning. The subject specific words make up about 5% of the words of most academic texts. These words are very important to know for learners in subject classes. They are used by specialists and are not generally known by non-specialists. In applied linguistics, ESP linguists also focus on the specialist vocabulary found in specific texts because one of the distinguishing features of ESP is the high concentration of terms.

Comparing the coverage of the AWL and the combined coverage of the AWL and the GSL with previous studies, it is possible to observe differences that highlight the specificity of the AgroCorpus. The coverage of the AWL in corpus, 9.06%, was lower than that observed by Coxhead (2000) and Hyland and Tse (2007) in their multidisciplinary corpus (Table 2.2)

Table 2.2 Comparison of AWL and GSL coverage in the AgroCorpus and in other Corpora

Corpus	AgroCorpus Martí nez et.al (2009)	Multidisciplinary by Hyland and Tse's (2007)	Sciences by Hyland and Tse's (2007)	Multidisciplinary Coxhead's corpus (2000)
GSL (%)	67.53	74	69	76.1
AWL (%)	9.06	10.6	9.3	10
GSL + AWL (%)	76.59	84.7	78.3	86.1

(Martinez et.al, 2009)

This variation of coverage lends support to Hyland and Tse's argument that highly specific corpora may be served differently by the AWL (Martinez et.al, 2009).

Applied linguists such as Trimble and Trimble (1978), Dudley-Evans and St John (1998) classify vocabularies into three categories: 'subject specific vocabulary', 'non subject-specific specialized vocabulary', and 'general vocabulary'. The first group or subject specific vocabulary used in one domain. They are monospermous with

restricted, protected, and standardized meaning because one-to-one correspondence reduces ambiguity and improves communication such as pharmacology, pediatric, and so on (Pearson, 1998). The second group or non-subject-specific specialized vocabulary that has been identified is called 'semi-technical'. It is comprises of words which occur in a number of scientific or technical areas such as, absolute, accuracy, factor and etc. The third group is 'general vocabulary'.

In conclusion, the vocabularies in this study were categorized into three groups 1) general vocabulary, 2) academic vocabulary, and 3) technical vocabulary. The classification of the general vocabulary is by using the General Service List (Bauman and Culligan 1995), and academic vocabulary using the Academic word List (Coxhead 2000).

2.4 Word Classes

Biber et al. (1999) categorize word classes into three classes according to their main functions and their grammatical behavior, i.e. lexical words, function words and inserts.

2.4.1 Content words

The lexical words are the main carries of meaning in the text. There are four main classes of lexical words: nouns, verbs, adjectives, and adverbs.

2.4.1.1 Nouns

Noun typically refers to people, animals, places, things, or abstractions which can occur as the subject or object of a verb or object (complement) of a preposition. Nouns can be modified by an adjective and can be used with determiners e.g. acid, dose.

2.4.1.2 Verbs

Verbs can have one of two major roles in verb phrases: main verb or auxiliary verb. Main verbs, such as the verb went in the following example, can stand alone as the entire verb phrase:

I went into the empty house.

In contrast, auxiliary verbs, such as the verbs can and are in the following example, occur together with some main verb (in this case cited):

Instances can be cited where this appears not to be the case.

There are three major classes of verbs: Lexical verbs (also called full verbs e.g. run, cat), primary verbs (be, have, and do) and modal verbs (e.g. can, will, might). These classes are distinguished by their roles as main verbs and auxiliary verbs.

2.4.1.3 Adjectives

Adjective is a word describing the thing, quality, state, or action which a noun refers to. For example, side in the side effects is an adjective. In English, adjectives usually have the following properties:

1) They can be used before a noun, e.g. a heavy bag

2) They can be used after be, become, seem, etc. as the bag is heavy.

3) They can be used after a noun as a complement, e.g. these books make the bag heavy.

4) They can be modified by an adverb, e.g. a very heavy bag.

5) They can be used in a comparative of superlative form, e.g. the bag seems heavier now.

2.4.1.4 Adverbs

Adverb is a word describing or adding to the meaning of a verb, an adjective, another adverb, or a sentence which answers such questions as *how?* , *where?* or *when?* In English many adverbs have *an – ly* ending. For example, adverts of manner e.g. carefully, slowly, adverbs of place e.g. here, there, locally, and adverbs of time e.g. now, hourly, yesterday

2.4.2 Function words

While lexical words are the main building blocks of texts. Function words provide the mortar which binds the texts together. Conjunctions and prepositions are focused in this study:

2.4.2.1 Conjunctions

A conjunction is a word that connects individual words or groups of words. The word conjunction literally means "*the act of joining*" or "*combination.*" There are three kinds of conjunctions: coordinating, correlative, and subordinating conjunctions.

1. Coordinating conjunctions connect words or groups of words that perform the same function in a sentence. The coordinating conjunctions are in the following list:

And but for nor or yet

2. Correlative conjunctions consist of two or more words that work together as a set. Correlative conjunctions function like coordinating conjunctions because they connect words that perform equal functions in a sentence. The correlative conjunctions are in the following list:

Either...or whether.....or neither....nor

Not only.....but (also) both.....and

3. Subordinating conjunctions connect subordinate clauses to independent clauses, which can stand by themselves as complete sentences. Subordinating conjunctions usually express relationships of time, cause, comparison, or purpose.

Time	*after, as, as long as, as soon as, before, since, until, when, Whenever, while*
Manner	*as, as if, as though*
Cause	*because*
Condition	as long as, even if, if, provided that, unless

2.4.2.2 Prepositions

Preposition is a word used with nouns, pronouns and gerunds to link them grammatically to other words. Most common prepositions are short, forms: as, at, by, down for, from, in, into, on.

2.4.3 Inserts

Inserts are a relatively newly recognized category of word. They do not form an integral part of a syntactic structure, but they are inserted rather freely in the text. They are often marked off by intonation, pauses, or by punctuation marks in writing. The characteristic of the inserts are carried emotional and interactional meanings and are especially frequent in spoken texts such as Ugh, yeah.

In this thesis, the inserts are not studied because the inserts do not occur in the environmental science.

2.5 Collocations

Diana (2002) defines the term 'collocation' as *"the way words combine in a language to produce natural-sounding speech and writing"*. Nation (2001) refers to collocation as a term *"used to refer to a group of words that belong together, either because they commonly occur together like take a chance, or because the meaning of the group is not obvious from the parts... by the way or take someone in"*.

2.5.1 Type of Collocations

Lewis (2001) points out that some writers refer to two types of collocations: grammatical and lexical collocations. Grammatical or syntactic collocations relate to combining a main word with a grammatical word, such as an adjective + a preposition (happy about, suspicious of, absent from), a verb + a preposition (*talk about, participate in, know of or about*), or a noun + a preposition (*research on, approach to*). Lexical or semantic collocations are combinations in which two (or more) words add to each other's meaning.

Richards (1976) provides an example of adjective + noun combinations. When referring to *fruits*, we use adjectives such as *ripe, green, sweet,* or *bitter*, while when talking about *meat*, we say *tender* and *tough*. A few other examples using academic vocabulary are a *specific source, identified variables*, and an *established business*. There are also verb + noun combinations such as *obtain benefits, analyze data, establish a policy,* and *conduct research*, for instance. Examples of noun + verb combinations include *data indicate, research shows*, and *the study demonstrates*. The examples above underline the importance of collocations.

Hill (in Lewis, 2001) provides one of the reasons for focusing on collocation. He says that *"two, three, four, five word collocations make up a huge percentage of all naturally occurring text, spoken and written"*.

Lewis (2002) adds that although *"collocation is not determined by logic or frequency, but is arbitrary, decided only by linguistic convention"*, collocations are predictable. In addition, Nation (2001) points out that *"most of the language we use consists of familiar combinations"*. Nation also comments that collocational knowledge of a word constitutes *"one important aspect of vocabulary knowledge"* and teaching collocation is valuable to L2 learners.

In other words, it is important to direct students to examples of collocations in *'real'* texts because it illustrates to students that collocations are truly part of the language, and that by making use of such combinations the students will add fluidity and a native-like trait to their written work. Collocational knowledge of academic vocabulary would be essential for ESL learners who intended to pursue a degree in an English-speaking university.

2.6 Previous Research on Corpus-based Specialized Texts

There have been several studies in specialized texts. In the project of Sutarsyah et al., (1994), a general academic corpus and economic text corpus were used in order to specify and compare the vocabulary in the general academic corpus and the economic text corpus. The finding revealed that technical vocabulary is more frequent in economic text than in the general academic corpus and words that occur frequently in the economic text may not arise in the general academic corpus. Additionally, it is observed that the frequency of technical vocabulary is low in the general corpus due to the fact that the corpus itself covers a variety of disciplines.

In 1993, Flowerdew conducted a Biology corpus to compare the vocabulary in the biology text corpus and the COBUILD general corpus. The results demonstrated that both mainly contain function words. Both corpora showed that the 10 most frequent words are all function words, as displayed in Table 2.3 below:

Table 2.3 List of 10 Most Frequent words

Biology Corpus		COBUILD General Corpus	
1. the	6. in	1. the	6. in
2. and	7. are	2. of	7. that
3. of	8. to	3. and	8. I
4. is	9. it	4. to	9. it
5. a	10. this	5. a	10. was

(Flowerdew, 1993)

Elliott (2009) studied "The Ethical Significance of Language in the Environmental Sciences: Case Studies from Pollution Research". He argued, using three case studies from contemporary pollution research, that the language of the environmental sciences (both the categorization of phenomena and the terms employed by researchers) merits ethical scrutiny. Scientific language can influence the future course of scientific research, alter public awareness or attention to scientific phenomena, affect the attitudes or behavior of decision makers, and alter the burden of proof required for taking action in response to environmental concerns.

Chen and Ge (2007) studied: *A corpus-based lexical study on frequency and distribution of Coxhead's AWL word families in medical research articles (RAs).* The finding were (a) academic vocabulary, with a high text coverage and dispersion throughout a medical RA, is an important set of word items in medical RAs; (b) the AWL, a list of academic vocabulary representing academic word families across a wide range of subject disciplines, is far from complete in representing the academic words frequently used in medical RAs; and (c) the different coverage of academic words in the different sections in a medical RA, together with the role each section is supposed to play in a medical RA, indicates that academic words to a great extent serve some rhetorical functions in academic texts.

Hyland (2008b) in "Academic clusters: Text patterning in published and postgraduate writing" that analyses of the corpora of published and student texts show considerable variation in the use of 4-word clusters. The research articles contained 71 different clusters of 20 per million words or more in over 10% of texts, while the PhD theses contained 95 different clusters and the master's texts 149. Many clusters used by master's and doctoral students, therefore, are not found in the professional academic papers, or appear far less frequently.

Table 2.4 The 10 most frequent 4-word clusters by levels

Research articles	No.	PhD theses	No.	Master's dissertations	No.
on the other hand	100	on the other hand	445	on the other hand	181
in the case of	94	at the same time	201	as well as the	83
on the basis of	75	in the present study	181	at the same time	80
in the presence of	60	the end of the	181	is one of the	72
at the same time	56	in the case of	177	the nature of the	68

Table 2.4 (Continued)

Research articles	No.	PhD theses	No.	Master's dissertations	No.
the results of the	55	at the end of	168	in the case of	63
the extent to which	53	in terms of the	168	the results of the	62
in the context of	47	on the basis of	142	of the Hong Kong	58
as a result of	46	as well as the	133	the role of the	55
in terms of the	46	in relation to the	122	it can be seen	50

Hyland (2008b)

Table 2.4 shows the most commonly used clusters in the three corpora in frequency order. As can be seen, only about half of the items in the PhD and master's lists occurred in the research articles, sharing only 6 of the top 15 in the PhD texts and only 5 of the master's lists. The frequencies per million words were also often far higher in the student texts. The most used cluster, "*on the other hand*" for instance, was twice as frequent in the master's theses as the articles and three times more common in the doctoral texts, with "*at the same time*" and "*is one of the*" also significantly more frequent in student texts.

The clusters in this corpus can be classified into the three categories of research, text and participants (Hyland, 2008b):

(1) **Research-oriented** - help writers to structure their activities and experiences of the real world.

- **Location** - indicating time/place (*at the start of, at the same time, in the present study)*
- **Procedure** (*the use of the, the role of the, the purpose of the, the operation of the)*
- **Quantification** (*the magnitude of the, a wide range of, one of the most)*
- **Description** (*the structure of the, the size of the, the surface of the)*
- **Topic** - related to the field of research (*in the Hong Kong, the currency board system).*

(2) Text-oriented – concerned with the organization of the text and its meaning as a message or argument.

- **transition signals** – establishing additive or contrastive links between elements (*on the other hand, in addition to the, in contrast to the)*
- **resultative signals** – mark inferential or causative relations between elements (*as a result of, it was found that, these results suggest that)*
- **structuring signals** – text-reflexive markers which organize stretches of discourse or direct reader elsewhere in text (*in the present study, in the next section, as shown in fig.*)
- **framing signals** - situate arguments by specifying limiting conditions (*in the case of, with respect to the, on the basis of, in the presence of, with the exception of)*

(2) **Participant-oriented** – these are focused on the writer or reader of the text (Hyland, 2008b).

- **stance features** – convey the writer's attitudes and evaluations (*are likely to be, may be due to, it is possible that)*
- **engagement features** - address readers directly (*it should be noted, as can be seen*)

In sum, this chapter's review of the concepts of characteristics of research articles, background of linguistic corpora, vocabulary levels, word classes, collocations and previous research on corpus-based specialized texts.

The compilation of the Environmental Science Research Article (ESRAs) Corpus thus becomes central to this research. The next chapter will present the framework and research methodology for the analysis.

CHAPTER 3

RESEARCH METHODOLOGY

Research methodology in this chapter is divided into four sections. The first section includes the framework for the analysis. In the second section, data collection is presented. Corpus design is described in the third section. The fourth section explains how to analyze the data.

3.1 Research Framework for the Analysis

In order to reach the goals and objectives of the study, the following stages were carried out.

3.1.1 Preparing language inputs for the corpus, the environmental texts from journals published during 2007-2012 were selected. (see Appendix D)

3.1.2 Data were downloaded from SciDirect database. Then the data were saved and grouped into Environmental by using the I-M-R-D model to create word lists of Environmental by using Wordsmith Tools Version 6.0 (Scott, 2012).

3.1.3 Classifying General Service List (GSL), Academic Word List (AWL), the others, merging all data in Section 2 and grouping them into sub-corpora and creating lists of GSL, AWL and words outside the two lists (technical and others), using "Frequency Level Checker" online tool (Maeda, 2000).

3.1.4 The word frequency lists were divided into three groups, namely general vocabulary, academic vocabulary, and technical vocabulary.

3.1.5 The three groups of vocabulary were classified into nouns, verbs adjectives and adverbs.

3.1.6 Investigating collocations in Environmental Science Research Articles for multiword clusters using concordance data (Biber et al., 1999).

3.2 Data Collection

3.2.1 The relevant material and data in this study was mainly obtained from ScienceDirect Online (http://www.sciencedirect.com). Using the downloaded research articles published during the year 2007-2012 (SciDirect, 2012: online). The journals in the ESRas have a high impact factor (Thomson Reuters 2012: online).

Table 3.1 Number of Environmental Research Articles (2007-2012)

Year / Categories	2007	2008	2009	2010	2011	2012	Total
1. environmental contamination and toxicology	10	10	10	10	8	12	60
2. environmental geology	10	10	10	10	9	10	59
3. environmental health	10	8	10	8	12	9	57
4. environmental management	10	11	10	12	10	10	63
5. environmental monitoring	10	10	10	4	3	10	46
Total	50	49	50	44	42	52	285

The five categories, namely (1) environmental contamination and toxicology, (2) environmental geology, (3) environmental health, (4) environmental management, (5) environmental monitoring (Reuters, 2012: online retrieved on June 1st -August 10th 2012). The total numbers of 285 research articles were retrieved.

3.2.2 Corpus Compilation: After environmental science research articles were downloaded from the online journal via website Scidirect, all of them were stored as text files (*.txt).

3.2.3 Each research articles were divided into 4 separated moves: Introductions, Methods, Results, and Discussions based on Swales' move theory (Swales, 1990).

3.2.4 Compilation of the Corpus

3.2.4.1 A corpus of Environmental Science Research Articles (ESRAs) were selected and compiled in electronic version.

3.2.4.2 All articles included in the ESRAs have four parts: introduction, method, results and discussion sections. The articles were collected in their electronic version with their reference lists, appendices, footnotes and acknowledgements removed.

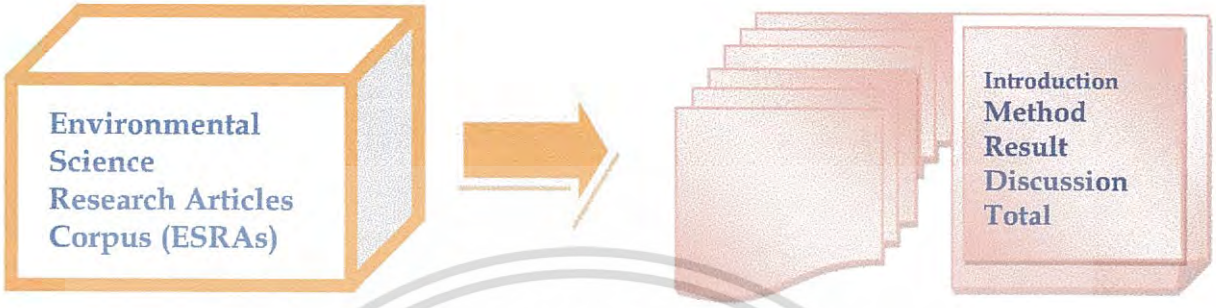

Figure 3.1 Process of research articles divided

3.2.4.3 These parts of the articles were then grouped in to five sub-categories of Environmental Science, i.e. environmental contamination and toxicology, environmental health, environmental monitoring, environmental geology and environmental management as shown in Figure 3.2 below.

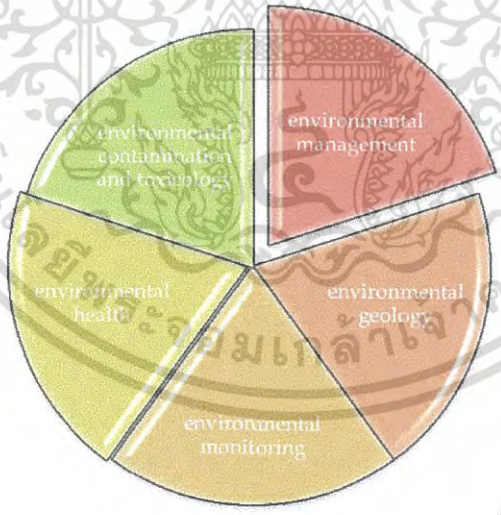

Figure 3.2 Environmental Science Corpus Compilations

3.3 Corpus Tools

The computer software program, Wordsmith Tools Version 6.0 were used to examine tokens and word types and calculate type/token ratio and word frequency of the whole corpus. Then words were categorized into the levels of vocabulary, namely general, academic, and technical vocabulary. They were presented in terms of percentage of word occurrence.

3.4 Data Analysis

3.4.1 Analysis of vocabulary

The Wordsmith Tools Version 6.0 were used to generate the word frequency lists of each text files and calculate the frequency of occurrence of the tokens (running words), word types, and type/token ratio of whole corpus. The program consists of three main tools: Wordlist; Concord; and Keyword. The Wordlist was used for making indexes and word lists and word frequencies. The Concord can make for searching the specialized vocabulary in ESRAs corpus as shown in Figure 3.1, 3.2 and 3.3 below.

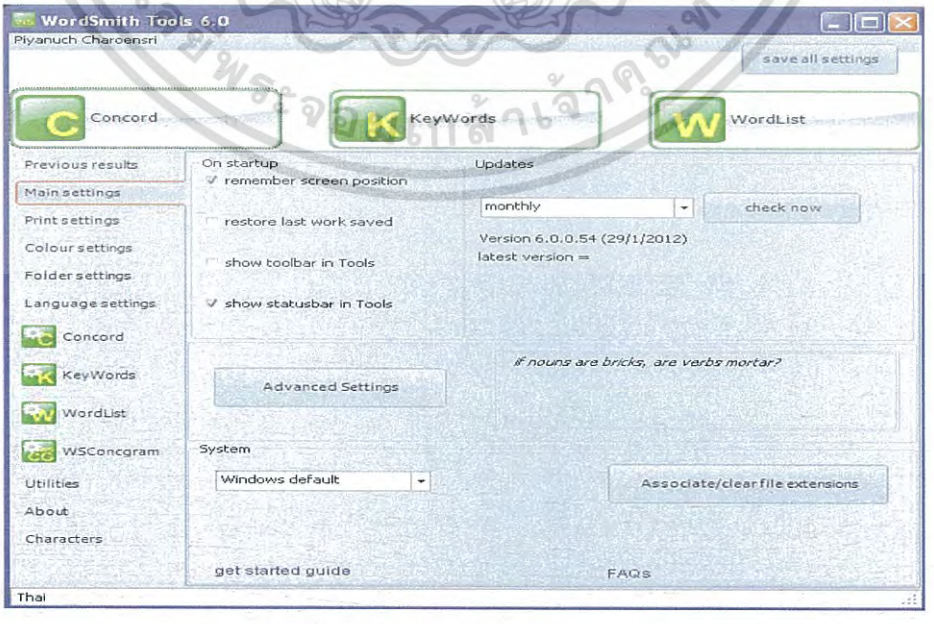

Figure 3.3 WordSmith Tools 6.0

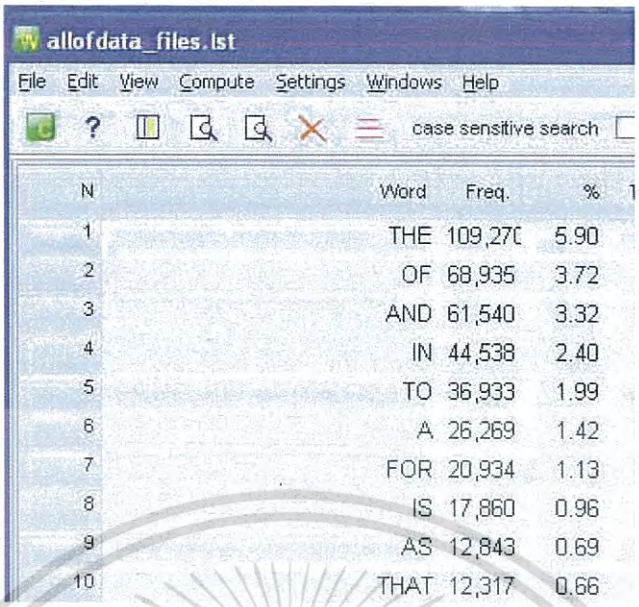

Figure 3.4 Frequency Lists of ESRAs corpus

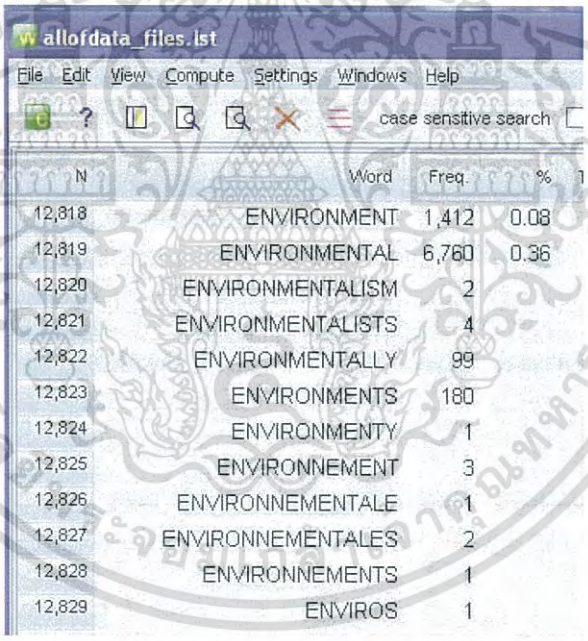

Figure 3.5 Alphabetical Lists of ESRAs corpus

This Word Smith 6.0 tool shows search results in a 'KWIC' (Keyword in Context) format this allows that to see how words and phrases are commonly used in ESRAs corpus. This Clusters Tool shows clusters based on the search condition. In effect it summarizes the results generated in the Concordance Tool or Concordance Plot Tool. The N-Grams Tool, on the other hand, scans the entire corpus

for 'N' (e.g. 1 word, 2 words, ...) length clusters. This tool can find common expressions in a corpus and shows the collocations of a search term as shown in Figure 3.6 below.

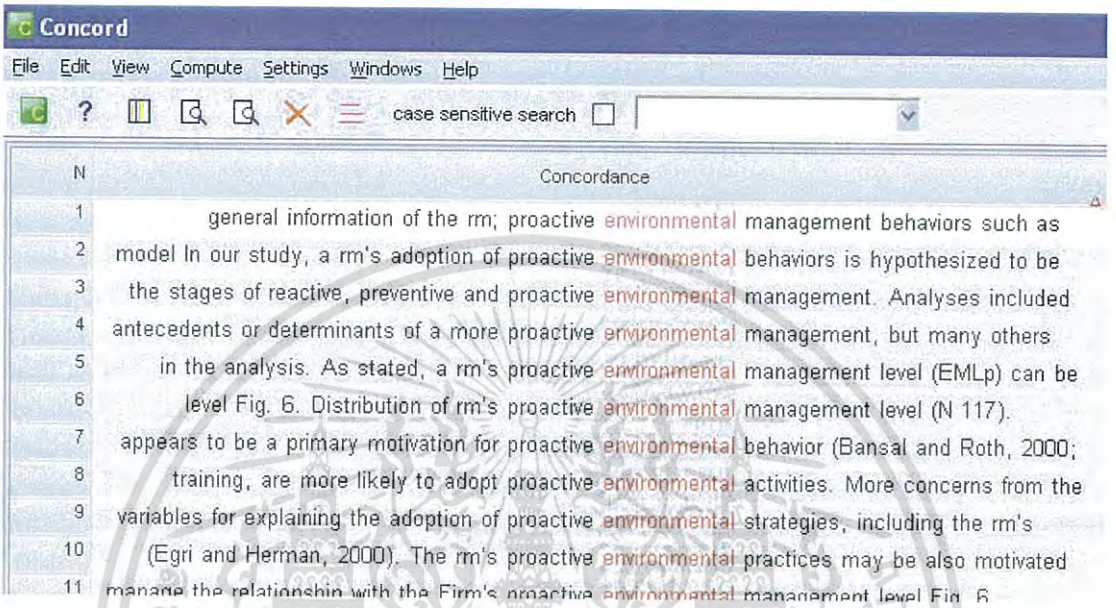

Figure 3.6 Concordance Lines of "Environmental"

3.4.2 Analysis of general, academic and technical vocabulary

The general, academic, and technical vocabulary in the corpus of environmental science research articles were analyzed by using the online tool "*RANGE and FREQUENCY Programs for Windows based PCs*" (Nation, 2005). They were designed by Paul Nation and Averil Coxhead of the School of Linguistics and Applied Language Studies, Victoria University, New Zealand. The program is written in Delphi 5.

The word lists for RANGE in three readymade base lists are available. The first (BASEWRD1.txt) includes the most frequent 1000 words of English. The second (BASEWRD2.txt) includes the 2nd 1000 most frequent words, and the third (BASEWRD3.txt) includes words not in the first 2000 words of English but which are frequent in upper secondary school and university texts from a wide range of subjects. All of these base lists include the base forms of words and derived forms. The first 1000 words thus consist of around 4000 forms or types. The sources of

these lists are A General Service List of English Words by Michael West (Longman, London 1953) for the first 2000 words, and The Academic Word List by Coxhead (1998, 2000) containing 570 word families. The first thousand words of A General Service List of English Words are usually those in the list with a frequency higher than 332 occurrences per 5 million words, plus months, days of the week, numbers, titles (Mr, Mrs, Miss, Ms, Mister), and frequent greetings (Nation, 2005).

CHAPTER 4

RESULTS

This chapter focuses on the results and discussions of vocabulary in environmental science research articles. The first part displays corpus findings which report on the statistical analysis of the overall corpus, and word frequency statistics. The second part focuses on nouns, verbs, adjectives and adverbs in each move of research articles. The third part shows the frequency of occurrence of general, academic, and technical vocabulary found in the corpus. The last part presents academic collocation in the corpus of environmental science research articles.

Based on the proposed methodology in the previous chapters, three research questions were considered:

(1) What are the important vocabulary used in environmental science research articles in terms of nouns, verbs, adjectives and adverbs?

(2) What are the overall general, academic and technical vocabularies in environmental research articles?

(3) What are the most frequent relevant academic collocations in environmental science research articles?

4.1 Corpus Findings

This section is divided into two parts 1) Statistical Analysis of the Overall Corpus and 2) Word Frequency Statistics.

4.1.1 Statistical Analysis of the Corpus

The contents of ESRAs corpus were designed to reflect the range of subjects in the environmental science category. The subcategories in ESRAs corpus were assigned according to the index of subjects in SciDirect database published in 2007 to

2012. Figure 4.1 shows the five subcategories of environmental science with their percentages in the corpus, i.e.

1. environmental contamination and toxicology 20.83%,
2. environmental health 18.97%,
3. environmental monitoring 15.76%,
4. environmental geology 20.53%
5. environmental management 23.39%

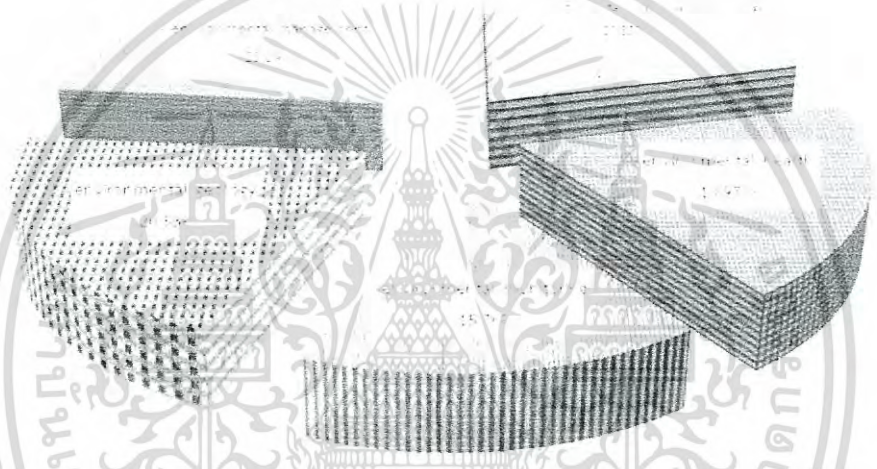

Figure 4.1 Details of five categories in ESRAs corpus

Table 4.1 below summarized the statistical details or a summary of the contents of the ESRAs corpus in terms of the number of tokens (running words), word types, and type/token ratio. The type/token ratio was computed to show how many times each word type occurs in the corpus.

Table 4.1 Statistical Analysis of ESRAs corpus

Details	Overall
Tokens	1,883,197
Word Types	43,340
Type/Token Ratio	1:43.45

From Table 4.1, the overall corpus selected from 285 environmental science research articles consisted of 1,883,197 tokens or running words. There were 43,340 word types or different words in this corpus since a recurrent word is count only once. For the overall corpus, the ratio of a word type to tokens is 1:43.45.

Table 4.2 Statistical Analysis the Parts of Research Articles in the Corpus of ESRAs

Details	Part of Research Articles				
	Introduction	Methods	Results	Conclusion	Discussion
Tokens	101,941	477,256	612,432	112,108	276,443
Word Types	11,021	22,768	23,805	10,093	16,604
Type/Token Ratio	1:9.25	1:20.96	1:25.73	1:11.11	1:16.65

Table 4.2 shows the type to tokens ratio of the main parts of research article in the articles in the ESRAs Corpus. The ratio of word type to tokens is 1:25.73 in results, 1:20.96 in methods, 1:16.65 in discussion, 1:11.11 in conclusion and 1:9.25 in introduction. When we compare the type/token ratio of each part in research articles, it is clear that the "results" part is composed of relatively few word forms. Any given word from in the corpus will be repeated nearly 26 times through out the corpus. In the "Introduction" part, with a ratio of 1:9:25, each word is repeated around 10 times. It represents a much wider words than other parts.

4.1.2 Word Frequency Statistical Analysis

This section presents two main word frequency findings. First, it reveals the top ten words of the overall corpus. Second, it shows the top ten content words, i.e. noun, verbs, adjective, and adverb.

Table 4.3 Top 10 Words in the Corpus of Environmental Science Research Articles

Rank	Word	Frequency	% of occurrence
1	the	109,270.00	5.84
2	of	69,159.00	3.70

Table 4.3 (Continued)

Rank	Word	Frequency	% of occurrence
3	and	61,540.00	3.29
4	in	45,461.00	2.43
5	to	36,933.00	1.97
6	a	26,669.00	1.43
7	for	20,935.00	1.12
8	is	17,860.00	0.95
9	as	12,846.00	0.69
10	that	12,317.00	0.66
	Total		22.08%

Table 4.3 shows the top ten words in the corpus of environmental science research articles. The function words occur in the top ten ranks. Those words are "*the, of, and, in, to, a, for, is, as, that*". They are accounted for 22.08% of the total list.

4.1.3 Content Words

Content words are classes of the language including: noun, verb, adjective, and adverb. Next, the top ten content words in the corpus of environmental science research articles are shown in Table 4.4 below.

Tables 4.4 Top Ten content words in the Corpus of ESRAs

No.	Noun	Freq.	Verb	Freq.	Adjective	Freq.	Adverb	Freq.
1	water	5412	based	2394	environmental	6760	also	3492
2	metal(s)	5329	found	1382	used*	3499	between	3358
3	concentration(s)	5207	approach*	1175	all	3391	more	3197
4	data	4170	observed	1072	other	3067	each	2209
5	risk	4090	shown	993	different	2648	however	2044
6	soil(s)	5344	see	981	high	2371	within	1445

Tables 4.4 (Continued)

No.	Noun	Freq.	Verb	Freq.	Adjective	Freq.	Adverb	Freq.
9	management	3133	increased	850	heavy	1703	thus	985
10	effect(s)	3332	compared	832	low	1694	therefore	977

* The words can also be used as other parts of speech, but less frequently, e.g. 'approach' is identified as a verb (1,175 times), 'used' is identified as an adjective (3,499 times)in the ESRAs corpus.

Table 4.4 shows the top ten content words: noun, verb, adjective and adverb.

1. Noun

The noun '*water*' was found the most with 5,412 items followed by '*metal(s)*', '*concentration(s)*', '*data*' and '*risk*'. The concordance data from ESRAs corpus shows up the specific within the language of environmental science and the words "*water*" and "*data*" shows some of their roles in Figures 4.2 and 4.3 below:

(ABB Aquaprobe V2). The WQ sites included a multi- parameter in-pipe water quality probe and an InfraSenseLP Fig. 3 e Dynamic response of
nologies. The use of reagent-free electrochemical sensors for in-pipe water quality monitoring is one of these develop- ments. A detailed
development and use of reagent-free electro- chemical sensors for in-pipe water quality monitoring. Unfortunately, no data are available to
The agricultural soil in this region was repeatedly irrigated with polluted water from the Hengshi River. 2.2. Sampling and pre-treatment Soils and
etal., 2010), indicating basal levels of DNA damage. Mildly polluted water in Krapje produced a non significant in- crease in% tDNA in
should become responsible water users, who don't waste or pollute water and take action to solve any water problems. Waste: The school
and E3 in water. Due to the weak acidity of the four chemical pollutants, water samples need to be acidified for better retention of the analytes for

Figure 4.2 Concordance data on the word "*water*"

temporal scales for this type of application, to identify relevant data sets at those scales, and to address inter-linkages between
focuses on the The program is designed to generate all relevant data and knowl- edge that may be used for analysis of both
that the open Scientific literature as a rule is searched for relevant data and, when available these data should be taken into
between wet and dry depo- sition was removed by lack of relevant data, and replaced by an over- all contaminant particle deposition
and water quality characteristics. The acquisition of reliable data with regards to sudden changes, daily fluctuations and

Figure 4.3 Concordance data on the word "*data*"

The concordance data highlight the words "*water* and "*data*" that they are not used as a single word but in the form of compounds, e.g. *pollute water*, *water samples*, and *reliable water*.

2. Verbs

For verb "*based*" was found the most in the corpus (Freq. 2394). The example is shown in concordance below. Figure 4.4 highlights the fact that they consists of two-part compounds such as *based on* as shown below.

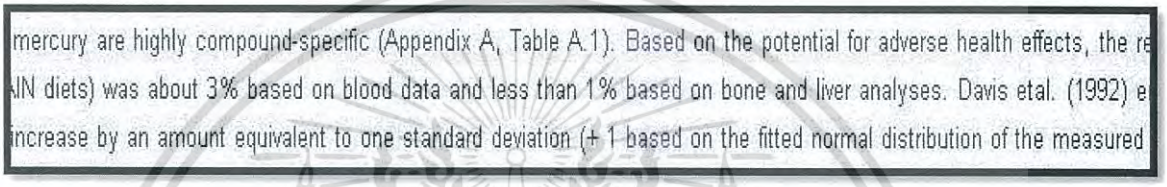
mercury are highly compound-specific (Appendix A, Table A.1). Based on the potential for adverse health effects, the re
AIN diets) was about 3% based on blood data and less than 1% based on bone and liver analyses. Davis etal. (1992) e
increase by an amount equivalent to one standard deviation (+ 1 based on the fitted normal distribution of the measured

Figure 4.4 Concordance data on the word "*based*"

Form Figure 4.4 above, concordances highlight the fact that the verb "*based*" co-occurs with proposition "*on*".

3. Adjective

The word '*environmental*' occurred most in the corpus. The example of adjective '*environmental*' in the corpus of environmental science research articles is shown in figure 4.5 below.

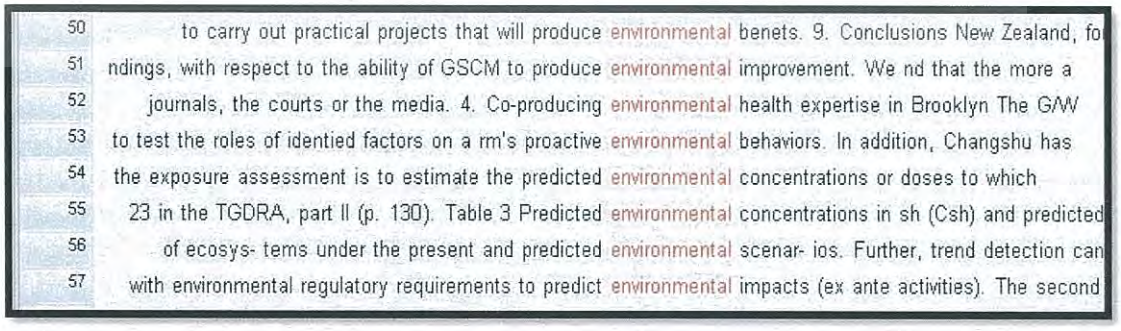
50	to carry out practical projects that will produce environmental benets. 9. Conclusions New Zealand, fo
51	ndings, with respect to the ability of GSCM to produce environmental improvement. We nd that the more a
52	journals, the courts or the media. 4. Co-producing environmental health expertise in Brooklyn The G/W
53	to test the roles of identied factors on a rm's proactive environmental behaviors. In addition, Changshu has
54	the exposure assessment is to estimate the predicted environmental concentrations or doses to which
55	23 in the TGDRA, part II (p. 130). Table 3 Predicted environmental concentrations in sh (Csh) and predicted
56	of ecosys- tems under the present and predicted environmental scenar- ios. Further, trend detection can
57	with environmental regulatory requirements to predict environmental impacts (ex ante activities). The second

Figure 4.5 Concordance data on the word "*environmental*"

In figure 4.5, concordance shows up clearly that "*environmental*" always followed by nouns such as "*environmental improvement*", "*environmental behaviors*", etc.

4. Adverb

Next, '*also*' occurs most in the corpus with the frequency of 3,492. The example of its use in the corpus of environmental science research articles is shown in figure 4.6 below.

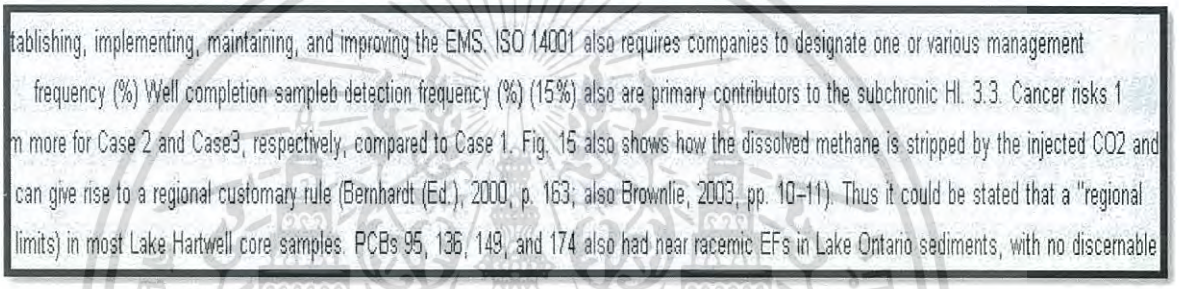
tablishing, implementing, maintaining, and improving the EMS. ISO 14001 also requires companies to designate one or various management
frequency (%) Well completion sampleb detection frequency (%) (15%) also are primary contributors to the subchronic HI. 3.3. Cancer risks 1
m more for Case 2 and Case3, respectively, compared to Case 1. Fig. 15 also shows how the dissolved methane is stripped by the injected CO2 and
can give rise to a regional customary rule (Bernhardt (Ed.), 2000, p. 163; also Brownlie, 2003, pp. 10–11). Thus it could be stated that a "regional
limits) in most Lake Hartwell core samples. PCBs 95, 136, 149, and 174 also had near racemic EFs in Lake Ontario sediments, with no discernable

Figure 4.6 Concordance data on the word "*also*"

In Figure 4.6, adverb "*also*" modify verbs such as "*requires*", "*are*", "*shows*". The concordance shows how "*also*" is used in the sentences.

4.2 Vocabulary Levels in Environmental Science Research Articles Corpus

The second purpose of the study is to analyze the vocabulary in environmental science corpus by categorizing them into three main groups namely, general, academic, and technical vocabulary. The word frequency list consists of 51,237 lemmas. This number is processing by Range and Frequency Programme by Nation (2005). (See Appendix B) The 51,237 lemmas were categorized into 3 main groups, i.e. general, technical, academic and other kinds of words. The results were shown in Table 4.5 and Figure 4.7 below:

Table 4.5 Vocabulary Levels in the Corpus of ESRAs

Vocabulary levels	Lemmas	%
General	43,682	65.98
Academic	3,184	11.90
Technical and others	4,371	22.12
Total	**51,237**	**100.00**

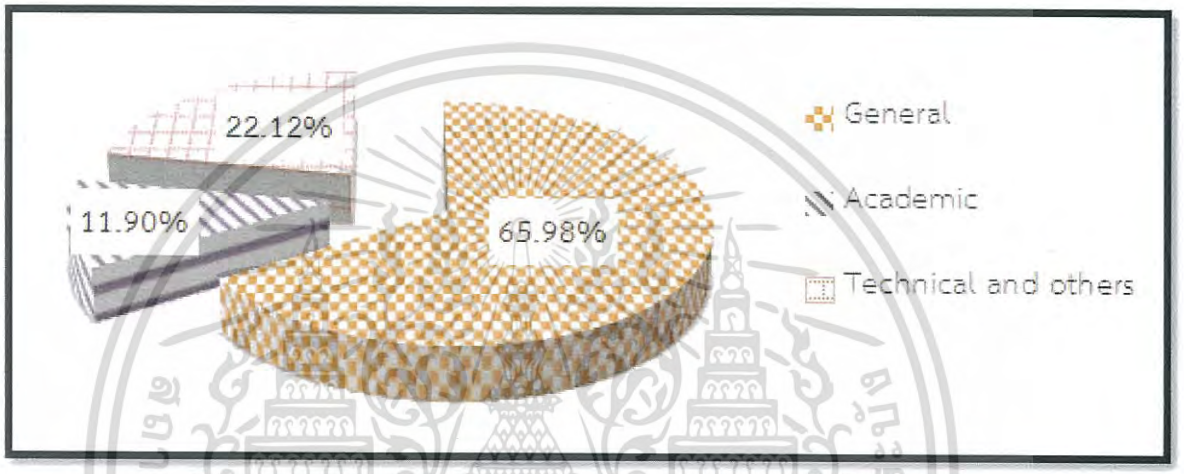

Figure 4.7 Vocabulary levels in the Corpus of ESRAs

The overall distribution of lemmas in the ESRAs Corpus was shown in Table 4.5 and Figure 4.7. The results showed that the ESRAs corpus consisted of 65.98% general vocabulary, 11.90% academic vocabulary and 22.12% technical and others.

4.2.1 The Most Frequent Academic Words in the ESRAs Corpus

The most frequent academic words in ESRAs corpus were "environmental" (Freq. 6,706), "data" (Freq. 4,100), "site(s)" (Freq. 3,440), "exposure" (Freq. 2,821), "monitoring" (Freq. 2,518), "assessment" (Freq. 2,364), "analysis" (Freq. 2,184), "concentration" (Freq. 2,128), "area" (Freq. 2,101) and "potential" (Freq. 1,548). The results were shown in Table 4.6 below:

Table 4.6 The most frequent academic words in the Corpus of ESRAs

Rank	ESRAs	Frequency
1	Environmental	6,706
2	Data	4,100
3	Site (s)	3,440
4	Exposure	2,821
5	Monitoring	2,518
6	Assessment	2,364
7	Analysis	2,184
8	Concentration	2,128
9	Area	2,101
10	Potential	1,548

From Table 4.6, the most frequent academic words in ESRAs corpus were *environmental, data, site(s), exposure, monitoring, assessment, analysis, concentration, area* and *potential*. Notably, the word "*environmental*" was occurred the most frequent (6,706 times). It shows the restricted use of the word "*environmental*" in the ESRAs Corpus. It was also observed by Hyland and Tse (2007) as being associated to the use of words is specific fields. This corpus also shows academic vocabulary, i.e. "*data*", "analysis". These words were occurred more frequently in academic texts like research articles in ESRAs Corpus.

4.3 Academic collocations

4.3.1 Lexical Collocations

An important component of fluent linguistic production is the multiword expressions referred to as "clusters", "chunks" or "lexical bundles" (Hyland 2008). These are collocations which appear more frequently than expected by chance, helping to shape meanings and contributing to our sense of coherence in a text. As Hyland (2008) pointed out that clusters or collocations seem to present considerable

challenges to student writers struggling to make their texts both fluent and assured to readers in their new communities. In this study, collocations showed up clearly in concordances.

Concordances can highlight the fact that collocations are not only compounds but have more parts or we can call them multiword lexical units, e.g. *proactive environmental management behavior, proactive environmental management level, proactive environmental strategies, etc.* as in the following concordance in Figure 4.8

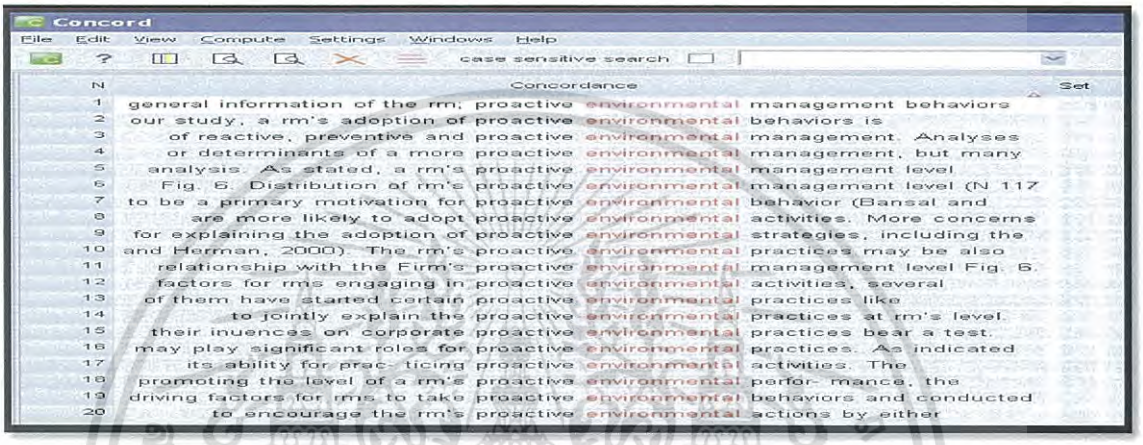

Figure 4.8 Sample Concordances for "environmental"

Figure 4.8 showed the sample concordances for "*environmental*". We can see clearly that the technical collocations, e.g. "*proactive environmental management*", "*proactive environmental behaviors*", "*proactive environmental level*". They have a meaning exclusively their own and their meaning cannot be deduced by breaking down their parts.

Table 4.7 Top five of 'environmental' collocations in the Corpus of ESRAs

Rank	'environmental' Collocations	Frequency
1	environmental management	263
2	environmental management system (s)	162
3	environmental performance	137
4	environmental management practices	90
5	environmental protection agency	58

Table 4.7 showed the top five of 'environmental' collocations in the Corpus of

Table 4.7 showed the top five of 'environmental' collocations in the Corpus of Environmental Science Research Articles. We can see that most of the clusters consisted of adjectives plus nouns, or nouns with proceeding nouns functioning as adjectives, e.g. *"environmental management" (Freq. 263), "environmental management systems" (Freq. 162), "environmental performance" (Freq. 137), "environmental management practices" (Freq. 90)* and *"environmental protection agency" (Freq. 58).*

4.3.2 Grammatical Collocations

Grammatical collocations relate to a main word with a grammatical word, a verb+ a preposition, or a noun + a preposition. Table 4.8 showed the top 10 of 3-5 grammatical collocations in the Corpus of ESRAs e.g. *as well as* (Freq. 878), *on the other hand* (Freq. 207), and *at the end of the* (Freq. 43).

Table 4.8 Top10 of 3-5 grammatical collocations in the Corpus of ESRAs

3 Bundles			4 Bundles			5 Bundles		
No	words	Freq.	No	words	Freq.	No	words	Freq.
1	as well as	878	1	on the other hand	259	1	at the end of the	43
2	in order to	765	2	in the case of	219	2	on the basis of the	40
3	due to the	496	3	as well as the	180	3	is one of the most	39
4	based on the	481	4	of heavy metals in	164	4	It should be noted that	37
5	the use of	432	5	on the basis of	161	5	that can be used to	35
6	of heavy metals	425	6	as a result of	144	6	as a result of the	32
7	the number of	364	7	can be used to	142	7	of heavy metals in the	31
8	one of the	295	8	as a function of	118	8	due to the fact that	29
9	can be used	291	9	a wide range of	90	9	in the vicinity of the	29
10	a number of	285	10	in the study area	87	10	due to the lack of	28

(1) The sample sentences of grammatical collocation for *"on the other hand"* as seen in Figure 4.9:

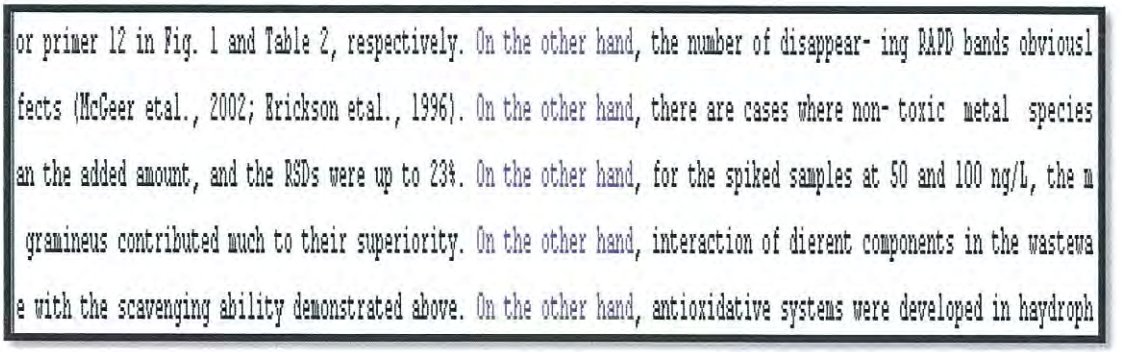
or primer 12 in Fig. 1 and Table 2, respectively. On the other hand, the number of disappear- ing RAPD bands obviousl
fects (McGeer etal., 2002; Erickson etal., 1996). On the other hand, there are cases where non- toxic metal species
an the added amount, and the RSDs were up to 23%. On the other hand, for the spiked samples at 50 and 100 ng/L, the m
gramineus contributed much to their superiority. On the other hand, interaction of dierent components in the wastewa
e with the scavenging ability demonstrated above. On the other hand, antioxidative systems were developed in haydroph

Figure 4.9 Sample Grammatical Collocation for "on the other hand"

Example:

"***On the other hand***, *the number of disappearing RAPD bands obviously increased with increase of Cd concentration for 11 primers; the bands of molecular size from 207 to 3056 bp were shown to disappear for primer 9, 4, respectively (Table 2 and Fig. 1).*"

(2) The sample sentence of grammatical collocation for "in the case of" as seen in Figure 4.10:

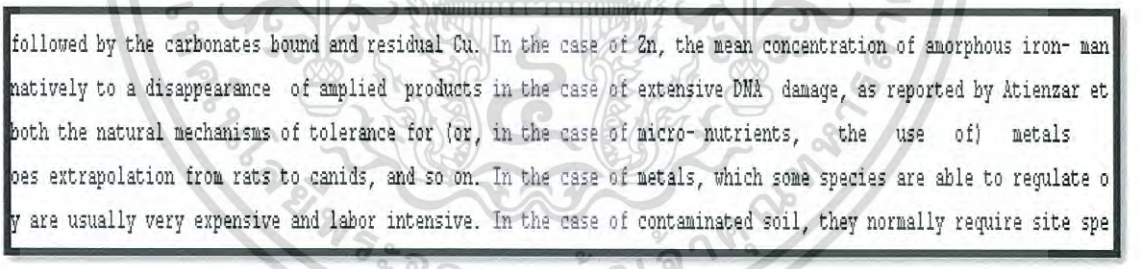
followed by the carbonates bound and residual Cu. In the case of Zn, the mean concentration of amorphous iron- man
natively to a disappearance of amplied products in the case of extensive DNA damage, as reported by Atienzar et
both the natural mechanisms of tolerance for (or, in the case of micro- nutrients, the use of) metals
oes extrapolation from rats to canids, and so on. In the case of metals, which some species are able to regulate o
y are usually very expensive and labor intensive. In the case of contaminated soil, they normally require site spe

Figure 4.10 Sample Grammatical Collocation for "in the case of"

Example:

"***In the case of*** *Zn, the mean concentration of amorphous iron- manganese oxides Zn was the dominant fraction, followed showed an increased trend with the decrease of heavy metal content (Fig.3 and Table 3).*"

(3) The sample sentence of grammatical collocation for "*as well as the*" as seen in Figure 4.11:

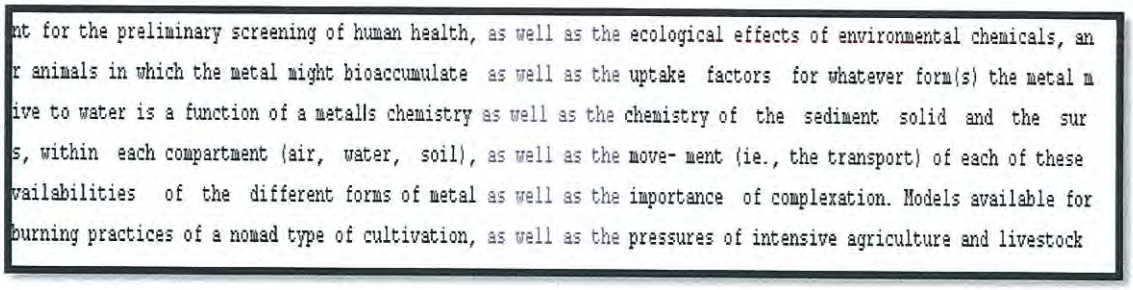

Figure 4.11 Sample Grammatical Collocation for "*as well as the*"

Example:

"From the results of the present study, the use of cytotoxic, genotoxic and ecotoxic test systems would appear to be relevant for the preliminary screening of human health, ***as well as the*** *ecological effects of environmental chemicals, and seems to be a promising tool for environmental monitoring and risk assessment."*

(4) The sample sentence of grammatical collocation for "*the end of the*" as seen in Figure 4.12:

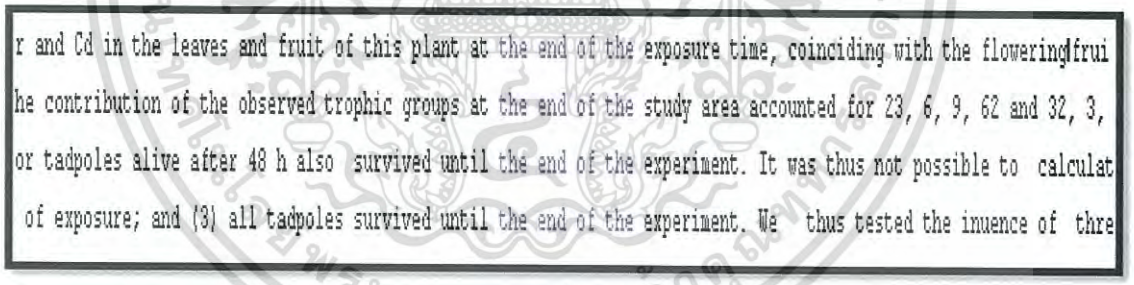

Figure 4.12 Sample Grammatical Collocation for "*the end of the*"

Example:

"Results indicated the presence of at least 3 of the heavy metals Cu, Al, Zn, Pb, Cr and Cd in the leaves and fruit of this plant at ***the end of the*** *exposure time, coinciding with the flowering fruiting stage."*

In short, the use of concordance data can offer an important contribution to learning in advanced contexts (Granger, Hung and PetchTyson 2002).

CHAPTER 5
DISCUSSIONS, CONCLUSIONS AND SUGGESTIONS

This chapter presents the discussions, conclusions and suggestions of the study. The first part focuses on the discussions of the study. The second part describes the conclusions. The last part suggests the further studies.

5.1 Discussions

5.1.1 The function words occur in the top ten ranks. Those words are "*the, of, and, in, to, a, for, is, as, that*". They are accounted for 22.08% of the total list. This finding aligns itself closely with the figures cited by Sager et al. (1980: 238) that the ten most frequent words constitute approximately 25% of all texts in any sample of general or specialized language.

The following table shows the comparison of the top ten words from three general corpora. The three specialized corpora top ten of word frequency list of in the three specialized corpora are MICUSP corpus (Römer and Wulff, 2010), biology corpus and ESRAs corpus. The general corpora are Brown, LOB, and COBUILD corpus.

Table 5.1 The comparison of the top ten words from the three general and the three specialized corpora

Rank	General Corpora			Specialized Corpora		
	Brown	LOB	COBUILD	Biology	MICUSP	ESRAs
1	the	the	the	the	the	the
2	of	of	of	and	of	of
3	and	and	to	of	and	and
4	to	to	and	is	to	in
5	a	a	a	a	in	to
6	in	in	in	in	a	a
7	that	that	that	are	that	for
8	is	is	is	to	is	is
9	was	was	you	it	for	as
10	he	it	it	this	as	that

Table 5.1 shows the comparison of the three general and the three specialized corpora. The ten most frequent words are function words, namely articles, prepositions, the verbs to be, conjunctions and determiners, e.g. '*the*', '*of*', '*is*', '*and*', '*in*'. These results were in significant complying with the study of Flowerdew (1993) that both general corpora and specialized corpora share similar related aspect in that most 10 frequent words. The function words are used in the texts of different disciplines. The word with highest frequency in the general and specialized corpora is the word '*the*'. With regard to verb to be, it is found that '*is*' is most often used in the all corpora.

5.1.2 The ESRAs corpus consisted of 65.98% general vocabulary, 11.90% academic vocabulary and 22.12% technical and others. We could see that the academic vocabulary in the ESRAs Corpus was higher than the other three corpora, i.e. Multidisciplinary corpus, Science corpus, and Agro Corpus as shown in Table 5.2 below:

Table 5.2 Comparison of AWL and GSL Coverage in the ESRAs Corpus and the other three Corpora

Vocabulary categories	Multidisciplinary corpus Coxhead (2000)	Science corpus Hyland and Tse's (2007)	Agro Corpus Marti nez et.al (2009)	ESRAs Corpus (2012)
GSL (%)	76.1	69	67.53	**65.98**
AWL (%)	10	9.3	9.06	**11.9**
GSL + AWL (%)	86.1	78.3	76.59	**77.89**

Table 5.2 clearly shows the comparison of the AWL and GSL coverage in four specialized corpora, i.e. Multidisciplinary corpus (Coxhead, 2000), Science corpus (Hyland and Tse's, 2007), Agro Corpus (Mart´nez et.al, 2009) and ESRAs Corpus. We can see that the ESRAs corpus contained 11.9% of academic vocabulary which was

higher than others. Whereas the coverage of the AWL and the GSL combined were 77.89% which was lower than Coxhead's (2000) coverage.

5.1.3 The most frequent academic words in ESRAs corpus were "environmental" (Freq. 6,706), "data" (Freq. 4,100), "site(s)" (Freq. 3,440), "exposure" (Freq. 2,821), "monitoring" (Freq. 2,518), "assessment" (Freq. 2,364), "analysis" (Freq. 2,184), "concentration" (Freq. 2,128), "area" (Freq. 2,101) and "potential" (Freq. 1,548). The comparison of these frequent academic words with the other two specialized corpora is shown in Table 5.3 below:

Table 5.3 Comparison of the most frequent academic words in the Corpus of ESRAs and the other two corpora

Rank	ESRAs	Frequency	Hyland and Tse's (2007) science sub-corpus	Marti'nez et.al (2009) Agro corpus
1	Environmental	6,706	Data	Significant
2	Data	4,100	Method	Analysis
3	Site (s)	3,440	Process	Data
4	Exposure	2,821	Analyze	Site
5	Monitoring	2,518	Concentrate	Area
6	Assessment	2,364	Require	Variation
7	Analysis	2,184	Function	Response
8	Concentration	2,128	Obtain	Similar
9	Area	2,101	Extract	Sequence
10	Potential	1,548	Similar	Environments

Table 5.3 showed the top ten words with their frequency in the corpus of environmental science research articles comparing with Hyland and Tse's (2007) science sub-corpus and Marti'nez et.al, (2009) Agro corpus. The top ten words from the Academic Word List (AWL) by Coxhead (2000) occurred more than 1,500 times were: environmental, data, site(s), exposure, monitoring, assessment, analysis, concentration, area and potential". The full list of word frequency is shown in

Appendix B. Notably, the word "environmental" occurred the most frequent (6,707 times) in ESRAs corpus. This restricted use of word "environmental" was also observed by Hyland and Tse (2007) as being associated to the use of words in specific fields. They commented that there were preferred meaning and collocational patterns in different fields.

5.1.4 The lexical collocations in the Corpus of Environmental Science Research Articles mostly consisted of adjectives plus nouns, or nouns with proceeding nouns functioning as adjectives, e.g. *"environmental management" (Freq. 263), "environmental management systems" (Freq. 162), "environmental performance" (Freq. 137), "environmental management practices" (Freq. 90)* and *"environmental protection agency" (Freq. 58).* A term consisting of three or more nouns, e.g. *environmental management systems*, is almost impossible to decode. For the EFL students, the length of the words makes them impenetrable. All such collocations need to be presented in the glossary or dictionary of environmental science or in the English teaching materials.

5.1.5 The top of 3-5 grammatical collocations in the Corpus of ESRAs are *as well as* (Freq. 878), *on the other hand* (Freq. 207), and *at the end of the* (Freq. 43). If we compare the 4 words grammatical collocations in ESRAs corpus with the finding of Hyland (2008b) which studied research articles, PhD thesis and Master's dissertations, it revealed a coincidence of many items, i.e. *on the other hand, in the case of, as well as the* and *on the basis of* as shown in Table 5.4 below.

Table 5.4 Comparison of the most frequent 4-word collocations between Hyland (2008b) and ESRAs

No	Research articles	No.	PhD Theses	No.	Master's Dissertations	No.	ESRAs	No.
1	on the other hand	100	on the other hand	445	on the other hand	181	on the other hand	259
2	in the case of	94	at the same time	201	as well as the	83	in the case of	219
3	on the basis of	75	in the present study	181	at the same time	80	as well as the	180
4	in the presence of	60	the end of the	181	is one of the	72	of heavy metals in	164

Table 5.4 (Continued)

No	Research articles	No.	PhD Theses	No.	Master's Dissertations	No.	ESRAs	No.
5	at the same time	56	in the case of	177	the nature of the	68	on the basis of	161
6	the results of the	55	at the end of	168	in the case of	63	as a result of	144
7	the extent to which	53	in terms of the	168	the results of the	62	can be used to	142
8	in the context of	47	on the basis of	142	of the Hong Kong	58	as a function of	118
9	as a result of	46	as well as the	133	the role of the	55	a wide range of	90
10	in terms of the	46	in relation to the	122	it can be seen	50	in the study area	87

From Table 5.4, we can see that ESRAs shared similar grammatical collocations such as *"on the other hand", "in the case of", "as well as the" and "the end of the"*. All of them occur in the top band of bundles in at least three text types with high frequencies across fields. They demonstrate the uses of these collocations in authentic material, which can provide useful example for students.

The fact that the academic collocations mostly consists of compounds and multiword lexical units, there are the problems for researchers or graduate students in writing. Therefore, in order to help them learn how to write academic article properly, more evidence based instructional practices in advance writing context which the proposed writing exercises seeks to address. These findings have applications for environmental science students and suggest the need to produce environmental science academic word list and academic collocations which are necessary for writing academic research articles.

5.2 Conclusions

This study aimed to compile a corpus of environmental science research articles, analyzed the important vocabulary, in terms of nouns, verbs, adjectives and adverbs, levels of vocabulary, i.e. general academic and technical words, and academic collocations.

At 1,883,197 words, the corpus frequencies have highlighted the academic vocabulary across the environmental science sub-disciplines into five subcategories, i.e. environmental contamination and toxicology, environmental health, environmental monitoring, environmental geology, and environmental management.

The top ten words in the corpus of environmental science research articles. The function words occur in the top ten ranks. Those words are "the, of, and, in, to, a, for, is, as, that, are, with, et al, on, by, be, from, were, this, was". They are accounted for 22.08% of the total list. The 4 main parts of speech noun, verb, adjective and adverb, the noun 'water' was found the most with 5,412 items followed by 'metal(s)', 'concentration(s)' and 'data'.

The ESRAs corpus consisted of 65.98% of the general words, 11.90% the academic vocabulary and 22.12% of the technical and others. We could see that the academic vocabulary in the ESRAs Corpus was higher than the other three corpora, i.e. Multidisciplinary corpus, Science corpus, and Agro Corpus.

The top ten academic words in the corpus of environmental science research articles are: environmental, data, site(s), exposure, monitoring, assessment, analysis, concentration, area and potential".

In this study, collocations showed up clearly in concordances. Concordances can highlight the fact that they are not only compounds but have more parts of multiword lexical units, e.g. proactive environmental management behavior, proactive environmental management level, proactive environmental strategies, etc.

The important 3-5 bundles grammatical collocations in the Corpus of Environmental Science Research Articles are 'as well as', 'on the other hand', and 'at the end of'. It was found that differences in the collocation of each corpus are based on the specificity. However, there are some similarities for use of important collocations, i.e. *'on the other hand', 'in the case of', 'as well as the'* and *'on the basis of'*.

In short, concordance data is evidently valuable in showing the linguistic contexts of academic word use. It illuminates the role of academic collocation in terms of compounds and multiword lexical units in environment jargon which provides insights into the academic vocabulary of environmental science. An important observation in this study is that apart from the academic vocabulary from AWL, there are collocations that are highly frequent in corpus of ESRAs, and are used

with academic meaning. They can offer an important contribution to learning in advanced context of English for Academic Purposed (EAP) and English for Environmental Science in particular. The findings suggest the need to produce environmental science academic word list and the glossary or dictionary of environmental science which based on frequency from the corpus with explicit grammatical information and examples of usage in the entry. They would help students to use appropriate vocabulary and collocation, when writing research articles.

5.3 Implications

The findings in this study can be used in teaching and learning writing in research articles: firstly, the content words used in environmental science research articles in terms of nouns, verbs, adjectives and adverbs provide an idea of important vocabulary list for English for Environmental Science. Secondly, the academic and technical vocabularies in environmental research articles could provide useful academic and technical terms as examples of environmental vocabularies. Lastly, the most frequent relevant academic collocations can help the writers in their writing.

The finding thus has applications for language teaching and materials development in EAP and ESP. The evidence from the corpus and concordance suggests which vocabulary items are likely to be encountered by language users, and which therefore deserve more investment of time in instruction.

5.4 Suggestions for Further Studies

5.4.1 Further studies can be carried out in other disciplines of research articles such as science, engineering and so on.

5.4.2 Similar studies could be done on finding out other linguistic features, such as conjunction, preposition, abbreviation, and so on.

5.4.3 The high frequency vocabularies in the corpus of this research should be deserved more investment of time in curriculum. English teachers and curriculum

designers need to have access to this information to develop better reference materials and syllabuses.

Bibliography

Bauman, J., and Culligan, B. 1995. **About the General Service List John Bauman Enterprise Training Group.** [Online]. Available: http://jbauman.com/aboutgsl.html

Bazerman, C. 1988. **The Genre and Activity of the Experimental Article in Science.** Madison : Wisconsin University Press.

Bhatia, V. K. 1993. **Analyzing Genre: Language Use in Professional Settings.** London and NY : Longman.

Biber, D. and Barbieri, F. 2007. "Lexical Bundles in University Spoken and Written Registers." **English for Specific Purposes.** 26 : 263-286.

Biber, D. 2006. **University English: A Corpus-Based Study of Spoken and Written Registers.** Amsterdam : John Benjamins.

Biber, D., Conrad, S., and Cortes, V. 2004. "If You Look At : Lexical Bundles in University Teaching and Textbooks." **Applied Linguistics.** 25(3) : 371-405.

Biber, D., Conrad, S., and Reppen, R. 1998. **Corpus Linguistics Investigating Language Structure and Use.** Cambridge : Cambridge University Press.

Biber, D., Johansson, S., Leech, G. N., Conrad, S. M., and Finegan, E. 1999. **Longman Grammar of Spoken and Written English.** London : Longman.

Chen, Q. and Ge, G. 2007. "A Corpus-Based Lexical Study on Frequency and Distribution of Coxhead's AWL Word Families in Medical Research Articles (RAs)." **English for Specific Purposes.** 26 : 502-514.

Christie, F. 1999. Genre Theory and ESL Teaching: A Systemic Functional Perspective. **TESOL Quarterly.** 33 (4) : 759-763.

Chung, T. and Nation, I.S.P. 2003. Technical vocabulary in specialized texts. Reading in a Foreign Language 15, 2: 103-116 [Online]. Available: http://nflrc.hawaii.edu/rfl

Coxhead, A. 1998. **Occasional Publication Number 18 (1998) Publisher: LALS, Victoria University of Wellington.** [Online]. Available: www.nottingham.ac.uk , 24 February 2012.

Coxhead, A. 2000. "A New Academic Word List." **TESOL Quarterly.** 34(2) : 213–238.

Diana, L., (Editor). 2002. **Oxford Collocations Dictionary for Students of English.** Oxford : Oxford University Press.

David D.K., 1998. **The Environment Dictionary.** London : Rout ledge.

Dudley-Evans, T., and St John, M.J. 1998. **Developments in English for Specific Purposes. A Multi-Disciplinary Approach.** Cambridge. [Online]. Available : http://www.aelfe.org/documents/text2-Palmer.pdf, 18 April 2012

Elliott, C.K. 2009. "The Ethical Significance of Language in the Environmental Sciences: Case Studies from Pollution Research." **Ethics, Place and Environment.** 12(2) : 157– 173.

Evert, S. 2004. The Statistics of Word Co-Occurrences: Word Pairs and Collocations. Doctor of Philosophy, University of Stuttgart.

Flowerdew, J. 1993. "Concordancing as a Tool in Course Design." **System.** 21(2) : 231-244.

Francis, G. and Sinclair, J. 1994. "I Bet He Drinks Carling Black Label": A Riposte to Owen on Corpus Grammar." **Applied Linguistics.** 15(2) : 190-200.

Graetz, N. 1985. **Teaching EFL Students to Extract Structural Information from Abstracts : Reading for Professional Purposes.** Leuven : ACCO.

Granger, S. Hung, J. and Petch-Tyson, S. 2002. **Computer Learner Corpora, Second Language Acquisition and Foreign Language Teaching.** NY: John Benjamins Publishing.

Gross, A.G. 2002. **Communicating Science: The Scientific Article from the 17th Century to the Present.** New York : Oxford University Press.

Hall, R. 2012. "East Indies." **McGraw-Hill Encyclopedia of Science and Technology 11th.** 5 : 850-853.

Halliday, M.A.K. and Martin, J.R. 1993. **Writing Science: Literacy and Discursive Power.** London : Falmer Press.

Hann, P. 1989. **Postmodifying Clauses in the English Noun Phase : A Corpus-Based Study.** Amsterdam : Rodopi.

Hartmann, R.R.K. and Stork, F.C. 1972. **Dictionary of Language and Linguistics.** London : Applied Science Publishes.

Huang, J. C. 2010. "Publishing and Learning Writing for Publication in English: Perspectives of NNES PhD Students in Science." **Journal of English for**

Academic Purposes. 9(1) : 33-44.

Hughes, R. and McCarthy, M. 1998. "From Sentence to Discourse : Discourse Grammar and English Language Teaching." **TESOL Quarterly.** 3 : 263-287.

Huckin, T.N. and Olsen, L.A., (editor). 1991. **Technical Writing and Professional Communication for Nonnative Speakers of English.** 2nd ed. Singapore : McGraw-Hill.

Hunston, S. 2002. **Corpora in Applied Linguistics.** Cambridge : Cambridge University Press.

Hunston, S. 2007. "Using a Corpus to Investigate Stance Quantitatively and Qualitatively." **Stancetaking in Discourse. Benjamins.** 27-48.

Hyland, K. and Tse, P. 2007. "Is There an Academic Vocabulary?" **TESOL Quarterly.** 41(2).

Hyland, K. 2008a. "Academic Clusters : Text Patterning in Published and Post Graduate Writing." **International Journal of Applied Linguistics.** 18(1).

Hyland, K. 2008b. "As Can Be Seen : Lexical Bundles and Disciplinary Variation." **English for Specific Purposes.** 27 : 4-21.

Jeffrey, E. 1953. **An Elementary Old High German Grammar: Descriptive and Comparative.** Michigan : Clarendon Press University of Michigan.

Kanoksilapatham, B. 2005. "Rhetorical Structure of Biochemistry Research Articles." **English for Specific Purposes.** 24(3) : 269-292.

Landau, S. 2001. **Dictionaries: the Art and Craft of Lexicography.** Cambridge: Cambridge University Press.

Lewis, M. 2001. "Learning in the Lexical Approach: Teaching Collocation Hove." **Language Teaching Publications.** 155-184.

Lewis, M. 2002. "There is Nothing as Practical as Practical as a Good Theory: Teaching Collocation Hove." **Language Teaching Publications.** 10-27.

Lim, J. M. H. 2006. "Method Sections of Management Research Articles : A Pedagogically Motivated Qualitative Study." **English for Specific Purposes.** 25(3) : 282-309.

Martí´nez, L.A., Beck, S.C., and Panza, C.B. 2009. "Academic Vocabulary in Agriculture Research Articles: A Corpus-Based Study." **English for Specific Purposes.** 28 : 183–198.

Martin, M. 1983. "Success! Teaching Spelling with Music." **Academic Therapy.** 18(4) :

505-506.

Martín, P. 2005. "A Genre Analysis of English and Spanish Research Paper Abstracts in Experimental Social Sciences." **English for Specific Purposes**. 22 : 25-43.

Meada, J. and Hobara, Y. 2000. **Frequency Level Checker.** [Online]. Available : http://language.tiu.ac.jp/flc/index.html, 18 April 2012

Meyer. G. 1990. **Writing Biology: Texts in the Construction of Scientific Knowledge**. Madison : University of Wisconsin Press.

Nation, I.S.P. 2001. **Learning Vocabulary in Another Language**. Cambridge: Cambridge University Press.

Nation, I.S.P. 2005. "Teaching and Learning Vocabulary." **Handbook of Research in Second Language Teaching and Learning Mahwah, N.J.: Lawrence Erlbaum.** 581-595.

Pearson, J. 1998. Teaching Terminology using Electronic Resources : Multilingual Corpora in Teaching and Research. 92-105.

Perez-Eid, C., C. Hannoun, and F.Rodhain. 1992. The Al-satian tick-borne encephalitis focus: presence of virus among tick and small mamals. **Eur. J. Epidemiol.** 8: 178-186.

PICAE, 2011. **Research Summary: PICAE - the Pears on International Corpus of Academic**. London : Pearson Education Ltd, 2 August 2011 http://trac.sketchengine.co.uk/wiki/Corpora/PICAE

Quirk, R., Greenbaum S., Leech G., and Svartvik J. 1985. **A Comprehensive Grammar of the English Language**. London : Longman

Renouf, A.J. 1978. Corpus Development'. **Looking up: An Account of the COBUILD Project in Lexical Computing**. London : Collins.

Reuter, T. 2012. [Online] Available: http://sciencewatch.com/.

Ricart, V. A. 2004. "A Genre Rhetorical and Lexicon-Grammatical Analysis of a Corpus of Academic Articles." (unpublished).

Richards, J. C. (1976). The role of vocabulary teaching. *TESOL Quarterly*. 10: 77-89.

Ruiying, Y. and Allison, D. 2003. " Research Articles in Applied Linguistics : Moving from Results to Conclusions." **English for Specific Purposes**. 22 : 365-385.

Römer, U. and Wulff, S. 2010. "Applying Corpus Methods to Writing Research: Explorations of MICUSP." **Journal of Writing Research**. 2(2) : 99-127.

Santos, M.E. 1996. Formación de Calcos Nominales en la Traducción de los Evangelios en Antiguo Eslavo. Thesis doctoral, Madrid.

Sager, J.C., Dungworth, D., and McDonald, P. F. 1980. **English Special Language Principles and Practice in Science and Technology.** Wiesbaden : Brandstetter.

ScienceDirect, 2012. [Online] Available: 31 http://top25.sciencedirect.com/subject/environmental-science/13/archive/42

Scott, M. 2012. **Oxford Word Smith Tools.** London : Oxford University Press.

Sinclair, J. 1987. **Collins Cobuild English Language Dictionary.** London and Glasgow : William Collins Sons & Co Ltd.

Singh, Y. K. 2006. "Environmental Science." **New Age International.** 320.

Sutarsyah, C., Nation, P., and Kennedy, G. 1994. "How Useful is EAP Vocabulary for ESP? A Corpus Based Case Study." **RELC Journal.** 25(2) : 34-50.

Swales, J.M. 1990. **Genre Analysis: English in Academic and Research Settings.** Cambridge : Cambridge University Press.

Swales, J.M. 2006. "Corpus Linguistics and English for Academic Purposes in Information Technology." **English for Specific Purposes.** 19-33.

Thomson, A.J. and Martinet, A.V. 1986. **A Practical English Grammar.** 4th ed. London : Oxford University Press.

Tribble, C. and Jones, G. 1990. **Concordance in the Classroom.** London : Longman

Trimble, R.M.T. and Trimble, L. 1978. "The Development of EFL Materials for Occupational English." **English for Specific Purposes.** 74-132

Vitayapirak, J. and Ratiroch-Anant, P. 2006. "Computational Approach for Processing of Control Engineering Text: Applications for Corpus Lexicography". **Cybernetics and Intelligent Systems IEEE Conference** 2006. Bangkok.

West, M. 1953. **General Service List of English words.** London : Longman, Green & Co.

Yoon, H. and Hirvela, A. 2004. "ESL Student Attitudes toward Corpus Use in L2 Writing." **Journal Of Second Language Writing.** 13(4) : 257-283, 21 March 2012.

Appendix A

The Word Frequency List of ESRAs Corpus

APPENDIX A

The Word Frequency List and Abbreviation of the ESRAs Corpus (not lemmatized)

N	=Noun	Pron	Pronoun	Abbrev	Abbreviation
Adj	=Adjective	Det	Determiner	N(abbrev)	Noun (abbreviation)
Adv	=Adverb	N(Inf)	Noun (Infinitive)	Adv(Neg)	Adverb (Negative)
V	=Verb	PV	Primary verb	Freq.	Frequency
Prop	=Preposition	MV	Modal verb		
Conj	=Conjunction	N(Num)	Noun (Number)		

Rank	Word	Word Classes	Freq.	%
1	the	Det	109,270	5.90
2	of	Prep/Conj	68,935	3.72
3	and	Conj	61,540	3.32
4	in	Prep/Adv	44,538	2.40
5	to	Inf/Prep	36,933	1.99
6	a	Det	26,269	1.42
7	for	Prep	20,934	1.13
8	is	PV	17,860	0.96
9	as	Conj	12,843	0.69
10	that	Det/Pron/Adv/Conj	12,317	0.66
11	are	PV	11,764	0.63
12	with	Prep	11,629	0.63
13	et al	Abbrev	10,996	0.59
14	on	Prep/Adv/Adj	10,432	0.56
15	by	Adv	10,401	0.56
16	be	PV	10,135	0.55
17	from	Prep	9,460	0.51
18	were	PV	8,263	0.45
19	this	Det/Pron/Adv	8,057	0.43
20	was	PV	7,686	0.41
22	or	Conj	6,757	0.36

Rank	Word	Word Classes	Freq.	%
23	at	Prep	6,401	0.35
24	an	Det	5,619	0.30
25	water	N	5,410	0.29
26	not	Adv	4,772	0.26
27	which	Pron/Adj	4,523	0.24
28	it	Pron	4,455	0.24
29	can	MV	4,453	0.24
30	have	PV	4,444	0.24
31	data	N	4,170	0.23
32	risk	N	4,090	0.22
33	soil	N	4,082	0.22
34	these	Det/Pron/Adv	3,950	0.21
35	fig	Abbrev	3,607	0.19
36	used	Adj	3,499	0.19
37	also	Adv	3,492	0.19
38	all	Adj	3,391	0.18
39	between	Prep	3,358	0.18
40	has	PV	3,344	0.18
41	been	PV	3,315	0.18
42	more	Adv	3,197	0.17
43	management	N	3,133	0.17
44	study	N	3,115	0.17
45	other	Adj	3,067	0.17
46	concentrates	N	3,033	0.16
47	than	Conj/Prep	3,015	0.16
48	table	N	2,925	0.16
49	may	MV	2,855	0.15
50	exposure	N	2,852	0.15
51	such	Pron	2,806	0.15
52	metals	N	2,776	0.15
53	their	Det/Pron/Adv	2,753	0.15

Rank	Word	Word Classes	Freq.	%
54	s	abbrev	2,657	0.14
55	different	Adj	2,648	0.14
56	results	N	2,635	0.14
57	health	N	2,614	0.14
58	metal	N	2,553	0.14
59	monitoring	N	2,528	0.14
60	values	n	2,519	0.14
61	use	N	2,442	0.13
62	we	Pron	2,437	0.13
63	based	V	2,394	0.13
64	assessment	N	2,388	0.13
65	using	N	2,387	0.13
66	high	Adj	2,371	0.13
67	time	N	2,368	0.13
68	effects	N	2,210	0.12
69	each	N	2,209	0.12
70	analysis	N	2,206	0.12
71	concentration	N	2,174	0.12
72	area	N	2,118	0.11
73	B	Abbrev	2,110	0.11
74	but	Conj	2,086	0.11
75	however	Adv	2,044	0.11
76	most	adj	2,018	0.11
77	studies	N	1,992	0.11
78	sample	N	1,969	0.11
79	into	Prep	1,945	0.10
80	level	N	1,929	0.10
81	both	Pron	1,921	0.10
82	well	N	1,913	0.10
83	there	Det/Pron/Adv	1,908	0.10
84	only	Adj	1,892	0.10

Rank	Word	Word Classes	Freq.	%
85	site	N	1,887	0.10
86	one	N(Num)	1,885	0.10
87	they	Pron	1,860	0.10
88	m	Abbrev	1,857	0.10
89	p	Abbrev	1,852	0.10
90	some	Adj	1,841	0.10
91	levels	N	1,835	0.10
92	waste	N	1,832	0.10
93	air	N	1,827	0.10
94	model	N	1,827	0.10
95	species	N	1,824	0.10
96	e.g.	Abbrev	1,807	0.10
97	quality	N	1,803	0.10
98	sites	N	1,780	0.10
99	C	Abbrev	1,760	0.09
100	system	N	1,747	0.09

Appendix B

Range and Raw Frequency of Words in the ESRAs Corpus

Range and Raw Frequency of Words in the ESRAs Corpus by using the online tool "RANGE and FREQUENCY Programs for Windows based PCs" (Nation, 2005).

No	General Service Lists			The 2nd 1000 most frequent words			The words not in the first 2000 words		
	Word	Range	Freq.	Word	Range	Freq.	Word	Range	Freq.
1	THE	30	109238	RISK	30	4040	ENVIRONMENTAL	30	6706
2	OF	30	68852	SOIL	29	4019	DATA	30	4100
3	AND	30	61494	MANAGEMENT	30	3109	EXPOSURE	30	2821
4	TO	30	36798	HEALTH	30	2584	MONITORING	29	2518
5	A	30	27451	SAMPLES	30	1948	ASSESSMENT	30	2364
6	FOR	30	20902	MODEL	30	1807	ANALYSIS	30	2184
7	AS	30	12778	INFORMATION	30	1698	CONCENTRATION	29	2128
8	WITH	30	11621	WASTE	30	1693	AREA	30	2101
9	BY	30	10283	DURING	30	1437	SITES	30	1788
10	FROM	30	9457	SOILS	29	1262	SITE	30	1652
11	OR	30	6738	SAMPLING	30	1056	POTENTIAL	30	1548
12	AT	30	6390	PERFORMANCE	25	922	AREAS	30	1492
13	AN	30	5616	SAMPLE	30	916	SIGNIFICANT	30	1470
14	NOT	30	4766	RISKS	28	895	METHODS	30	1463
15	ALL	30	3359	MODELS	30	851	ENVIRONMENT	30	1381
16	BETWEEN	30	3349	COMPARED	30	833	RESEARCH	30	1368
17	MORE	30	3176	CALCULATED	30	693	PROCESS	30	1331
18	OTHER	30	3066	COLLECTED	30	682	FACTORS	30	1260
19	THAN	30	3014	TEMPERATURE	28	678	IMPACT	29	1205
20	BUT	30	2087	TREATMENT	29	649	METHOD	30	1186
21	INTO	30	1944	PRACTICES	25	624	DISTRIBUTION	30	1181
22	M	30	1924	AGRICULTURAL	29	611	APPROACH	30	1174
23	ONLY	30	1889	SCALE	30	585	ENERGY	28	1151
24	THERE	30	1884	PERFORMED	30	550	IMPACTS	29	1074
25	COULD	30	1414	ESPECIALLY	30	521	AVAILABLE	30	1070
26	ABOUT	30	1317	WEIGHT	30	520	PROCESSES	30	988
27	OVER	30	1299	DAMAGE	28	487	SOURCES	30	979
28	IF	30	1283	COMPARISON	30	476	RANGE	30	970
29	BECAUSE	30	1204	KEY	30	460	SPECIFIC	30	941
30	T	29	1070	TOOL	30	429	CHEMICAL	30	910
31	VERY	30	1033	MULTIPLE	29	412	SOURCE	30	903
32	THEN	30	839	DISCUSSION	30	411	SIMILAR	30	846
33	SO	30	544	SOLUTION	29	410	POLICY	25	816
34	MUCH	28	530	REVIEW	29	399	FACTOR	30	802
35	MUST	30	518	SOLID	29	386	PARAMETERS	30	784
36	BEFORE	30	455	PATTERNS	30	383	MAJOR	30	770
37	AROUND	30	451	DUST	22	372	OBTAINED	30	768

No	General Service Lists			The 2nd 1000 most frequent words			The words not in the first 2000 words		
	Word	Range	Freq.	Word	Range	Freq.	Word	Range	Freq.
38	ALONG	29	438	DECREASE	28	369	RESPONSE	30	763
39	BETTER	30	430	MAP	28	363	PERIOD	30	756
40	ANOTHER	30	399	PROGRAM	29	359	RESOURCES	28	727
41	HERE	30	372	GOVERNMENT	23	356	CONSUMPTION	29	720
42	FRONT	30	345	CRITICAL	30	331	PROJECT	28	718
43	BEST	30	327	INTERNATIONAL	30	330	ISSUES	28	717
44	OTHERS	30	324	MANAGERS	20	323	INDICATORS	26	699
45	THOUGH	30	290	TOOLS	26	322	ESTIMATED	30	683
46	ALMOST	29	236	COLLECTION	29	321	ECONOMIC	28	671
47	ALREADY	30	228	MINERAL	26	321	PHASE	29	670
48	YES	15	211	CROPS	23	308	COMPOUNDS	26	661
49	NEXT	30	180	IMPROVE	29	306	REGION	30	654
50	ALWAYS	29	176	COMBINED	28	303	SECTION	30	649

Processing of Words in the ESRAs Corpus by using the online tool "RANGE and FREQUENCY Programs for Windows based PCs" (Nation, 2005).

WORD LIST	TOKENS/%	TYPES/%	FAMILIES
one (GSL1)	1046784/60.62	3184/ 6.21	973
two (GSL2)	92686/ 5.37	1947/ 3.80	797
three (AWL)	205482/11.90	2424/ 4.73	570
not in the lists (T+M)	381928/22.12	43682/85.25	?????
Total	**1,726,880***	**51,237**	**2,340**

Types of Vocabulary	%
General	65.99
Academic	11.9
Technical and Others	22.11
Total	**100**

Appendix C

Comparison of The Most Frequent 4-word Collocations of ESRAs and Research Articles, PhD Thesis and Master's Dissertations of (Hyland 2008)

4-word collocations

Research Articles	Freq.	PhD Thesis	Freq.	Master's Dissertations	Freq.	ESRAs	Freq.
on the other hand	100	on the other hand	445	on the other hand	181	on the other hand	259
in the case of	94	at the same time	201	as well as the	83	in the case of	219
on the basis of	75	in the present study	181	at the same time	80	as well as the	180
in the presence of	60	the end of the	181	is one of the	72	of heavy metals in	164
at the same time	56	in the case of	177	the nature of the	68	on the basis of	161
the results of the	55	at the end of	168	in the case of	63	as a result of	144
the extent to which	53	in terms of the	168	the results of the	62	can be used to	142
in the context of	47	on the basis of	142	of the Hong Kong	58	as a function of	118
as a result of	46	as well as the	133	the role of the	55	a wide range of	90
in terms of the	46	in relation to the	122	it can be seen	50	in the study area	87
at the end of	45	is one of the	122	in the form of	49	is based on the	87
as a function of	44	in the form of	119	the other hand the	47	in the vicinity of	82
it is important to	43	the fact that the	107	the performance of the	47	are shown in Table	80
is shown in fig	40	at the beginning of	105	it is necessary to	46	the end of the	76
the degree to which	40	it was found that	103	as a result of	44	is shown in Fig	74
the fact that the	39	to the fact that	98	as a result the	44	at the end of	68
with respect to the	38	as shown in figure	96	can be seen that	43	of the study area	68
as well as the	37	the nature of the	96	the relationship between the	42	in the context of	67
the end of the	36	the relationship between the	96	in Hong Kong and	41	one of the most	65
as shown in fig	35	with respect to the	92	the end of the	41	were found to be	65
the magnitude of the	34	in the process of	89	at the end of	39	heavy metal concentrations in	64
the effect of the	31	in the context of	88	is based on the	39	it is important to	62
it is possible that	30	the other hand the	86	can be used to	38	that can be used	61
the use of the	30	as a result of	85	in terms of the	37	the other hand the	61
are more likely to	29	is shown in figure	84	it is found that	37	can be found in	59
the size of the	29	be due to the	82	as shown in fig	35	in the form of	58
can be used to	28	can be used to	82	one of the most	35	as part of the	56
the nature of the	27	it should be noted	81	the effectiveness of the	35	in terms of the	55

4-word collocations

Research Articles	Freq.	PhD Thesis	Freq.	Master's Dissertations	Freq.	ESRAs	Freq.
at the beginning of	25	should be noted that	77	to ensure that the	35	are shown in Fig	54
in this case the	25	are more likely to	75	can be found in	34	In this paper we	54
is based on the	25	in terms of their	75	it is difficult to	33	metal concentrations in the	54
for each of the	24	in the sense that	75	the purpose of the	33	the basis of the	52
in the absence of	24	the beginning of the	72	it should be noted	31	concentrations of heavy metals	51
is likely to be	24	the results of the	72	the fact that the	31	heavy metals in the	51
in addition to the	23	due to the fact	67	a wide range of	30	with respect to the	51
in the form of	23	of the present study	67	is shown in figure	30	At the same time	50
a wide range of	22	may be due to	66	on the basis of	30	it is possible to	50
can be seen in	22	one of the most	65	the accuracy of the	30	the implementation of the	50
in the next section	22	is based on the	63	the structure of the	30	the quality of the	50
one of the most	22	the total number of	63	to find out the	30	it is necessary to	49
the basis of the	22	can be seen as	62	with the use of	30	should be noted that	49
the beginning of the	22	in other words the	62	are summarized in table	29	in the range of	48
a large number of	21	on the one hand	62	in addition to the	29	is assumed to be	48
the other hand the	21	it can be seen	60	the operation of the	29	the extent to which	48
are shown in fig	20	it is found that	60	at the beginning of	28	the fact that the	47
the difference between the	20	for the purpose of	59	can be divided into	27	a result of the	46
the presence of a	20	is given by equation	59	of the present study	27	an important role in	46
the results of this	20	it is important to	59	that there is a	27	be taken into account	46
the role of the	20			the effect of the	27	In addition to the	46

Appendix D

Research Articles in ESRAs Corpus

No.	Journal Year 2007
1	Available online at www.sciencedirect.com ScienceDirect JOURNAL OF ENVIRONMENTAL SCIENCES **Heavy metal availability and impact on activity of soil microorganisms along a Cu/Zn contamination gradient** WANG Yuan-peng[1], SHI Ji-yan[2], LIN Qi[2], CHEN Xin-cai[2,*], CHEN Ying-xu[2] 1. Department of Chemical and Biochemical Engineering, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005, China. E-mail: wypp@xmu.edu.cn 2. Department of Environmental Science and Technology, Xinjiang University, Urumqi 830046, China Received 18 August 2006; revised 30 September 2006; accepted 4 January 2007
2	ELSEVIER Available online at www.sciencedirect.com ScienceDirect Environment International 33 (2007) 817–822 ENVIRONMENT INTERNATIONAL www.elsevier.com/locate/envint Cytotoxicity, genotoxicity and ecotoxicity assay using human cell and environmental species for the screening of the risk from pollutant exposure Sun Young Park, Jinhee Choi * Faculty of Environmental engineering, College of Urban Study, University of Seoul, 90 Jeonnongdong, Dongdaemungu, 130-743, Seoul, Republic of Korea Received 16 September 2006; accepted 29 March 2007 Available online 14 May 2007
3	ELSEVIER Available online at www.sciencedirect.com ScienceDirect Chemosphere 67 (2007) 1161–1167 CHEMOSPHERE www.elsevier.com/locate/chemosphere Impact assessment of cadmium contamination on rice (*Oryza sativa* L.) seedlings at molecular and population levels using multiple biomarkers Wan Liu [a,b], Y.S. Yang [b,*], Q. Zhou [a], L. Xie [a], P. Li [a], T. Sun [a] [a] Key Laboratory of Terrestrial Ecological Processes, Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang 110016, PR China [b] Cardiff University, School of Earth Ocean and Planetary Sciences, Cardiff CF10 3YE, UK Received 2 May 2006; received in revised form 7 September 2006; accepted 8 December 2006 Available online 29 December 2006
4	FI SEVIER Soil Biology & Biochemistry 39 (2007) 1864–1877 Soil Biology & Biochemistry www.elsevier.com/locate/soilbio Application of biological indicators to assess recovery of hydrocarbon impacted soils J.J.C. Dawson[a,*], E.J. Godsiffe[a], I.P. Thompson[b], T.K. Ralebitso-Senior[b], K.S. Killham[a], G.I. Paton[a] [a]School of Biological Sciences, University of Aberdeen, Cruickshank Building, St Machar Drive, Aberdeen AB24 3UU, UK [b]Centre for Ecology and Hydrology Oxford, Mansfield Road, Oxford OX1 3SR, UK Received 7 February 2006; received in revised form 17 June 2006; accepted 23 June 2006 Available online 14 August 2006
5	FI SEVIER Available online at www.sciencedirect.com ScienceDirect Ecotoxicology and Environmental Safety 68 (2007) 145–227 Ecotoxicology and Environmental Safety www.elsevier.com/locate/ecoenv Frontier Article Framework for Metals Risk Assessment Anne Fairbrother, Randall Wenstel*, Keith Sappington, William Wood Office of the Science Advisor, Risk Assessment Forum, US Environmental Protection Agency, Washington, DC 20460, USA Received 29 March 2007; accepted 29 March 2007

No.	Journal Year 2007
6	Available online at www.sciencedirect.com ScienceDirect Chemosphere 69 (2007) 63–68 CHEMOSPHERE www.elsevier.com/locate/chemosphere **Contamination of vegetables of different seasons with organophosphorous pesticides and related health risk assessment in northern India** Mayank Bhanti *, Ajay Taneja School of Chemical Sciences, Department of Chemistry, St. John's College, Agra, UP 282002, India Received 23 June 2006; received in revised form 25 April 2007; accepted 25 April 2007 Available online 12 June 2007
7	Available online at www.sciencedirect.com ScienceDirect Ecotoxicology and Environmental Safety 66 (2007) 379–383 Ecotoxicology and Environmental Safety www.elsevier.com/locate/ecoenv **Shortened lifespan of nematode *Caenorhabditis elegans* after prolonged exposure to heavy metals and detergents** Hiroaki Harada, Masaru Kurauchi, Rie Hayashi, Toshihiko Eki* Division of Bioscience and Biotechnology, Department of Ecological Engineering, Toyohashi University of Technology, 1-1 Hibarigaoka, Tempaku-cho, Toyohashi, Aichi 441-8580, Japan Received 1 December 2005; received in revised form 27 February 2006; accepted 28 February 2006 Available online 17 April 2006
8	Available online at www.sciencedirect.com ScienceDirect Science of the Total Environment 378 (2007) 36–41 Science of the Total Environment www.elsevier.com/locate/scitotenv **Soil degradation in the tropical forests of the Dominican Republic's Pedernales province in relation to heavy metal contents** Ana Jesus Hernández [a], Stervin Alexis [a], Jesús Pastor [b,*] [a] Dpto. Ecología, Universidad de Alcalá, Alcalá [b] IRN, CCMA, CSIC, Serrano 115, Madrid Available online 16 February 2007
9	Available online at www.sciencedirect.com ScienceDirect Science of the Total Environment 374 (2007) 352–365 Science of the Total Environment www.elsevier.com/locate/scitotenv **Determining estrogenic steroids in Taipei waters and removal in drinking water treatment using high-flow solid-phase extraction and liquid chromatography/tandem mass spectrometry** Chia-Yang Chen [a,*], Tzu-Yao Wen [a], Gen-Shuh Wang [a,b], Hui-Wen Cheng [a], Ying-Hsuan Lin [a], Guang-Wen Lien [a] [a] Institute of Environmental Health, College of Public Health, National Taiwan University, 17 Hsu-Chow Road, Taipei 11045, Taiwan [b] Department of Public Health, College of Public Health, National Taiwan University, 17 Hsu-Chow Road, Taipei 11045, Taiwan Received 31 August 2006; received in revised form 19 February 2007; accepted 25 February 2007 Available online 19 April 2007
10	Available online at www.sciencedirect.com ScienceDirect Journal of Environmental Sciences 19(2007) 902–908 JOURNAL OF ENVIRONMENTAL SCIENCES ISSN 1001-0742 CN 11-2629/X www.jesc.ac.cn **Phytoremediation of urban wastewater by model wetlands with ornamental hydrophytes** ZHANG Xiao-bin[1], LIU Peng[1,2,*], YANG Yue-suo[2], CHEN Wen-ren[1,3] 1. Key Laboratory of Botany, Zhejiang Normal University, Jinhua 321004, China. E-mail: phlp56@163.com 2. Key Lab of Environment Remediation and Ecological Health, Ministry of Education of China, Hangzhou 310012, China 3. School of Earth Sciences, Cardiff University, Cardiff CF10 3YE, UK Received 12 September 2006; revised 17 November 2006; accepted 7 December 2006
11	Journal of Environmental Management 82 (2007) 221–239 Journal of Environmental Management www.elsevier.com/locate/jenvman **A novel system for environmental monitoring through a cooperative/ synergistic scheme between bioindicators and biosensors** Frank Batzias, Christina G. Siontorou* Department of Industrial Management and Technology, University of Piraeus, Karaoli & Dimitriou 80, 18534 Piraeus, Greece Received 26 January 2005; received in revised form 22 December 2005; accepted 23 December 2005 Available online 29 March 2006

No.	Journal Year 2007
12	ECOLOGICAL INFORMATICS 2 (2007) 187–196 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolinf ELSEVIER **Modeling the effects of varying data quality on trend detection in environmental monitoring** Mika Sulkava[a,*], Sebastiaan Luyssaert[b], Pasi Rautio[c], Ivan A. Janssens[b], Jaakko Hollmén[a] [a]Laboratory of Computer and Information Science, Helsinki University of Technology, Espoo, Finland [b]Research Group of Plant and Vegetation Ecology, Department of Biology, University of Antwerp, Antwerp, Belgium [c]Parkano Research Station, Finnish Forest Research Institute, Parkano, Finland
13	ECOLOGICAL INFORMATICS 3 (2008) 131–141 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolinf ELSEVIER **Improving the design of environmental monitoring networks. Case study on the heavy metals in mosses survey in Germany** Roland Pesch[a,*], Winfried Schröder[a,1], Helga Dieffenbach-Fries[b,2], Lutz Genßler[c,3], Lukas Kleppin[a,4] [a]University of Vechta, PO-Box 1553, 49364 Vechta, Germany [b]Federal Environment Agency, Fachgebiet II 4.4 - Experimentelle Untersuchungen zur Luftgüte, Paul-Ehrlich-Str. 29, 63225 Langen, Germany [c]North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection, Leibnizstr. 10, 45659 Recklinghausen, Germany
14	Available online at www.sciencedirect.com ScienceDirect Journal of Environmental Radioactivity 93 (2007) 51–61 ELSEVIER JOURNAL OF ENVIRONMENTAL RADIOACTIVITY www.elsevier.com/locate/jenvrad **Time-integrated monitoring of radon progeny around a closed uranium mine in Japan** Yuu Ishimori[*] Ningyo-toge Environmental Engineering Center, Japan Atomic Energy Agency, 1550 Kamisaibara, Kagamino-cho, Tomata-gun, Okayama 708-0698, Japan Received 3 March 2006; received in revised form 23 October 2006; accepted 3 December 2006 Available online 18 January 2007
15	Available online at www.sciencedirect.com ScienceDirect Int. J. Hyg. Environ.-Health 210 (2007) 299–305 ELSEVIER International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **The Environmental Specimen Bank for Human Tissues as part of the German Environmental Specimen Bank** Gerhard A. Wiesmüller[a,*], Rolf Eckard[a], Lorenz Dohler[a], Andreas Günsel[a], Marek Oganowski[a], Christa Schröter-Kermani[b], Christoph Schlüter[b], Andreas Gies[b], Fritz H. Kemper[a] [a]Environmental Specimen Bank for Human Tissues, University Hospital Münster, Domagkstraße 11, 48149 Münster, Germany [b]Federal Environment Agency (Umweltbundesamt), Dessau, Germany
16	WATER RESEARCH 41 (2007) 3539–3552 Available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/watres ELSEVIER IWA WATER RESEARCH **Quo vadis source tracking? Towards a strategic framework for environmental monitoring of fecal pollution** Jorge W. Santo Domingo[a,*], Dustin G. Bambic[b,1], Thomas A. Edge[c], Stefan Wuertz[d] [a]US Environmental Protection Agency, NRMRL/WSWRD/MCCB, 26 W. Martin Luther King Dr., MS 387, Cincinnati, OH 45268, USA [b]Larry Walker Associates, 707 Fourth Street Suite 200, Davis, CA 95616, USA [c]National Water Research Institute, Environment Canada, 867 Lakeshore Road, Burlington, Ont., Canada L7R 4A6 [d]Department of Civil and Environmental Engineering, University of California, Davis, One Shields Avenue, Davis, CA 95616, USA

No.	Journal Year 2007

17

Available online at www.sciencedirect.com
ScienceDirect
Chemosphere 67 (2007) 1877–1886
CHEMOSPHERE
www.elsevier.com/locate/chemosphere

Polychlorinated biphenyls and -naphthalenes in pine needles and soil from Poland – Concentrations and patterns in view of long-term environmental monitoring

Barbara Wyrzykowska [a,b], Nobuyasu Hanari [b], Anna Orlikowska [a], Ilona Bochentin [a], Pawel Rostkowski [a], Jerzy Falandysz [a,*], Sachi Taniyasu [b], Yuichi Horii [b], Qinting Jiang [b,c], Nobuyoshi Yamashita [b]

[a] Department of Environmental Chemistry and Ecotoxicology, University of Gdansk, 18 Sobieskiego Street, PL 80-952 Gdańsk, Poland
[b] National Institute of Advanced Industrial Science and Technology (AIST), EMTECH, Tsukuba, Japan
[c] Department of Biology and Chemistry, City University of Hong Kong, Hong Kong

Accepted 26 May 2006
Available online 4 January 2007

18

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 145 (2007) 893–904
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Modelling and field application of the Chemcatcher passive sampler calibration data for the monitoring of hydrophobic organic pollutants in water

Branislav Vrana [a,*], Graham A. Mills [b], Michiel Kotterman [c], Pim Leonards [c], Kees Booij [d], Richard Greenwood [a]

[a] School of Biological Sciences, University of Portsmouth, King Henry Building, King Henry I Street, Portsmouth PO1 2DY, United Kingdom
[b] School of Pharmacy and Biomedical Sciences, University of Portsmouth, St Michael's Building, White Swan Road, Portsmouth PO1 2DT, United Kingdom
[c] Netherlands Institute for Fisheries Research, P.O. Box 68, Haringkade 1, 1970 AB Ijmuiden, The Netherlands
[d] Royal Netherlands Institute for Sea Research, P.O. Box 59, 1790 AB Texel, The Netherlands

Received 16 December 2005; received in revised form 28 March 2006; accepted 12 April 2006

19

Available online at www.sciencedirect.com
ScienceDirect
Landscape and Urban Planning 79 (2007) 177–189
LANDSCAPE AND URBAN PLANNING
This article is also available online at: www.elsevier.com/locate/landurbplan

Neighbourhood-defined approaches for integrating and designing landscape monitoring in Estonia

Antti Roose [a,*], Kalev Sepp [b], Erki Saluveer [a], Are Kaasik [b], Tõnu Oja [a]

[a] Institute of Geography, University of Tartu, Ülikooli 18, 50090 Tartu, Estonia
[b] Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences, Kreutzwaldi 64, 51014 Tartu, Estonia

Available online 17 April 2006

20

Available online at www.sciencedirect.com
ScienceDirect
Environmental Modelling & Software 22 (2007) 683–692
Environmental Modelling & Software
www.elsevier.com/locate/envsoft

Using interactive archives in evolutionary multiobjective optimization: A case study for long-term groundwater monitoring design

Patrick Reed*, Joshua B. Kollat, V.K. Devireddy

The Pennsylvania State University, Department of Civil and Environmental Engineering, 212 Sackett Building, University Park, PA 16802-1408, USA

Received 25 October 2005; received in revised form 6 November 2005; accepted 15 December 2005
Available online 20 March 2006

No.	Journal Year 2007
21	Available online at www.sciencedirect.com ScienceDirect Int. J. Hyg. Environ. Health 210 (2007) 527–529 International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **Paediatric environmental health speciality units in Europe: Integrating a missing element into medical care** Juan Antonio Ortega Garcia[a,*], Josep Ferris i Tortajada[b], Juan Alonso López Andreu[b] [a]*Paediatric Environmental Health Speciality Unit, University Hospital Virgen of Arrixaca, CP 30120, Murcia, Spain* [b]*Paediatric Environmental Health Speciality Unit, University Hospital La Fe, CP 46009, Valencia, Spain*
22	Available online at www.sciencedirect.com ScienceDirect International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **Paediatric environmental health in Hungary** Gabriella Páll[a,*], Anna Páldy[b], Péter Rudnai[b], Gyula Dura[b], Dóra Várnai[a] [a]*National Institute of Child Health, 2100 Budakeszi út. 46 Gödöllő, Hungary* [b]*National Institute of Environmental Health, Hungary*
23	ECOLOGICAL ECONOMICS 61 (2007) 674–683 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolecon ECOLOGICAL ECONOMICS ANALYSIS **Health benefits of tunneling through the Chinese environmental Kuznets curve (EKC)** *Victor Brajer, Robert W. Mead*, Feng Xiao* *Department of Economics, California State University, Fullerton, Fullerton, CA 92834, United States*
24	Available online at www.sciencedirect.com ScienceDirect Toxicology Letters 172 (2007) 48–59 Toxicology Letters www.elsevier.com/locate/toxlet Cytokines and other immunological biomarkers in children's environmental health studies Paurene Duramad[a,b], Ira B. Tager[a], Nina T. Holland[a,*] [a] *Children's Environmental Health Center, School of Public Health, University of California, Berkeley, CA 94720-7360, United States* [b] *Department of Pathology, Brigham and Women's Hospital and Harvard Medical School, Boston, CA 02115, United States* Available online 25 May 2007
25	ECOLOGICAL ECONOMICS 61 (2007) 367–374 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolecon ECOLOGICAL ECONOMICS ANALYSIS **Does environmental quality influence health expenditures? Empirical evidence from a panel of selected OECD countries** *Paresh Kumar Narayan[a,*], Seema Narayan[b]* [a]*School of Accounting, Economics and Finance, Faculty of Business and Law, Deakin University, 221 Burwood Highway, Burwood, Victoria 3125, Australia* [b]*School of Economics, Finance and Marketing, RMIT University, 239 Burkestreet, Melbourne, Australia*
26	Available online at www.sciencedirect.com ScienceDirect Chemosphere 67 (2007) 1108–1116 CHEMOSPHERE www.elsevier.com/locate/chemosphere A preliminary assessment of the potential environmental and human health impact of unsymmetrical dimethylhydrazine as a result of space activities Lars Carlsen [a,*], Olga A. Kenesova [b], Svetlana E. Batyrbekova [b] [a] *Awareness Center, Hyldebuen 4, Veddelev, DK-4000 Roskilde, Denmark* [b] *Center of Physical-Chemical Methods of Analysis, 050012 Kunaeva butyr str., 92a, Almaty, Kazakhstan* Received 18 September 2006; received in revised form 15 November 2006; accepted 17 November 2006 Available online 17 January 2007

No.	Journal Year 2007
27	ELSEVIER Available online at www.sciencedirect.com ScienceDirect Int. J. Hyg. Environ. Health 210 (2007) 541–546 International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **Children's environmental health and the precautionary principle** Dorota Jarosinska*, David Gee *European Environment Agency, Kongens Nytorv 6, 1050 Copenhagen, Denmark*
28	ELSEVIER Available online at www.sciencedirect.com ScienceDirect Chemosphere 67 (2007) 1108–1116 CHEMOSPHERE www.elsevier.com/locate/chemosphere A preliminary assessment of the potential environmental and human health impact of unsymmetrical dimethylhydrazine as a result of space activities Lars Carlsen [a,*], Olga A. Kenesova [b], Svetlana E. Batyrbekova [b] [a] *Awareness Center, Hyldeholm 4, Veddelev, DK-4000 Roskilde, Denmark* [b] *Center of Physical-Chemical Methods of Analysis, 050012 Kurmay batyr str., 95a, Almaty, Kazakhstan* Received 18 September 2006; received in revised form 15 November 2006; accepted 17 November 2006 Available online 17 January 2007
29	ELSEVIER Available online at www.sciencedirect.com ScienceDirect Int. J. Hyg. Environ. Health 210 (2007) 521–525 International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **International strategies in children's environmental health** P.J. van den Hazel *Public Health Services Gelderland Midden, Postbox 5364, 6802 EJ Arnhem, The Netherlands*
30	ENVIRONMENTAL SCIENCE & POLICY 10 (2007) 150–161 ELSEVIER available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/envsci Environmental Science & Policy **Community knowledge in environmental health science: co-producing policy expertise** *Jason Corburn** *School of International & Public Affairs, 400 Avery Hall, Columbia University, New York, NY 10027, USA*

No.	Journal Year 2007

31

ELSEVIER

Journal of Environmental Management 82 (2007) 319–331

Journal of Environmental Management

www.elsevier.com/locate/jenvman

Environmental whole farm management plans: Their character, diversity, and use as agri-environmental indicators in New Zealand

Andrew K. Manderson[a,*], Alec D. Mackay[a], Alan P. Palmer[b]

[a]*AgResearch Grasslands, Grasslands Research Centre, Private Bag 11008, Palmerston North, New Zealand*
[b]*Institute of Natural Resources, Massey University, Private Bag 11222, Palmerston North, New Zealand*

Received 30 October 2004; received in revised form 19 May 2005; accepted 19 May 2005
Available online 7 November 2006

32

ELSEVIER

Journal of Environmental Management 82 (2007) 495–511

Journal of Environmental Management

www.elsevier.com/locate/jenvman

An analysis of the implementation of an environmental management system in a local public administration

Macarena Lozano[a,*], José Vallés[b]

[a]*Faculty of Business Sciences, Department of Economics, Quantitative Methods and Economic History, Pablo de Olavide University, 41013 Sevilla, Spain*
[b]*Faculty of Economics and Business Sciences, Department of Applied Economics III, University of Sevilla, 41018 Sevilla, Spain*

Received 26 July 2004; received in revised form 11 January 2006; accepted 16 January 2006
Available online 24 April 2006

33

ELSEVIER

Journal of Environmental Management 82 (2007) 311–318

Journal of Environmental Management

www.elsevier.com/locate/jenvman

Principles and processes for effecting change in environmental management in New Zealand

Jan Valentine[a,*], Evelyn Hurley[b], Janet Reid[a], Will Allen[c]

[a]*Institute of Natural Resources, Massey University, Palmerston North, New Zealand*
[b]*Ministry of Agriculture and Forestry Policy, Palmerston North, New Zealand*
[c]*Landcare Research, Lincoln, New Zealand*

Received 30 October 2004; received in revised form 19 May 2005; accepted 5 August 2005
Available online 13 November 2006

34

ELSEVIER

Journal of Environmental Management 82 (2007) 363–376

Journal of Environmental Management

www.elsevier.com/locate/jenvman

Evaluating farm performance using agri-environmental indicators: Recent experiences for nitrogen management in The Netherlands

J.W.A. Langeveld*, A. Verhagen, J.J. Neeteson, H. van Keulen, J.G. Conijn, R.L.M. Schils, J. Oenema

Plant Research International, Wageningen University and Research Centre, PO Box 16, 6700 AA Wageningen, The Netherlands

Received 30 October 2004; received in revised form 14 November 2005; accepted 14 November 2005
Available online 7 November 2006

35

ELSEVIER

Available online at www.sciencedirect.com
ScienceDirect

Environmental Impact Assessment Review 27 (2007) 319–342

Environmental Impact Assessment Review

www.elsevier.com/locate/eiar

Environmental agreements, EIA follow-up and aboriginal participation in environmental management: The Canadian experience

Ciaran O'Faircheallaigh *

Department of Politics and Public Policy, Griffith Business School, Griffith University, Brisbane, Nathan, Queensland 4111, Australia

Received 22 November 2006; accepted 4 December 2006
Available online 29 January 2007

No.	Journal Year 2007
36	Available online at www.sciencedirect.com ScienceDirect Environmental Modelling & Software 22 (2007) 610–618 Environmental Modelling & Software www.elsevier.com/locate/envsoft **Strategic environmental assessment as an approach to assess waste management systems. Experiences from an Austrian case study** Stefan Salhofer*, Gudrun Wassermann, Erwin Binner *Institute of Waste Management, BOKU—University of Natural Resources and Applied Life Sciences, Vienna, Austria* Received 25 October 2005; received in revised form 6 November 2005; accepted 15 December 2005 Available online 31 March 2006
37	Available online at www.sciencedirect.com ScienceDirect Building and Environment 42 (2007) 3093–3107 BUILDING AND ENVIRONMENT www.elsevier.com/locate/buildenv **On using a communication-mapping model for environmental management (CMEM) to improve environmental performance in project development processes** Vivian W.Y. Tam[a,*], L.Y. Shen[b], Rico M.Y. Yau[b], C.M. Tam[c] *[a] Griffith School of Engineering, Griffith University, PATH 30 Gold Coast Mail Centre, QLD 9726, Australia* *[b] Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Hong Kong* *[c] Department of Building and Construction, City University of Hong Kong, Hong Kong* Received 21 February 2005; received in revised form 13 October 2006; accepted 23 October 2006
38	Energy Policy 35 (2007) 4869–4878 ENERGY POLICY www.elsevier.com/locate/enpol **Integration between environmental management and strategic planning in the oil and gas sector** Alessandra Magrini, Luiz dos Santos Lins* *Administration and Accounting College (FACC), Federal University of Rio de Janeiro, Rua Araujoia, 1215, bloco 2, apto 405-Freguesia-Jacarepaguá, Rio de Janeiro, CEP: 22 745-271, Brazil* Available online 8 June 2007
39	Available online at www.sciencedirect.com ScienceDirect Journal of Cleaner Production 15 (2007) 1063–1075 Journal of Cleaner Production www.elsevier.com/locate/jclepro **Assessment of environmental aspects and determination of environmental targets within environmental management systems (EMS) — development of a procedure for Volkswagen** Marko Gerniuks [a,*], Jens Buchgeister [b], Liselotte Schebek [b] *[a] Volkswagen AG, Letter box 011/1774, 38436 Wolfsburg, Germany* *[b] Forschungszentrum Karlsruhe, Hermann-von-Helmholtz-Platz1, 76344 Eggenstein-Leopoldshafen, Germany* Received 10 November 2005; accepted 12 June 2006 Available online 8 September 2006
40	Available online at www.sciencedirect.com ScienceDirect Journal of Cleaner Production 15 (2007) 1482–1493 Journal of Cleaner Production www.elsevier.com/locate/jclepro **The role of environmental management system on introduction of new technologies in the metal and chemical/paper/plastics industries** Gregor Radonjič [a,*], Polona Tominc [b] *[a] Institute of Technology, University of Maribor, Faculty of Economics and Business, Razlagova 14, 2000 Maribor, Slovenia* *[b] Institute of Entrepreneurship and Small Business Management, University of Maribor, Faculty of Economics and Business, Razlagova 14, 2000 Maribor, Slovenia* Received 20 July 2005; accepted 27 March 2006 Available online 5 June 2006

No.	Journal Year 2007
41	ELSEVIER Journal of Environmental Management 82 (2007) 221–239 Journal of Environmental Management www.elsevier.com/locate/jenvman **A novel system for environmental monitoring through a cooperative/ synergistic scheme between bioindicators and biosensors** Frank Batzias, Christina G. Siontorou* *Department of Industrial Management and Technology, University of Piraeus, Karaoli & Dimitriou 80, 18534 Piraeus, Greece* Received 26 January 2005; received in revised form 22 December 2005; accepted 23 December 2005 Available online 29 March 2006
42	ECOLOGICAL INFORMATICS 2 (2007) 157–176 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolinf ELSEVIER **Modeling the effects of varying data quality on trend detection in environmental monitoring** *Mika Sulkava[a,*], Sebastiaan Luyssaert[b], Pasi Rautio[c], Ivan A. Janssens[b], Jaakko Hollmén[a]* *[a]Laboratory of Computer and Information Science, Helsinki University of Technology, Espoo, Finland* *[b]Research Group of Plant and Vegetation Ecology, Department of Biology, University of Antwerp, Antwerp, Belgium* *[c]Parkano Research Station, Finnish Forest Research Institute, Parkano, Finland*
43	ECOLOGICAL INFORMATICS 3 (2008) 181–193 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolinf ELSEVIER **Improving the design of environmental monitoring networks. Case study on the heavy metals in mosses survey in Germany** *Roland Pesch[a,*], Winfried Schröder[a,1], Helga Dieffenbach-Fries[b,2], Lutz Genßler[c,3], Lukas Kleppin[a,4]* *[a]University of Vechta, PO-Box 1553, 49364 Vechta, Germany* *[b]Federal Environment Agency, Fachgebiet II 4.4 Experimentelle Untersuchungen zur Luftgüte, Paul-Ehrlich-Str. 29, 63225 Langen, Germany* *[c]North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection, Leibnizstr. 10, 45659 Recklinghausen, Germany*
44	Available online at www.sciencedirect.com ScienceDirect Journal of Environmental Radioactivity 93 (2007) 51–61 ELSEVIER JOURNAL OF ENVIRONMENTAL RADIOACTIVITY www.elsevier.com/locate/jenvrad **Time-integrated monitoring of radon progeny around a closed uranium mine in Japan** Yuu Ishimori* *Ningyo-toge Environmental Engineering Center, Japan Atomic Energy Agency, 1550 Kamisaibara, Kagamino-cho, Tomata-gun, Okayama 708-0698, Japan* Received 3 March 2006; received in revised form 23 October 2006; accepted 3 December 2006 Available online 18 January 2007
45	Available online at www.sciencedirect.com ScienceDirect Int. J. Hyg. Environ.-Health 210 (2007) 299–305 ELSEVIER International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **The Environmental Specimen Bank for Human Tissues as part of the German Environmental Specimen Bank** Gerhard A. Wiesmüller[a,*], Rolf Eckard[a], Lorenz Dobler[a], Andreas Günsel[a], Marek Oganowski[a], Christa Schröter-Kermani[b], Christoph Schlüter[b], Andreas Gies[b], Fritz H. Kemper[a] *[a]Environmental Specimen Bank for Human Tissues, University Hospital Münster, Domagkstraße 11, 48149 Münster, Germany* *[b]Federal Environment Agency (Umweltbundesamt), Dessau, Germany*

No.	Journal Year 2008

WATER RESEARCH 41 (2007) 3539–3552

ELSEVIER

Available at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/watres

WATER RESEARCH

Quo vadis source tracking? Towards a strategic framework for environmental monitoring of fecal pollution

Jorge W. Santo Domingo[a,*], Dustin G. Bambic[b,1], Thomas A. Edge[c], Stefan Wuertz[d]

[a]US Environmental Protection Agency, NRMRL/WSWRD/MCCB, 26 W. Martin Luther King Dr., MS 387, Cincinnati, OH 45268, USA
[b]Larry Walker Associates, 707 Fourth Street Suite 200, Davis, CA 95616, USA
[c]National Water Research Institute, Environment Canada, 867 Lakeshore Road, Burlington, Ont., Canada L7R 4A6
[d]Department of Civil and Environmental Engineering, University of California, Davis, One Shields Avenue, Davis, CA 95616, USA

46

ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

Chemosphere 67 (2007) 1877–1886

CHEMOSPHERE

www.elsevier.com/locate/chemosphere

Polychlorinated biphenyls and -naphthalenes in pine needles and soil from Poland – Concentrations and patterns in view of long-term environmental monitoring

Barbara Wyrzykowska [a,b], Nobuyasu Hanari [b], Anna Orlikowska [a], Ilona Bochentin [a], Pawel Rostkowski [a], Jerzy Falandysz [a,*], Sachi Taniyasu [b], Yuichi Horii [b], Qinting Jiang [b,c], Nobuyoshi Yamashita [b]

[a] Department of Environmental Chemistry and Ecotoxicology, University of Gdańsk, 18 Sobieskiego Street, PL 80-952 Gdańsk, Poland
[b] National Institute of Advanced Industrial Science and Technology (AIST), EMTECH, Tsukuba, Japan
[c] Department of Biology and Chemistry, City University of Hong Kong, Hong Kong

47

Accepted 26 May 2006
Available online 4 January 2007

Available online at www.sciencedirect.com

ScienceDirect

Environmental Pollution 145 (2007) 895–904

ENVIRONMENTAL POLLUTION

www.elsevier.com/locate/envpol

Modelling and field application of the Chemcatcher passive sampler calibration data for the monitoring of hydrophobic organic pollutants in water

Branislav Vrana [a,*], Graham A. Mills [b], Michiel Kotterman [c], Pim Leonards [c], Kees Booij [d], Richard Greenwood [a]

[a] School of Biological Sciences, University of Portsmouth, King Henry Building, King Henry I Street, Portsmouth PO1 2DY, United Kingdom
[b] School of Pharmacy and Biomedical Sciences, University of Portsmouth, St Michael's Building, White Swan Road, Portsmouth PO1 2DT, United Kingdom
[c] Netherlands Institute for Fisheries Research, P.O. Box 68, Haringkade 1, 1970 AB IJmuiden, The Netherlands
[d] Royal Netherlands Institute for Sea Research, P.O. Box 59, 1790 AB Texel, The Netherlands

Received 18 December 2005; received in revised form 28 March 2006; accepted 12 April 2006

48

The exchange kinetics of hydrophobic organic pollutants between passive sampler and water were modelled to enable the measurement of time weighted average concentrations of pollutants.

Available online at www.sciencedirect.com

ScienceDirect

Landscape and Urban Planning 79 (2007) 177–189

LANDSCAPE AND URBAN PLANNING

This article is also available online at: www.elsevier.com/locate/landurbplan

Neighbourhood-defined approaches for integrating and designing landscape monitoring in Estonia

Antti Roose[a,*], Kalev Sepp[b], Erki Saluveer[a], Are Kaasik[b], Tõnu Oja[a]

[a] Institute of Geography, University of Tartu, Ülikooli 18, 50090 Tartu, Estonia
[b] Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences, Kreutzwaldi 64, 51014 Tartu, Estonia

Available online 17 April 2006

49

ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

Environmental Modelling & Software 22 (2007) 683–692

Environmental Modelling & Software

www.elsevier.com/locate/envsoft

Using interactive archives in evolutionary multiobjective optimization: A case study for long-term groundwater monitoring design

Patrick Reed*, Joshua B. Kollat, V.K. Devireddy

The Pennsylvania State University, Department of Civil and Environmental Engineering, 212 Sackett Building, University Park, PA 16802-1408, USA

Received 25 October 2005; received in revised form 6 November 2005; accepted 15 December 2005
Available online 20 March 2006

50

No.	Journal Year 2008

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 153 (2008) 309–314
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Genotypic and environmental variation in chromium, cadmium and lead concentrations in rice

Fanrong Zeng [a], Ying Mao [a], Wangda Cheng [b], Feibo Wu [a], Guoping Zhang [a,*]

[a] Department of Agronomy, College of Agriculture and Biotechnology, Huajiachi Campus, Zhejiang University, Hangzhou 310029, China
[b] Jiaxing Academy of Agricultural Science Research, Jiaxing, Zhejiang 314016, China

Received 6 March 2007; received in revised form 19 August 2007; accepted 22 August 2007

51

Some rice genotypes had consistently low grain Cr, Cd and Pb concentrations under the soil with differently contaminated levels.

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 154 (2008) 254–263
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Heavy metal (Cu, Zn, Cd and Pb) contamination of vegetables in urban India: A case study in Varanasi

Rajesh Kumar Sharma [a], Madhoolika Agrawal [a,*], Fiona M. Marshall [b]

[a] Ecology Research Laboratory, Department of Botany, Banaras Hindu University, Varanasi 221005, India
[b] SPRU, Freeman Centre, University of Sussex, Brighton, BN1 9QE, United Kingdom

Received 12 January 2007; received in revised form 26 September 2007; accepted 7 October 2007

52

Atmospheric depositions can significantly increase the heavy metal concentrations in vegetables during marketing.

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 151 (2008) 17–26
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Spatial distribution and internal metal concentrations of terrestrial arthropods in a moderately contaminated lowland floodplain along the Rhine River

Aafke M. Schipper [a,*], Sander Wijnhoven [b,c], Rob S.E.W. Leuven [a], Ad M.J. Ragas [a], A. Jan Hendriks [a]

[a] Department of Environmental Science, Institute for Wetland and Water Research, Radboud University Nijmegen, P.O. Box 9010, 6500 GL Nijmegen, The Netherlands
[b] Centre for Sustainable Management of Resources, Institute for Science, Innovation and Society, Radboud University Nijmegen, P.O. Box 9010, 6500 GL Nijmegen, The Netherlands
[c] Netherlands Institute of Ecology, Centre for Estuarine and Marine Ecology, Yerseke Laboratory, P.O. Box 140, 4400 AC Yerseke, The Netherlands

Received 15 November 2006; received in revised form 9 March 2007; accepted 13 March 2007

53

Recurrent floodplain inundations affect terrestrial arthropod numbers and metal contamination levels.

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 152 (2008) 686–692
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Health risks of heavy metals in contaminated soils and food crops irrigated with wastewater in Beijing, China

S. Khan [a,b], Q. Cao [a], Y.M. Zheng [a], Y.Z. Huang [a], Y.G. Zhu [a,*]

[a] Research Center for Eco-environmental Sciences, Chinese Academy of Sciences, 18 Shuangqing Road, Beijing 100085, China
[b] Department of Environmental Sciences, University of Peshawar, 25120 Peshawar, Pakistan

Received 20 April 2007; received in revised form 23 June 2007; accepted 26 June 2007

54

Long-term wastewater irrigation leads to buildup of heavy metals in soils and food crops.

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 153 (2008) 590–593
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Genotoxicity detected in wild mice living in a highly polluted wetland area in south western Spain

Santiago Mateos, Paula Daza, Inmaculada Domínguez, José Antonio Cárdenas, Felipe Cortés*

University of Seville, Department of Cell Biology, Faculty of Biology, Avenida de la Reina Mercedes nº 6, E-41012 Seville, Spain

Received 12 June 2007; received in revised form 3 September 2007; accepted 9 September 2007

55

We have found an increased genotoxic damage in wild mice in a highly polluted area from industry, mining and agriculture in SW Spain, as assessed by the Comet assay.

No.	Journal Year 2008

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 151 (2008) 576–584
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Metal concentrations and mobility in marine sediment and groundwater in coastal reclamation areas: A case study in Shenzhen, China

Kouping Chen*, Jiu J. Jiao
Department of Earth Sciences, The University of Hong Kong, Pokfulam Road, Hong Kong, China
Received 31 October 2006; received in revised form 29 March 2007; accepted 8 April 2007

56 *Metals in coastal groundwater and marine sediment are affected by land reclamation.*

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 153 (2008) 176–183
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Heavy metal concentrations in marine molluscs from the Moroccan coastal region

Mohamed Maanan*
Géolittomer, UMR 6554 LETG – CNRS, Université de Nantes, BP 81227, 44312 Nantes Cedex 3, France
Received 29 November 2006; received in revised form 27 June 2007; accepted 13 July 2007

57 *The accumulated metal concentrations in bivalves from the clean stations may be considered as useful Atlantic coast reference background levels for future comparison.*

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 152 (2008) 172–183
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Influence of industrial heavy metal pollution on soil free-living nematode population

Stanislav Pen-Mouratov [a], Nosir Shukurov [b], Yosef Steinberger [a,*]
[a] *The Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Ramat-Gan 52900, Israel*
[b] *Institute of Geology and Geophysics, Academy of Sciences, Tashkent 700041, Uzbekistan*
Received 10 January 2007; received in revised form 19 April 2007; accepted 3 May 2007

58 *Trophic structure and sex ratio of soil nematode population are sensitive tools for monitoring industrial pollution.*

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 155 (2008) 20–30
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Influence of tidal regime on the distribution of trace metals in a contaminated tidal freshwater marsh soil colonized with common reed (*Phragmites australis*)

J. Teuchies [a,*], E. de Deckere [a], L. Bervoets [b], J. Meynendonckx [a], S. van Regenmortel [a], R. Blust [b], P. Meire [a]
[a] *Department of Biology, Environmental Management Research Group, University of Antwerp, Universiteitsplein 1C, B-2060 Wilrijk, Belgium*
[b] *Department of Biology, Ecophysiology, Biochemistry and Toxicology Group, University of Antwerp, Groenenborgerlaan 171, B-2020 Antwerp, Belgium*
Received 13 April 2007; received in revised form 30 October 2007; accepted 4 November 2007

59

Environmental Pollution 156 (2008) 1284–1289
Contents lists available at ScienceDirect
Environmental Pollution
journal homepage: www.elsevier.com/locate/envpol

Degradation and plant uptake of nonylphenol (NP) and nonylphenol-12-ethoxylate (NP12EO) in four contrasting agricultural soils

Å.E. Sjöström [a], C.D. Collins [b], S.R. Smith [c], G. Shaw [d,*]
[a] *Department of Environment, Food and Rural Affairs, London, UK*
[b] *Department of Soil Science, School of Human and Environmental Sciences, The University of Reading, Whiteknights, Reading RG6 6DW, UK*
[c] *Department of Civil and Environmental Engineering, Imperial College London, Exhibition Road, London SW7 2AZ, UK*
[d] *Division of Agricultural & Environmental Sciences, University of Nottingham, University Park, Nottingham NG7 2RD, UK*

60 *Degradation curves of nonylphenol (NP) and nonylphenol-12-ethoxylate (NP12EO) in four soils indicate that 26–35% of NP is recalcitrant, with minor NP ingrowth from NP12EO breakdown.*

No.	Journal Year 2008
61	ELSEVIER Journal of Environmental Management 87 (2008) 106–118 Journal of Environmental Management www.elsevier.com/locate/jenvman **Geological and technical characterisation of Iscehisar (Afyon-Turkey) marble deposits and the impact of marble waste on environmental pollution** Mustafa Yavuz Çelik[a,*], Eyüp Sabah[b] [a]Afyon Kocatepe University, Afyon Vocational High School, 03100 Afyon, Turkey [b]Afyon Kocatepe University, Afyon Engineering Faculty, 03100, Afyon, Turkey Received 9 March 2006; received in revised form 24 November 2006; accepted 4 January 2007 Available online 8 March 2007
62	Journal of Geochemical Exploration 99 (2008) 1–28 Contents lists available at ScienceDirect ELSEVIER Journal of Geochemical Exploration journal homepage: www.elsevier.com/locate/jgeoexp **Stream sediment geochemistry of the Upper Mahaweli River Basin of Sri Lanka—Geological and environmental significance** P.N. Ranasinghe[a,e,*], G.W.A.R. Fernando[b], C.B. Dissanayake[c], M.S. Rupasinghe[d] [a] Geological Survey and Mines Bureau, No 04, Galle Road, Dehiwala, Sri Lanka [c] Department of Physics, The Open University of Sri Lanka, PO Box 21, Nugegoda, Sri Lanka [d] Department of Geology, University of Peradeniya, Peradeniya, Sri Lanka [e] Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Buttala, Sri Lanka [f] Department of Geology, Kent State University, Kent, OH 44242, USA
63	INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL 2 (2008) 502–510 available at www.sciencedirect.com ScienceDirect ELSEVIER journal homepage: www.elsevier.com/locate/ijggc **Intermediate storage of carbon dioxide in geological formations: A technical perspective** *Semere Solomon*, Michael Carpenter, Todd Allyn Flach* Det Norske Veritas, DNV – Research and Innovation, NO-1322 Høvik, Norway
64	INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL 2 (2008) 594–604 available at www.sciencedirect.com ScienceDirect ELSEVIER journal homepage: www.elsevier.com/locate/ijggc **Water/acid gas interfacial tensions and their impact on acid gas geological storage** *Virenkumar Shah[a,b], Daniel Broseta[a,*], Gerard Mouronval[b], François Montel[b]* [a] Laboratoire des Fluides Complexes, UMR 5150, Université de Pau et des Pays de l'Adour, BP 1155, 64013 Pau, Cedex, France [b] TOTAL SA, Centre Scientifique et Technique Jean Feger, 64018 Pau, Cedex, France
65	INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL 2 (2008) 594–604 available at www.sciencedirect.com ScienceDirect ELSEVIER journal homepage: www.elsevier.com/locate/ijggc **Water/acid gas interfacial tensions and their impact on acid gas geological storage** *Virenkumar Shah[a,b], Daniel Broseta[a,*], Gerard Mouronval[b], François Montel[b]* [a] Laboratoire des Fluides Complexes, UMR 5150, Université de Pau et des Pays de l'Adour, BP 1155, 64013 Pau, Cedex, France [b] TOTAL SA, Centre Scientifique et Technique Jean Feger, 64018 Pau, Cedex, France

No.	Journal Year 2008

66

Available online at www.sciencedirect.com
ScienceDirect
Journal of Environmental Radioactivity 99 (2008) 81–97
JOURNAL OF ENVIRONMENTAL RADIOACTIVITY
www.elsevier.com/locate/jenvrad

Investigations on indoor Radon in Austria, part 2: Geological classes as categorical external drift for spatial modelling of the Radon potential

Peter Bossew*, Grégoire Dubois, Tore Tollefsen

European Commission – DG Joint Research Centre, Institute for Environment and Sustainability (IES), I-21020 Ispra (VA), Italy

Received 14 November 2006; received in revised form 22 June 2007; accepted 22 June 2007
Available online 27 August 2007

67

SCIENCE OF THE TOTAL ENVIRONMENT 407 (2008) 5795–5801
available at www.sciencedirect.com
ScienceDirect
www.elsevier.com/locate/scitotenv

Large-scale radon hazard evaluation in the Oslofjord region of Norway utilizing indoor radon concentrations, airborne gamma ray spectrometry and geological mapping

Mark Andrew Smethurst[a,*], *Terje Strand*[b,1], *Aud Venke Sundal*[c,1], *Anne Liv Rudjord*[d]

[a]Geological Survey of Norway, Leiv Eirikssons vei 39, N-7040 Trondheim, Norway
[b]Strand Consulting Services, Steinerudåsen 26, N-1354 Bærums Verk, Norway
[c]Institute of Geography, University of Edinburgh, Drummond Street, Edinburgh EH8 9XP, UK
[d]Norwegian Radiation Protection Authority, P.O. Box 55, N-1332 Østerås, Norway

68

Available online at www.sciencedirect.com
ScienceDirect
Environmental Pollution 154 (2008) 89–97
ENVIRONMENTAL POLLUTION
www.elsevier.com/locate/envpol

Correlates of mercury in fish from lakes near Clyde Forks, Ontario, Canada

A.L.M. Ethier*, A.M. Scheuhammer, D.E. Bond

Environment Canada, National Wildlife Research Centre, Carleton University, 1125 Colonel By Drive, Raven Road, Ottawa, ON K1A 0H3, Canada

Received 8 January 2008; accepted 9 January 2008

Fish from lakes near a localized geological Hg source do not have elevated Hg concentrations.

69

Available online at www.sciencedirect.com
ScienceDirect
Waste Management 28 (2008) 2552–2564
wasteMmanagement
www.elsevier.com/locate/wasman

Life cycle assessment of urban waste management: Energy performances and environmental impacts. The case of Rome, Italy

Francesco Cherubini[a,*], Silvia Bargigli[b], Sergio Ulgiati[b]

[a]*Joanneum Research, Elisabethstraße 5, 8010, Graz, Austria*
[b]*Università degli Studi di Napoli "Parthenope", Dipartimento di Scienze per l'Ambiente, Centro Direzionale, Isola C4, 80133 Napoli, Italy*

Accepted 21 November 2007
Available online 29 January 2008

70

Available online at www.sciencedirect.com
ScienceDirect
Global and Planetary Change 60 (2008) 165–192
GLOBAL AND PLANETARY CHANGE
www.elsevier.com/locate/gloplacha

The climatic and physiographic controls of the eastern Mediterranean over the late Pleistocene climates in the southern Levant and its neighboring deserts

Yehouda Enzel[a,*], Rivka Amit[b,1], Uri Dayan[c,2], Onn Crouvi[a,b,3], Ron Kahana[d,4], Baruch Ziv[e,5], David Sharon[a,6]

[a]*Institute of Earth Sciences, The Hebrew University of Jerusalem, Jerusalem 91904, Israel*
[b]*Geological Survey of Israel, 30 Malkhei Israel St., Jerusalem 95501, Israel*
[c]*Department of Geography, The Hebrew University of Jerusalem, Jerusalem 91905, Israel*
[d]*School of Geographical Sciences, University of Bristol, Bristol, Avon, BS8 1SS, UK*
[e]*Open University of Israel, PO Box 808, Ra'anana, 43107, Israel*

Received 28 June 2006; received in revised form 29 January 2007; accepted 1 February 2007
Available online 14 February 2007

No.	Journal Year 2008
71	Journal of Hazardous Materials 159 (2008) 257–263 Contents lists available at ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat **Environmental and health risk analysis of nitrogen trifluoride (NF_3), a toxic and potent greenhouse gas** Wen-Tien Tsai* *Graduate Institute of Bioresources, National Pingtung University of Science and Technology, Pingtung 912, Taiwan*
72	Journal of Environmental Management 88 (2008) 108–114 Journal of Environmental Management www.elsevier.com/locate/jenvman **An approach to tackling the environmental and health impacts of municipal solid waste disposal in developing countries** M.K.O. Ayomoh[a], S.A. Oke[b,*], W.O. Adedeji[c], O.E. Charles-Owaba[d] [a] *Department of Systems Engineering, University of Lagos, Nigeria* [b] *Department of Mechanical Engineering, University of Lagos, Nigeria* [c] *Department of Mechanical Engineering, Yaba College of Technology, Nigeria* [d] *Department of Industrial and Production Engineering, University of Ibadan, Nigeria* Received 5 October 2005; received in revised form 18 January 2007; accepted 29 January 2007 Available online 23 March 2007
73	SCIENCE OF THE TOTAL ENVIRONMENT 393 (2008) 376–384 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/scitotenv Science of the Total Environment **Use of human nails as bio-indicators of heavy metals environmental exposure among school age children in Kenya** *Faridah Hussein Were, Wilson Njue*, Jane Murungi, Ruth Wanjau* *Department of Chemistry in the School of Pure and Applied Sciences at Kenyatta University, P.O. Box 43844-00100 GPO Nairobi, Kenya*
74	Available online at www.sciencedirect.com ScienceDirect Atmospheric Environment 42 (2008) 5499–5503 ATMOSPHERIC ENVIRONMENT www.elsevier.com/locate/atmosenv Short communication **Environmental inequality: Air pollution exposures in California's South Coast Air Basin** Julian D. Marshall* *Department of Civil Engineering, University of Minnesota, Minneapolis, MN 55455, USA* Received 3 October 2007; received in revised form 31 January 2008; accepted 4 February 2008
75	Available online at www.sciencedirect.com ScienceDirect Environmental Pollution 151 (2008) 362–367 ENVIRONMENTAL POLLUTION www.elsevier.com/locate/envpol **Human health effects of air pollution** Marilena Kampa, Elias Castanas* *Laboratory of Experimental Endocrinology, University of Crete, School of Medicine, P.O. Box 2208, Heraklion, 71003, Greece* Received 4 June 2007; accepted 10 June 2007 *The effect of air pollutants on human health and underlying mechanisms of cellular action are discussed.*
76	Available online at www.sciencedirect.com ScienceDirect Waste Management 28 (2008) 885–895 wasteMANAGEMENT www.elsevier.com/locate/wasman **Health risk assessment of air emissions from a municipal solid waste incineration plant – A case study** Federico Cangialosi, Gianluca Intini, Lorenzo Liberti, Michele Notarnicola, Paolo Stellacci * *Department of Environmental Engineering and Sustainable Development, Technical University of Bari, Via Turismo 8, 74100 Taranto, Italy* Accepted 8 May 2007 Available online 3 July 2007

No.	Journal Year 2008
77	Available online at www.sciencedirect.com ScienceDirect Int. J. Hyg. Environ. Health 211 (2008) 412–419 ELSEVIER International Journal of Hygiene and Environmental Health www.elsevier.de/ijheh **Knowledge and perceptions of the health effects of environmental hazards in the general population in Italy** Aida Bianco, Carmelo G.A. Nobile, Francesca Gnisci, Maria Pavia* *Medical School, University of Catanzaro "Magna Graecia", Via Tommaso Campanella, 88100 Catanzaro, Italy* Received 18 August 2006; received in revised form 11 June 2007; accepted 25 July 2007
78	PROCESS SAFETY AND ENVIRONMENTAL PROTECTION 86 (2008) 77–93 available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/psep ELSEVIER **Comparison of methods for assessing environmental, health and safety (EHS) hazards in early phases of chemical process design** *Isaac Kweku Adu, Hirokazu Sugiyama, Ulrich Fischer*, Konrad Hungerbühler* *Institute for Chemical and Bioengineering, ETH Zurich, Wolfgang-Pauli Strasse 10, 8093 Zurich, Switzerland*
79	ECOLOGICAL ECONOMICS 64 (2008) 632–642 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolecon ELSEVIER ANALYSIS **Empirical influence of environmental management on innovation: Evidence from Europe** *Marcus Wagner** *Bureau d'Economie Théorique et Appliquée, Université Louis Pasteur, 61 avenue de la Forêt Noire, 67085 Strasbourg Cedex, France* *Schöller Chair for Technology and Innovation Management, Technische Universität München, Arcisstr. 21, 80333 München, Germany*
80	Available online at www.sciencedirect.com ScienceDirect Journal of Environmental Radioactivity 99 (2008) 1364–1370 ELSEVIER JOURNAL OF ENVIRONMENTAL RADIOACTIVITY www.elsevier.com/locate/jenvrad An overview of the ERICA Integrated Approach to the assessment and management of environmental risks from ionising contaminants Carl-Magnus Larsson* *Swedish Radiation Safety Authority, 171 16 Stockholm, Sweden* Received 16 September 2007; accepted 20 November 2007 Available online 7 February 2008
81	Available online at www.sciencedirect.com ScienceDirect Building and Environment 43 (2008) 1082–1090 ELSEVIER BUILDING AND ENVIRONMENT www.elsevier.com/locate/buildenv Unitary management and environmental performance by monitoring and protection of mineral resources for construction materials from Romania Silviana Marica[a], Valentina Cetean[a], Gheorghe Lazaroiu[b,*] [a]*Procema Geologi Ltd., Bucharest, Romania* [b]*Department of Power Plants, University Politechnic of Bucharest, Splaiul Independentei 313, Bucharest, Romania* Received 2 May 2006; received in revised form 31 July 2006; accepted 2 February 2007
82	Journal of Environmental Management 86 (2008) 407–418 ELSEVIER Journal of Environmental Management www.elsevier.com/locate/jenvman Adaptive environmental management of tourism in the Province of Siena, Italy using the ecological footprint Trista M. Patterson[a,*], Valentina Niccolucci[b], Nadia Marchettini[b] [a]*Pacific Northwest Research Station, USDA Forest Service, 2770 Sherwood Ln 2A, Juneau AK 99801, USA* [b]*Department of Chemical and Biosystems Sciences, University of Siena, via della Diana 2A, 53100 Siena, Italy* Received 23 September 2005; received in revised form 3 February 2006; accepted 5 April 2006 Available online 8 December 2006

No.	Journal Year 2008

BIOLOGICAL CONSERVATION 141 (2008) 2417–2431

available at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/biocon

Review

Stakeholder participation for environmental management: A literature review

*Mark S. Reed**

Sustainability Research Institute, School of Earth and Environment, University of Leeds, Woodhouse Lane, Leeds, West Yorkshire LS2 9JT, United Kingdom

83

Available online at www.sciencedirect.com

ScienceDirect

Marine Policy 32 (2008) 514–521

MARINE POLICY

www.elsevier.com/locate/marpol

The institutional implications of environmental ethics for fishery management in the US exclusive economic zone

Donald M. Schug

2325 Shire Lane, Davis, CA 95616, USA

Received 3 September 2007; accepted 6 September 2007

84

Journal of Rural Studies 24 (2008) 304–321

JOURNAL OF RURAL STUDIES

www.elsevier.com/locate/jrurstud

Imagined communities, contested watersheds: Challenges to integrated water resources management in agricultural areas

Cecilia Ferreyra*, Rob C. de Loë, Reid D. Kreutzwiser

Guelph Water Management Group, Department of Geography, University of Guelph, Guelph, Ont., Canada N1G 2W1

85

Energy Policy 36 (2008) 163–180

ENERGY POLICY

www.elsevier.com/locate/enpol

Economic and environmental impacts from the implementation of an intelligent demand side management system at the European level

G. Papagiannis*, A. Dagoumas, N. Lettas, P. Dokopoulos

Power Systems Laboratory, Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, GR-54124 Thessaloniki, Greece

Received 29 June 2007; accepted 4 September 2007
Available online 22 October 2007

86

Landscape and Urban Planning 88 (2008) 81–94

Contents lists available at ScienceDirect

Landscape and Urban Planning

journal homepage: www.elsevier.com/locate/landurbplan

A method for soil environmental quality evaluation for management and planning in urban areas

Borut Vrščaj[a,b,*], Laura Poggio[a], Franco Ajmone Marsan[a]

[a] *Università di Torino, Dipartimento di Valorizzazione e Protezione delle Risorse Agroforestale, (DI.VA.P.R.A.), settore Chimica Agraria, Via Leonardo da Vinci 44, 10095 Grugliasco, Torino, Italy*
[b] *Agricultural Institute of Slovenia, Centre for Soil and Environment, Hacquetova 17, SI1001 Ljubljana, Slovenia*

87

Journal of Environmental Management 88 (2008) 1–10

Journal of Environmental Management

www.elsevier.com/locate/jenvman

Evaluating sustainable forest management strategies with the Analytic Network Process in a Pressure-State-Response framework

Bernhard Wolfslehner*, Harald Vacik

Department of Forest and Soil Sciences, Institute of Silviculture, University of Natural Resources and Applied Life Sciences, Peter Jordanstr. 82, A-1190 Vienna, Austria

Received 13 October 2005; received in revised form 13 December 2006; accepted 26 January 2007
Available online 6 April 2007

88

No.	Journal Year 2008
89	ELSEVIER Journal of Environmental Management 88 (2008) 1025–1036 Journal of Environmental Management www.elsevier.com/locate/jenvman **Reflections on the use of Bayesian belief networks for adaptive management** Hans Jørgen Henriksen*, Heidi Christiansen Barlebo *Geological Survey of Denmark and Greenland (GEUS), Øster Voldgade 10, DK-1350 Copenhagen K, Denmark* Received 19 November 2005; received in revised form 3 May 2007; accepted 11 May 2007 Available online 29 June 2007
90	Available online at www.sciencedirect.com ScienceDirect ELSEVIER Dendrochronologia 26 (2008) 165–171 DENDROCHRONOLOGIA www.elsevier.de/dendro ORIGINAL ARTICLE **Tree-ring characterization of *Araucaria columnaris* Hook and its applicability as a lead indicator in environmental monitoring** Jean G.S. Medeiros[a], Mario Tomazello Fo.[a,*], Francisco J. Krug[b], Ana Elisa S. Vives[c] [a]*Department of Forest Sciences, ESALQ, University of São Paulo, P.O. Box 09, Piracicaba 13418-900, SP, Brazil* [b]*Center of Nuclear Energy in Agriculture, University of São Paulo, P.O. Box 96, Piracicaba, SP, Brazil* [c]*University Methodist of Piracicaba, P.O. Box 78, Piracicaba, SP, Brazil* Received 17 April 2007; accepted 8 July 2008
91	Journal of Environmental Management 90 (2009) 3208–3223 Contents lists available at ScienceDirect ELSEVIER Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman Assessing the influence of environmental impact assessments on science and policy: An analysis of the Three Gorges Project Desiree Tullos* *Department of Biological and Ecological Engineering, Oregon State University, 116 Gilmore Hall, Corvallis, OR 97331, United States*
92	Available online at www.sciencedirect.com ScienceDirect ELSEVIER Environmental Impact Assessment Review 28 (2008) 591–616 Environmental Impact Assessment Review www.elsevier.com/locate/eiar Much ado about SEA/SA monitoring: The performance of English Regional Spatial Strategies, and some German comparisons Marie Hanusch [a,*], John Glasson [b] [a] *Helmholtz Centre for Environmental Research — UFZ, Department Urban Ecology, Environmental Planning and Transport, Permoserstr. 15, 04318 Leipzig, Germany* [b] *Oxford Brookes University, Oxford Institute for Sustainable Development, School of the Built Environment, Headington Campus, Gipsy Lane, Oxford OX3 0BP, UK* Received 26 September 2007; received in revised form 23 November 2007; accepted 3 December 2007 Available online 4 March 2008
93	ENVIRONMENTAL SCIENCE & POLICY 11 (2008) 305–322 available at www.sciencedirect.com ScienceDirect ELSEVIER journal homepage: www.elsevier.com/locate/envsci **Uncertainty in water quality data and its implications for trend detection: lessons from Swedish environmental data** *Karl Wahlin, Anders Grimvall** *Department of Computer and Information Science, Linköping University, SE-58183 Linköping, Sweden*
94	ECOLOGICAL INDICATORS 9 (2009) 95–106 available at www.sciencedirect.com ScienceDirect ELSEVIER journal homepage: www.elsevier.com/locate/ecolind **A fuzzy anomaly indicator for environmental monitoring at continental scale** *Daniela Stroppiana [a,*], Mirco Boschetti [a], Pietro Alessandro Brivio [a], Paola Carrara [a], Gloria Bordogna [b]* [a] *IREA CNR, Institute for Electromagnetic Sensing of the Environment, Milano, Italy* [b] *IDPA CNR, Institute for the Dynamics of Environmental Processes, Dalmine (BG), Italy*
95	Environmental Research 107 (2008) 371–379 Contents lists available at ScienceDirect ELSEVIER Environmental Research journal homepage: www.elsevier.com/locate/envres Absorption of polycyclic aromatic hydrocarbons by *Pinus* bark: Analytical method and use for environmental pollution monitoring in the Palermo area (Sicily, Italy) Santino Orecchio*, Antonio Gianguzza, Loredana Culotta *Dipartimento di Chimica Inorganica e Analitica, Università di Palermo, Parco d'Orleans 2, 90128 Palermo, Italy*

No.	Journal Year 2008
96	Journal of Arid Environments 72 (2008) 557–572 Journal of Arid Environments www.elsevier.com/locate/jaridenv **Are long-term vegetation dynamics useful in monitoring and assessing desertification processes in the arid steppe, southern Tunisia** A. Hanafi*, S. Jauffret Institut de Recherche pour le Développement (IRD) – Mission de Tunisie, BP 434, 1004 Tunis, Tunisia Received 6 September 2006; received in revised form 25 June 2007; accepted 12 July 2007 Available online 4 September 2007
97	Journal of Environmental Management 88 (2008) 307–316 Journal of Environmental Management www.elsevier.com/locate/jenvman **A heuristic optimization approach for Air Quality Monitoring Network design with the simultaneous consideration of multiple pollutants** A. Elkamel, E. Fatehifar, M. Taheri, M.S. Al-Rashidi, A. Lohi Received 3 September 2006; received in revised form 25 February 2007; accepted 16 March 2007 Available online 9 May 2007
98	Available online at www.sciencedirect.com ScienceDirect Ecotoxicology and Environmental Safety 69 (2008) 254–262 Ecotoxicology and Environmental Safety www.elsevier.com/locate/ecoenv **Short-term effects of benzalkonium chloride and atrazine on *Elodea canadensis* using a miniaturised microbioreactor system for an online monitoring of physiologic parameters** Marco Vervliet-Scheebaum*, Raphael Ritzenthaler, Johannes Normann, Edgar Wagner Received 3 July 2006; received in revised form 30 January 2007; accepted 2 February 2007 Available online 11 April 2007
99	Available online at www.sciencedirect.com ScienceDirect Journal of Environmental Radioactivity 99 (2008) 596–606 JOURNAL OF ENVIRONMENTAL RADIOACTIVITY www.elsevier.com/locate/jenvrad **Three years of operational experience from Schauinsland CTBT monitoring station** M. Zähringer*, J. Bieringer, C. Schlosser Federal Office for Radiation Protection, 38226 Salzgitter, Germany Received 29 March 2007; received in revised form 10 August 2007; accepted 29 August 2007 Available online 28 November 2007
No.	Journal Year 2009
100	Toxicology in Vitro 23 (2009) 1445–1449 Contents lists available at ScienceDirect Toxicology in Vitro journal homepage: www.elsevier.com/locate/toxinvit **Oxidative stress induced by microcystin-LR on PLHC-1 fish cell line** María Puerto, Silvia Pichardo, Ángeles Jos*, Ana M. Cameán Area of Toxicology, Faculty of Pharmacy, University of Seville, Professor García González No. 2, 41012 Seville, Spain
101	Environmental Pollution 157 (2009) 1585–1592 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Application of the comet assay and detection of DNA damage in haemocytes of medicinal leech affected by aluminium pollution: A case study** Zlatko Mihaljević*, Ivančica Ternjej, Igor Stanković, Mladen Kerovec, Nevenka Kopjar *The alkaline comet assay applied on Hirudo verbana haemocytes can be a useful tool in determining the potential genotoxicity of water and sediment pollutants.*
102	Environmental Pollution 157 (2009) 3098–3105 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Habitat type-based bioaccumulation and risk assessment of metal and As contamination in earthworms, beetles and woodlice** Frouke Vermeulen*, Nico W. Van den Brink, Helga D'Havé, Valentine K. Mubiana, Ronny Blust, Lieven Bervoets, Wim De Coen *Our study provided essential insights into habitat-specific accumulation patterns with respect to factors influencing metal bioaccumulation, BAFs, and site-specific risk assessment.*

No.	Journal Year 2009
103	Aquatic Toxicology 95 (2009) 152–161 Contents lists available at ScienceDirect Aquatic Toxicology journal homepage: www.elsevier.com/locate/aquatox **Variation in genotoxic stress tolerance among frog populations exposed to UV and pollutant gradients** Olivier Marquis[a], Claude Miaud[a,*], Gentile Francesco Ficetola[a,b], Aurore Bocher[c], Florence Mouchet[d], Sylvie Guittonneau[c], Alain Devaux[e] [a] Laboratoire d'Ecologie Alpine, UMR CNRS 5553, Université de Savoie, Technolac, Le Bourget du Lac, France [b] Department of Biology, Università degli Studi di Milano, Milan, Italy [c] Laboratoire de Chimie Moléculaire et Environnement, Université de Savoie, Le Bourget du Lac, France [d] Laboratoire d'Ecologie Fonctionnelle, UMR CNRS-UPS-INPT 5245, Institut National Polytechnique-ENSAT, Auzeville-Tolosane, France [e] Laboratoire des Sciences de l'Environnement, Ecole Nationale des Travaux Publics de l'Etat, INRA-ERPA, Vaulx-en-Velin, France
104	Chemosphere 77 (2009) 1514–1519 Contents lists available at ScienceDirect Chemosphere journal homepage: www.elsevier.com/locate/chemosphere **Screening of hydrophobic DNA adducts in flounder (*Platichthys flesus*) from the Baltic Sea** C. Malmström[a,*], M. Konn[a], S. Bogovski[b], T. Lang[c], L.-G. Lönnström[a], G. Bylund[a] [a] Laboratory of Aquatic Pathobiology, Department of Biology, Åbo Akademi University, BioCity, Artillerigatan 6, FIN-20520 Åbo, Finland [b] Estonian Institute of Experimental and Clinical Medicine, Akadeemia tee 42, 11619 Tallinn, Estonia [c] vTI Institute of Fishery Ecology, Deichstraße 12, D-27472 Cuxhaven, Germany
105	Environmental Pollution 157 (2009) 2062–2069 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Chemical and ecotoxicological analyses of sediments and elutriates of contaminated rivers due to e-waste recycling activities using a diverse battery of bioassays** F. Wang, A.O.W. Leung, S.C. Wu, M.S. Yang, M.H. Wong* Croucher Institute for Environmental Sciences, and Department of Biology, Hong Kong Baptist University, Kowloon Tong, Hong Kong, China *Toxicity tests using different trophic organisms provided important information, supplementing chemical analyses.*
106	Environmental Pollution 157 (2009) 931–937 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **The potential of willow for remediation of heavy metal polluted calcareous urban soils** Julie K. Jensen[a,b,*], Peter E. Holm[a], Jens Nejrup[b], Morten B. Larsen[c,1], Ole K. Borggaard[a] [a] Department of Basic Sciences and Environment, Faculty of Life Sciences, University of Copenhagen, Thorvaldsensvej 40, 1871 Frederiksberg C, Denmark [b] Copenhagen Recycling Center, Sellerupvej 2, DK-2300 København S, Denmark [c] Department of Environmental Engineering, Technical University of Denmark, DK-2800 Lyngby, Denmark *Willow is suited for remediation of moderately heavy metal polluted calcareous soils.*
107	Environmental Pollution 157 (2009) 3128–3131 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Breeding performance of blue tits (*Cyanistes caeruleus*) and great tits (*Parus major*) in a heavy metal polluted area** T. Eeva*, M. Ahola, E. Lehikoinen Section of Ecology, University of Turku, FIN-20014 Turku, Finland *Breeding performance in two Parid species near a Cu smelter.*
108	Environmental Pollution 157 (2009) 1945–1952 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Model evaluation of the phytoextraction potential of heavy metal hyperaccumulators and non-hyperaccumulators** Hong-Ming Liang[a], Ting-Hsiang Lin[b], Jeng-Min Chiou[c], Kuo-Chen Yeh[a,*] [a] Agricultural Biotechnology Research Center, Academia Sinica, 128 Section 2, Academia Road, Taipei, Taiwan 11529, Taiwan, ROC [b] Department of Statistics, National Taipei University, Taiwan, ROC [c] Institute of Statistical Science, Academia Sinica, Taiwan, ROC *A quantitative solution enables the evaluation of Zn/Cd phytoextraction.*

No.	Journal Year 2009
109	Marine Pollution Bulletin 58 (2009) 107–113 Contents lists available at ScienceDirect Marine Pollution Bulletin journal homepage: www.elsevier.com/locate/marpolbul **Application of oxidative stress indices in natural populations of *Perna viridis* as biomarker of environmental pollution** K.B. Jena [a], X.N. Verlecar [a,*], G.B.N. Chainy [b] [a] Environmental Laboratory, Biological Oceanography Division, National Institute of Oceanography, Dona-Paula, Goa 403004, India [b] Department of Zoology and Biotechnology, Utkal University, Bhubaneswar, Orissa, India
110	Available online at www.sciencedirect.com ScienceDirect Atmospheric Environment 43 (2009) 1430–1443 ATMOSPHERIC ENVIRONMENT www.elsevier.com/locate/atmosenv **Natural emissions of methane from geological seepage in Europe** Giuseppe Etiope* Istituto Nazionale di Geofisica e Vulcanologia, Sezione Roma 2, via V. Murata, 605, 00143 Roma, Italy Received 7 August 2007; received in revised form 5 March 2008; accepted 5 March 2008
111	Science of the Total Environment 407 (2009) 5884–5893 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Enantiomer fractions of chlordane components in sediment from U.S. Geological Survey sites in lakes and rivers** Elin M. Ulrich [a,1], William T. Foreman [a,*], Peter C. Van Metre [b], Jennifer T. Wilson [b], Stewart A. Rounds [c] [a] U.S. Geological Survey, National Water Quality Laboratory, PO Box 25046, Lakewood, CO 80225-0046, United States [b] U.S. Geological Survey, 8027 Exchange Dr., Austin, TX 78754, United States [c] U.S. Geological Survey, 2130 S.W. 5th Ave., Portland, OR 97201, United States
112	International Journal of Greenhouse Gas Control 3 (2009) 481–493 Contents lists available at ScienceDirect International Journal of Greenhouse Gas Control journal homepage: www.elsevier.com/locate/ijggc **TMGAS: A new TOUGH2 EOS module for the numerical simulation of gas mixtures injection in geological structures** Alfredo Battistelli [a,*], Marica Marcolini [b] [a] INGASIR Department, Environmental Systems Unit, Saipem SpA, Rome (RM), Italy [b] RISAMB Department, Environmental Systems Unit, Saipem SpA, Fano (PU), Italy
113	Palaeogeography, Palaeoclimatology, Palaeoecology 273 (2009) 75–86 Contents lists available at ScienceDirect Palaeogeography, Palaeoclimatology, Palaeoecology journal homepage: www.elsevier.com/locate/palaeo **Ichnology and sedimentology of a tide-influenced delta, Lower Miocene Chenque Formation, Patagonia, Argentina: Trace-fossil distribution and response to environmental stresses** Noelia B. Carmona [a,*], Luis A. Buatois [b], Juan José Ponce [a], María Gabriela Mángano [b] [a] Laboratorio de Geología Andina, FONICET — Centro Austral de Investigaciones Científicas (CADIC), B. Houssay 200, C.P. 9410, Ushuaia, Tierra del Fuego, Argentina [b] Department of Geological Sciences, University of Saskatchewan, 114 Science Place, Saskatoon, Canada SK S7N 5E2
114	Global and Planetary Change 65 (2009) 145–154 Contents lists available at ScienceDirect Global and Planetary Change journal homepage: www.elsevier.com/locate/gloplacha **The effects of mid-Phanerozoic environmental stress on bryozoan diversity, paleoecology, and paleogeography** Catherine M. Powers *, David J. Bottjer Department of Earth Sciences, University of Southern California, Los Angeles, CA 90089-0740, USA
115	Palaeogeography, Palaeoclimatology, Palaeoecology 273 (2009) 395–410 Contents lists available at ScienceDirect Palaeogeography, Palaeoclimatology, Palaeoecology journal homepage: www.elsevier.com/locate/palaeo **Organic-carbon deposition and coastal upwelling at mid-latitude during the Upper Ordovician (Late Katian): A case study from the Welsh Basin, UK** T.J. Challands [a,*], H.A. Armstrong [a], D.P. Maloney [a], J.R. Davies [b], D. Wilson [b], A.W. Owen [c] [a] Department of Earth Sciences, Durham University, Science Laboratories, South Road, Durham, DH1 3LE, UK [b] British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, NG12 5GG UK [c] Department of Geographical Earth Sciences, University of Glasgow, Gregory Building, Lilybank Gardens, Glasgow, G12 8QQ, UK

No.	Journal Year 2009
116	Land Use Policy 26S (2009) S317–S325 Contents lists available at ScienceDirect Land Use Policy journal homepage: www.elsevier.com/locate/landusepol **Digging the backyard: Mining and quarrying in the UK and their impact on future land use**☆ A.J. Bloodworth[a,*], P.W. Scott[b], F.M. McEvoy[c] [a] British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, NG12 5GG, UK [b] Camborne School of Mines, University of Exeter, Cornwall Campus, Penryn, Cornwall, TR10 9EZ, UK [c] British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, NG12 5GG, UK
117	Available online at www.sciencedirect.com ScienceDirect C. R. Geoscience 341 (2009) 908–917 COMPTES RENDUS GEOSCIENCE Internal geophysics (Applied geophysics) **Joint use of TEM and MRS methods in a complex geological setting** Anatoly Legchenko[a], Michael Ezersky[b,*], Christian Camerlynck[c], Abdallah Al-Zoubi[d], Konstantinos Chalikakis[a] [a] Institut de recherche pour le développement (IRD-LTHE), BP 53, 38041 Grenoble cedex 9, France [b] Geophysical Institute of Israel, 6, Hubal'at Shem Tov, POB 182, Lod 71100, Israel [c] UMR 7619 Sisyphe, université Pierre-et-Marie-Curie Paris 6, 4, place Jussieu, 75252 Paris cedex 05, France [d] Al-Balqa Applied University, Engineering Faculty, Salt 19117, Jordan Received 18 June 2008; accepted after revision 1 July 2009 Available online 24 September 2009 Written on invitation of the Editorial Board
118	Environmental Pollution 157 (2009) 2378–2385 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Identifying natural and anthropogenic sources of metals in urban and rural soils using GIS-based data, PCA, and spatial interpolation** Harley T. Davis[a], C. Marjorie Aelion[a,d,*], Suzanne McDermott[b], Andrew B. Lawson[c,1] [a] University of South Carolina, Department of Environmental Health Sciences, 921 Assembly Street, Columbia, SC 29208, USA [b] University of South Carolina, Department of Family and Preventive Medicine, 3209 Colonial Drive, Columbia, SC 29203, USA [c] University of South Carolina, Department of Epidemiology and Biostatistics, 800 Sumter Street, Columbia, SC 29208, USA [d] University of Massachusetts, Department of Public Health, 715 No. Pleasant Street, Amherst, MA 01003, USA *GIS-based data, principal component and cluster analysis identified complex distributions of metals in soils in areas with clusters of mental retardation and developmental delay.*
119	Journal of Environmental Management 90 (2009) S224–S236 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Application of a hierarchical framework for assessing environmental impacts of dam operation: Changes in streamflow, bed mobility and recruitment of riparian trees in a western North American river** Michael Burke[a,*,1], Klaus Jorde[a,1], John M. Buffington[b,2] [a] Center for Ecohydraulics Research, University of Idaho, Boise 322 East Front Street, Suite 340, Boise, ID 83702, USA [b] Rocky Mountain Research Station, US Forest Service, 322 East Front Street, Suite 401, Boise, ID 83702, USA
120	Journal of Environmental Management 90 (2009) 3290–3296 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **The study of a method of regional environmental risk assessment** Linyu Xu*, Guiyou Liu State Key Joint Laboratory of Environmental Simulation and Pollution Control, School of Environment, Beijing Normal University, No. 19, Xinjiekouwai Street, Haidian District, Beijing, 100875, China

No.	Journal Year 2009
121	Environment International 35 (2009) 718–726 Contents lists available at ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint **Groundwater contamination by microbiological and chemical substances released from hospital wastewater: Health risk assessment for drinking water consumers** Evens Emmanuel [a,*], Marie Gisèle Pierre [b,c], Yves Perrodin [d] [a] Laboratoire de Qualité de l'Eau et de l'Environnement, Université Quisqueya, BP 796 Port-au-Prince, Haiti [b] Laboratoire d'Analyse des Matériaux, Université Quisqueya, BP 796 Port-au-Prince, Haiti [c] Association Haïtienne Femmes Science et Technologie, Université Quisqueya, BP 796 Port-au-Prince, Haiti [d] Laboratoire des Sciences de l'Environnement, École Nationale des Travaux Publics de l'État, Rue Maurice Audin, 69518 Vaulx-en-Velin, France
122	Science of the Total Environment 407 (2009) 5971–5977 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Health benefits of improving air quality in the rapidly aging Korean society** Hyun Joo Bae [a], Jeongim Park [b,*] [a] Korea Environment Institute, Seoul, 122-706, South Korea [b] SoonChunHyang University, Asan, 336-745, South Korea
123	Environment International 35 (2009) 971–986 Contents lists available at ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint Review article **The toxicology of climate change: Environmental contaminants in a warming world** Pamela D. Noyes [a,b], Matthew K. McElwee [a,b,c], Hilary D. Miller [a,b], Bryan W. Clark [a,b], Lindsey A. Van Tiem [a,b], Kia C. Walcott [a], Kyle N. Erwin [a], Edward D. Levin [a,b,*] [a] Integrated Toxicology and Environmental Health Program, Duke University, Durham, NC, USA [b] Nicholas School of the Environment, Duke University, Durham, NC, USA [c] Laboratory of Molecular Toxicology, National Institute of Environmental Health Sciences, NIH, DHHS, Research Triangle Park, NC, USA
124	Waste Management 29 (2009) 2227–2239 Contents lists available at ScienceDirect Waste Management journal homepage: www.elsevier.com/locate/wasman Review **A review of waste management practices and their impact on human health** L. Giusti * Faculty of Health and Life Sciences, UWE Bristol, Frenchay Campus, Coldharbour Lane, Bristol BS16 1QY, United Kingdom
125	Environmental Pollution 157 (2009) 1521–1525 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Environmental ozone exposure and oxidative DNA damage in adult residents of Florence, Italy** Domenico Palli [a,*], Francesco Sera [a], Lisa Giovannelli [b], Giovanna Masala [a], Daniele Grechi [c,1], Benedetta Bendinelli [a], Saverio Caini [a], Piero Dolara [b], Calogero Saieva [a] [a] Molecular and Nutritional Epidemiology Unit, Cancer Prevention and Research Institute (ISPO), Via Cosimo il Vecchio 2, 50139 Florence, Italy [b] Department of Pharmacology, University of Florence, Viale G.Pieraccini 6, 50139 Florence, Italy [c] Regional Environmental Protection Agency of Tuscany (ARPAT), Via Porpora 22, 50144 Florence, Italy *Ozone concentrations over the 60–90 days before blood drawing correlated with DNA damage in circulating lymphocytes of adults living in the metropolitan area of Florence, Italy.*

No.	Journal Year 2009
126	Environmental Research 109 (2009) 311–320 Contents lists available at ScienceDirect Environmental Research journal homepage: www.elsevier.com/locate/envres **Methodological issues in studies of air pollution and reproductive health** ☆ Tracey J. Woodruff [a,*], Jennifer D. Parker [b], Lyndsey A. Darrow [c], Rémy Slama [d,e], Michelle L. Bell [f], Hyunok Choi [g], Svetlana Glinianaia [h], Katherine J. Hoggatt [i], Catherine J. Karr [j], Danelle T. Lobdell [k], Michelle Wilhelm [l] [a] Program on Reproductive Health and the Environment, Department of Obstetrics, Gynecology, and Reproductive Sciences, University of California San Francisco, San Francisco, CA, USA [b] National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, MD, USA [c] Department of Environmental and Occupational Health, Emory University, Atlanta, GA, USA [d] Team "Environmental Epidemiology Applied to Fecundity and Reproduction", Inserm, U823, Grenoble, France [e] University J. Fourier Grenoble, Medical Faculty, F-38000 Grenoble, France [i] Yale University, New Haven, CT, USA [g] Harvard University, Boston, MA, USA [h] Institute of Health and Society, Newcastle University, Newcastle upon Tyne, UK [i] Department of Epidemiology, University of Michigan, Ann Arbor, MI, USA [j] Department of Pediatrics, University of Washington, Seattle, WA, USA [k] National Health and Environmental Effects Research Laboratory, US Environmental Protection Agency, USA [l] Department of Epidemiology, School of Public Health, University of California, Los Angeles, CA, USA
127	Environmental Research 109 (2009) 567–574 Contents lists available at ScienceDirect Environmental Research journal homepage: www.elsevier.com/locate/envres **Social disadvantage, air pollution, and asthma physician visits in Toronto, Canada** ☆ Tara A. Burra [a], Rahim Moineddin [a,b,c], Mohammad M. Agha [a,b,d], Richard H. Glazier [a,b,c,d,e,*] [a] Faculty of Medicine, University of Toronto, Toronto, Canada [b] Dalla Lana School of Public Health, University of Toronto, Toronto, Canada [c] Department of Family and Community Medicine, University of Toronto, Toronto, Canada [d] Centre for Research on Inner City Health, the Keenan Research Centre in the Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Canada [e] Institute for Clinical Evaluative Sciences, G1 06, 2075 Bayview Avenue, Toronto, ON, Canada M4N 3M5
128	SCIENCE OF THE TOTAL ENVIRONMENT 407 (2009) 1551–1561 available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/scitotenv **Health risk from heavy metals via consumption of food crops in the vicinity of Dabaoshan mine, South China** *Ping Zhuang[a], Murray B. McBride[b], Hanping Xia[a], Ningyu Li[a], Zhian Li[a,*]* [a]Institute of Ecology, South China Botanical Garden, Chinese Academy of Sciences, Guangzhou 510650, China [b]Department of Crop and Soil Sciences, Cornell University, Ithaca, NY 14853, USA
129	WATER RESEARCH 43 (2009) 1207–1218 Available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/watres **The valuation of water quality: Effects of mixing different drinking water qualities** *Martin Rygaard*, Erik Arvin, Philip J. Binning* Department of Environmental Engineering, Technical University of Denmark, Miljøvej, Bygning 113, DK-2800 Kgs. Lyngby, Denmark
130	WATER RESEARCH 43 (2009) 1207–1218 Available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/watres **The valuation of water quality: Effects of mixing different drinking water qualities** *Martin Rygaard*, Erik Arvin, Philip J. Binning* Department of Environmental Engineering, Technical University of Denmark, Miljøvej, Bygning 113, DK-2800 Kgs. Lyngby, Denmark

No.	Journal Year 2009
131	Environmental Impact Assessment Review 29 (2009) 51–59 Contents lists available at ScienceDirect Environmental Impact Assessment Review journal homepage: www.elsevier.com/locate/eiar Identification and development of waste management alternatives for Strategic Environmental Assessment (SEA) Margaret Desmond * Department of Geography, University College, Ireland
132	Journal of Cleaner Production 17 (2009) 971–984 Contents lists available at ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro Choosing an appropriate university or college environmental management system Amelia Clarke [a,*], Rosa Kouri [b] [a] Desautels Faculty of Management, McGill University, 1001 Sherbrooke Street West, Montreal, Quebec, Canada H3G 1A5 [b] Sierra Youth Coalition, 1 Nicholas St, Suite 406, Ottawa, ON, Canada K1N 7B7
133	available at www.sciencedirect.com ScienceDirect www.elsevier.com/locate/ecolecon ANALYSIS Why do manufacturing facilities introduce environmental management systems? Improving and/or signaling performance☆ Nick Johnstone[a,*], Julien Labonne[b] [a] National Policies Division, OECD Environment Directorate, 2 rue André-Pascal, 75775 Paris Cedex 16, France [b] Social Development Department, World Bank, 1818 H Street, NW, Washington, DC 20433, USA
134	Journal of Cleaner Production 17 (2009) 601–607 Contents lists available at ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro Finding the connection: environmental management systems and environmental performance Dagmara Nawrocka*, Thomas Parker International Institute for Industrial Environmental Economics (IIIEE) at Lund University, Sweden, PO. Box 196, Tegnérsplatsen 4, 22100 Lund, Sweden
135	Ecological Modelling 220 (2009) 2559–2569 Contents lists available at ScienceDirect Ecological Modelling journal homepage: www.elsevier.com/locate/ecolmodel A multi-scale approach to modelling spatial and dynamic ecological patterns for reservoir's water quality management Edna Cabecinha [a,*], Martinho Lourenço [b], João Paulo Moura [c], Miguel Ângelo Pardal [d], João Alexandre Cabral [a] [a] Laboratory of Applied Ecology, CITAB – Centre for the Research and Technology of Agro-Environment and Biological Sciences, University of Trás-os-Montes e Alto Douro, 5000-911, Vila Real, Portugal [b] CGUC, Department of Geology, University of Trás-os-Montes e Alto Douro, 5000-911, Vila Real, Portugal [c] Knowledge Engineering and Decision Support Research Center, Department of Engineering, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal [d] IMAR (Institute of Marine Research), Department of Zoology, University of Coimbra, 3004-517 Coimbra, Portugal
136	Available online at www.sciencedirect.com ScienceDirect Urban Forestry & Urban Greening 8 (2009) 309–315 URBAN FORESTRY & URBAN GREENING www.elsevier.de/ufug SHORT COMMUNICATION Hopping on one leg – The challenge of ecosystem disservices for urban green management Jari Lyytimäki*, Maija Sipilä Finnish Environment Institute, Finland

No.	Journal Year 2009
137	Journal of Environmental Management 90 (2009) 3690–3699 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Balancing environmental and industry sustainability: A case study of the US gold mining industry** Bruce Finnie [a,*], Jeffrey Stuart [b], Linda Gibson [a], Fern Zabriskie [a] [a] School of Business, Pacific Lutheran University, Tacoma, WA 98447-0003, USA [b] Dept. of Mathematics, Pacific Lutheran University, Tacoma, WA 98447-0003, USA
138	Journal of Environmental Management 90 (2009) 1280–1288 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Assessing the value of information for water quality management in the North Sea** J.A Bouma*, H.J. van der Woerd, O.J. Kuik Institute for Environmental Studies, Vrije Universiteit, Amsterdam, The Netherlands
139	Journal of Environmental Management 90 (2009) 2730–2736 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Palaeoecology: A tool to improve the management of Australian estuaries** Krystyna M. Saunders [a,*], Kathryn H. Taffs [b] [a] Institute of Antarctic and Southern Ocean Studies, University of Tasmania, Private Bag 77, Hobart, Tasmania, 7001, Australia [b] Centre for Coastal Biogeological and Palaeoenvironmental Research, Southern Cross University, PO Box 157, Lismore, New South Wales, 2480, Australia
140	Environmental Modelling & Software 24 (2009) 885–900 Contents lists available at ScienceDirect Environmental Modelling & Software journal homepage: www.elsevier.com/locate/envsoft **A decision support system for environmental effects monitoring** William G. Booty [a,*], Isaac Wong [a], David Lam [a], Oskar Resler [b] [a] National Water Research Institute, Environment Canada, 867 Lakeshore Road, Burlington, ON, L7R 4A6, Canada [b] University of Guelph, Guelph, ON, N1G 2W1, Canada
141	Chemosphere 74 (2009) 1502–1508 Contents lists available at ScienceDirect Chemosphere journal homepage: www.elsevier.com/locate/chemosphere **Environmental monitoring of PCDD/Fs and metals in the vicinity of a cement plant after using sewage sludge as a secondary fuel** Marta Schuhmacher [a,b], Martí Nadal [a], José L. Domingo [a,*] [a] Laboratory of Toxicology and Environmental Health, "Rovira i Virgili" University, Sant Llorenç 21, 43201 Reus, Catalonia, Spain [b] Environmental Engineering Laboratory, ETSEQ, "Rovira i Virgili" University, Av. Països Catalans 26, 43007 Tarragona, Catalonia, Spain
142	Energy and Buildings 41 (2009) 1019–1030 Contents lists available at ScienceDirect Energy and Buildings journal homepage: www.elsevier.com/locate/enbuild **The impact of auxiliary energy on the efficiency of the heating and cooling system: Monitoring of low-energy buildings** Doreen E. Kalz [a,*], Sebastian Herkel [a], Andreas Wagner [b] [a] Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstr. 2, D - 79110 Freiburg, Germany [b] University of Karlsruhe, Building Science Group, Englerstr. 7, D - 76131 Karlsruhe, Germany

No.	Journal Year 2009
143	Remote Sensing of Environment 113 (2009) 1473–1485 Contents lists available at ScienceDirect Remote Sensing of Environment journal homepage: www.elsevier.com/locate/rse **Synthesis of ground and remote sensing data for monitoring ecosystem functions in the Colorado River Delta, Mexico** Pamela L. Nagler [a,*,1], Edward P. Glenn [a,1], Osvel Hinojosa-Huerta [b] [a] Environmental Research Laboratory, Department of Soil, Water, and Environmental Science, University of Arizona, Tucson, AZ 85721, USA [b] Pronatura Noroeste, San Luis, Sonora, Mexico
144	Chemosphere 77 (2009) 426–433 Contents lists available at ScienceDirect Chemosphere journal homepage: www.elsevier.com/locate/chemosphere **Environmental and biological monitoring of volatile organic compounds in the workplace** J. Caro, M. Gallego * Department of Analytical Chemistry, Campus of Rabanales, University of Córdoba, E-14071 Córdoba, Spain
145	Remote Sensing of Environment 113 (2009) 1486–1496 Contents lists available at ScienceDirect Remote Sensing of Environment journal homepage: www.elsevier.com/locate/rse **A modeling and spatio-temporal analysis framework for monitoring environmental change using NPP as an ecosystem indicator** Robert Crabtree [a,b,*], Christopher Potter [b], Randall Mullen [a], Jennifer Sheldon [a], Shengli Huang [a], Joshua Harmsen [a], Ann Rodman [a], Cathie Jean [a] [a] Yellowstone Center for Resources, Yellowstone National Park, WY 82190, United States [b] NASA Ames Research Center, Moffett Field, CA 94035, United States [c] Yellowstone Center for Resources, Yellowstone National Park, WY 82190, United States [d] Department of Ecosystem and Conservation Sciences, College of Forestry and Conservation, University of Montana, 32 Campus Drive, Missoula, MT 59812, United States
146	Environmental Pollution 157 (2009) 1671–1680 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol Review **Introducing an integrated climate change perspective in POPs modelling, monitoring and regulation** L. Lamon [a,*], M. Dalla Valle [a,b], A. Critto [b,c], A. Marcomini [a,c] [a] CMCC, Euro-Mediterranean Centre for Climate Change, Via Augusta Imperatore 16, 73100 Lecce, Italy [b] Consorzio Venezia Risorse, c/o VEGA, Via della Libertà 5/13, 30175 Marghera, VE, Italy [c] Department of Environmental Sciences, University Ca' Foscari of Venice, Calle Larga S. Marta 2137, 30123 Venice, Italy *Climate change implications on POPs are addressed here with special attention to monitoring, modelling and regulation issues.*
147	Analytica Chimica Acta 634 (2009) 133–140 Contents lists available at ScienceDirect Analytica Chimica Acta journal homepage: www.elsevier.com/locate/aca **On-line monitoring of nine haloacetic acid species at the μg L^{-1} level using post-column reaction-ion chromatography with nicotinamide fluorescence** Paul S. Simone Jr. [1], Patricia L. Ranaivo, Gija Geme [2], Michael A. Brown [3], Gary L. Emmert * Department of Chemistry, The University of Memphis, Memphis, TN 38152, USA
148	Forest Ecology and Management 2585 (2009) 5168–5175 Contents lists available at ScienceDirect Forest Ecology and Management journal homepage: www.elsevier.com/locate/foreco **A new approach to forest biodiversity monitoring in Canada** Stan Boutin [a,*], Diane L. Haughland [a], Jim Schieck [a,b,c], Jim Herbers [b,c], Erin Bayne [a] [a] Department of Biological Sciences, University of Alberta, Edmonton, Alberta, Canada T6G 2E9 [b] Alberta Biodiversity Monitoring Institute, Alberta Research Council, PO Bag 4000, Vegreville, Alberta, Canada T9C 1T4 [c] Alberta Biodiversity Monitoring Institute, University of Alberta, Edmonton, Alberta, Canada T6G 2E9

No.	Journal Year 2010
149	Remote Sensing of Environment 113 (2009) 1382–1396 Contents lists available at ScienceDirect Remote Sensing of Environment journal homepage: www.elsevier.com/locate/rse **Remote sensing change detection tools for natural resource managers: Understanding concepts and tradeoffs in the design of landscape monitoring projects** Robert E. Kennedy [a,*], Philip A. Townsend [b], John E. Gross [c], Warren B. Cohen [a], Paul Bolstad [d], Y.Q. Wang [e], Phyllis Adams [f] [a] USDA Forest Service, PNW Research Station, 3200 SW Jefferson Way, Corvallis, OR, 97331, United States [b] University of Wisconsin-Madison, Department of Forest and Wildlife Ecology, 1630, Linden Drive, Russell Labs, Madison, WI, 53706, United States [c] National Park Service, Office of Inventory, Monitoring, and Evaluation, 1201 Oakridge, Drive, Suite 150, Fort Collins, Colorado 80525-5596, United States [d] University of Minnesota, Department of Forest Resources, 301h Green Hall, 1530, Cleveland Ave. N., St. Paul, MN 55108-6112, United States [e] University of Rhode Island, Department of Natural Resources Science, 1 Greenhouse Road, Kingston, RI 02881-0804, United States [f] USDA Forest Service, 620 SW Main St. Suite 400, Portland, OR 97205, United States
150	Environmental Research 110 (2010) 798–807 Contents lists available at ScienceDirect Environmental Research journal homepage: www.elsevier.com/locate/envres **A quantitative assessment of the carcinogenicity of hexavalent chromium by the oral route and its relevance to human exposure** ☆ Alan H. Stern * New Jersey Department of Environmental Protection, Office of Science, 428 E. State St., Trenton, NJ 08625, United States ARTICLE INFO ABSTRACT
151	Science of the Total Environment 408 (2010) 1736–1744 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **A historical review and bibliometric analysis of research on lead in drinking water field from 1991 to 2007** Jie Hu [a], Yuwei Ma [a], Liang Zhang [b], Fuxing Gan [c], Yuh-Shan Ho [d,e,*] [a] Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands [b] Institute of Geodesy and Geophysics, Chinese Academy of Sciences, Wuhan 430077, People's Republic of China [c] School of Resource and Environmental Science, Wuhan University, Wuhan 430079, People's Republic of China [d] Water Research Centre, Asia University, Taichung 41354, Taiwan [e] Department of Public Health, China Medical University, Taichung 40402, Taiwan
152	Science of the Total Environment 408 (2010) 2327–2330 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Evaluation of the accuracy and consistency of the Swedish Environmental Classification and Information System for pharmaceuticals** Marlene Ågerstrand *, Christina Rudén Royal Institute of Technology/Kungliga Tekniska Högskolan, Department of Philosophy and the History of Technology, Teknikringen 78B, 100 44 Stockholm, Sweden
153	Science of the Total Environment 408 (2010) 3054–3063 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Beyond REACH: Roadblocks and shortcuts en route to integrated risk assessment and management of chemicals** Timo Assmuth *, Mikael Hildén, Matthieu Craye Finnish Environment Institute (SYKE), PO Box 140, FI-00251 Helsinki, Finland European Commission Joint Research Centre, Institute for the protection and Safety of the Citizen (IPSC)Via E. Fermi 2749, 21027 Ispra (VA), Italy
154	Ecotoxicology and Environmental Safety 73 (2010) 213–221 Contents lists available at ScienceDirect Ecotoxicology and Environmental Safety journal homepage: www.elsevier.com/locate/ecoenv Highlighted article **Spatially explicit method for ecotoxicological risk assessment of pesticides for birds** Serenella Sala, Marta Cavalli, Marco Vighi * University of Milano Bicocca, Department of Environmental Sciences, Piazza della Scienza 1, 20126 Milano, Italy

No.	Journal Year 2010
155	Comparative Biochemistry and Physiology, Part C 151 (2010) 25–32 Contents lists available at ScienceDirect Comparative Biochemistry and Physiology, Part C journal homepage: www.elsevier.com/locate/cbpc A new model for predicting time course toxicity of heavy metals based on Biotic Ligand Model (BLM) Ayumi Hatano [1], Ryo Shoji [*] Department of Chemical Science and Engineering, Tokyo National College of Technology 1220-2 Kunugida, Hachioji, Tokyo, 193-0997, Japan
156	Journal of Hazardous Materials 176 (2010) 870–877 Contents lists available at ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat Health risk assessment of BTEX emissions in the landfill environment Ertan Durmusoglu [a,*], Fatih Taspinar [b], Aykan Karademir [a] [a] Department of Environmental Engineering, University of Kocaeli, 41380 Izmit, Kocaeli, Turkey [b] A.R. Veziroglu School of Vocation, University of Kocaeli, Kartepe, Kocaeli, Turkey
157	Science of the Total Environment 408 (2010) 3871–3879 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv Review Ecological vulnerability in risk assessment — A review and perspectives H.J. De Lange [a,*], S. Sala [b], M. Vighi [b], J.H. Faber [a] [a] Centre for Ecosystem Studies, Alterra, Wageningen UR, PO Box 47, 6700 AA Wageningen, The Netherlands [b] Department of Environmental Sciences, University of Milano Bicocca, Piazza della Scienza, 1, 20126 Milano, Italy
158	Science of the Total Environment 408 (2010) 3719–3724 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv Introduction Novel methods for integrated risk assessment of cumulative stressors — Results from the NoMiracle project Hans Løkke [*] Aarhus University, National Environmental Research Institute, Department of Terrestrial Ecology, Vejlsøvej 25, P.O. Box 314, DK-8600 Silkeborg, Denmark
159	Comparative Biochemistry and Physiology, Part C 151 (2010) 360–368 Contents lists available at ScienceDirect Comparative Biochemistry and Physiology, Part C journal homepage: www.elsevier.com/locate/cbpc Molecular characterization and expression of vitellogenin (*Vg*) genes from the cyclopoid copepod, *Paracyclopina nana* exposed to heavy metals Dae-Sik Hwang [a], Kyun-Woo Lee [b], Jeonghoon Han [a], Heum Gi Park [c], Jehee Lee [d], Young-Mi Lee [e,*], Jae-Seong Lee [b,*] [a] Department of Molecular and Environmental Bioscience, Graduate School, Hanyang University, Seoul 133-791, South Korea [b] National Research Lab of Marine Molecular and Environmental Bioscience, Department of Chemistry and the Research Institute for Natural Sciences, College of Natural Sciences, Hanyang University, Seoul 133-791, South Korea [c] Faculty of Marine Bioscience and Technology, College of Life Sciences, Kangneung-Wonju National University, Gangneung 210-702, South Korea [d] Department of Marine Life Science, College of Ocean Science, Jeju National University, Jeju 690-756, South Korea [e] Department of Life Science, College of Natural Sciences, Sangmyung University, Seoul 110-743, South Korea
160	Journal of Environmental Radioactivity 101 (2010) 952–957 Contents lists available at ScienceDirect Journal of Environmental Radioactivity journal homepage: www.elsevier.com/locate/jenvrad Indoor and outdoor Radon concentration measurements in Sivas, Turkey, in comparison with geological setting Metin Mihci [a], Aydin Buyuksarac [b,1], Attila Aydemir [c,*], Nilgun Celebi [d] [a] Iller Bankasi, Etud Plan ve Yol Dairesi, Opera, 06053 Ankara, Turkey [b] Canakkale Onsekiz Mart University, Department of Geophysical Engineering, 17020, Canakkale, Turkey [c] Turkiye Petrolleri A.O. Mustafa Kemal Mah. 2. Cad. No: 86, 06100 Sogutozu, Ankara, Turkey [d] Cekmece Nuclear Research and Training Centre (CNAEM), Cekmece, Istanbul, Turkey

No.	Journal Year 2010
161	Remote Sensing of Environment 114 (2010) 1863–1875 Contents lists available at ScienceDirect Remote Sensing of Environment journal homepage: www.elsevier.com/locate/rse An integrated approach to hydro-geological lineament mapping of a semi-arid region of West Africa using Radarsat-1 and GIS Samuel Corgne [a,*], Ramata Magagi [b], Michel Yergeau [b], Daouda Sylla [b] [a] COSTEL UMR 6554 LETG/IFR 90 CAREN, Université de Rennes2, Place du recteur H. LeMoal, 35042 Rennes Cedex, France [b] CARTEL, Université de Sherbrooke, 2500 Bd de l'Université, Sherbrooke, Québec Canada J1K 2R1
162	Food and Chemical Toxicology 48 (2010) 517–521 Contents lists available at ScienceDirect Food and Chemical Toxicology journal homepage: www.elsevier.com/locate/foodchemtox Utilization of membrane filtration for preconcentration and determination of Cu(II) and Pb(II) in food, water and geological samples by atomic absorption spectrometry Mustafa Soylak [a,*], Yunus Emre Unsal [b], Nebiye Kizil [c], Ayse Aydin [b] [a] University of Erciyes, Faculty of Science Arts, Chemistry Dept., 38039 Kayseri, Turkey [b] University of Erciyes, Fen Bilimleri Enstitusu, 38039 Kayseri, Turkey [c] University of Erciyes, Saglik Bilimleri Enstitusu, 38039 Kayseri, Turkey
163	Journal of Geochemical Exploration 106 (2010) 1–7 Contents lists available at ScienceDirect Journal of Geochemical Exploration journal homepage: www.elsevier.com/locate/jgeoexp Fluids in geological processes — The present state and future outlook Andreas Schmidt Mumm [a,*], Joel Brugger [a,b], Chongbin Zhao [c], Ulrike Schacht [d] [a] Centre for Tectonics, Resources and Exploration, The University of Adelaide, Adelaide SA 5005, Australia [b] Division of Mineralogy, South Australian Museum, North Terrace, Adelaide SA 5000, Australia [c] Computational Geosciences Research Centre, Central South University, China [d] CO2CRC, Australian School of Petroleum, The University of Adelaide, Adelaide SA 5005, Australia
164	Available online at www.sciencedirect.com ScienceDirect Dendrochronologia 28 (2010) 23–36 DENDROCHRONOLOGIA www.elsevier.de/dendro ORIGINAL ARTICLE Application of compositional nutrient diagnosis (CND) to the dendrochemistry of three hardwoods in three geological regions of southern Quebec Susan L. Beauregard[a], Benoît Côté[b,*], Daniel Houle[b,c] [a] Department of Natural Resource Sciences, Macdonald Campus, McGill University, 21 111 Lakeshore, Sainte-Anne-de-Bellevue, Québec, Canada H9X 3V9 [b] Direction de la recherche forestière, Forêt Québec, ministère des Ressources naturelles et de la Faune, 2700 rue Einstein, Sainte-Foy, Québec, Canada G1P 3W8 [c] Centre Saint-Laurent, Environment Canada, 105, rue McGill, Place Bnge, Montréal, Québec, Canada H2Y 2E7 Received 25 February 2008; accepted 9 January 2009
165	Journal for Nature Conservation 18 (2010) 168–179 Contents lists available at ScienceDirect Journal for Nature Conservation journal homepage: www.elsevier.de/jnc Differentiating geological fertility derived vegetation zones in Kruger National Park, South Africa, using Landsat and MODIS imagery Christopher Munyati [a,*], Thihanedzwi Ratshibvumo [b,1] [a] Ecosystems Earth Observation Research Group, Natural Resources and the Environment Unit, Council for Scientific and Industrial Research, P.O. Box 395, Pretoria 0001, South Africa [b] Department of Ecology and Resource Management, School of Environmental Sciences, University of Venda, Private Bag X5050, Thohoyandou 0950, South Africa
166	Journal of Hazardous Materials 183 (2010) 353–365 Contents lists available at ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat Environmental geochemistry of ancient volcanic ashes F. Ruggieri[a], J. Saavedra[b], J.L. Fernandez-Turiel[a,*], D. Gimeno[c], M. Garcia-Valles[c] [a] Institute of Earth Sciences J. Almera, ICTJA, CSIC, Sole i Sabaris s/n, Barcelona, Spain [b] IRNASA, CSIC, Salamanca, Spain [c] Department of Geochemistry, Petrology and Geological Prospecting, Faculty of Geology, University of Barcelona, Barcelona, Spain

No.	Journal Year 2010
167	International Journal of Applied Earth Observation and Geoinformation 12 (2010) 303–316 Contents lists available at ScienceDirect International Journal of Applied Earth Observation and Geoinformation journal homepage: www.elsevier.com/locate/jag Review **Environmental sensor networks for vegetation, animal and soil sciences** A. Zerger[a,*], R.A. Viscarra Rossel[b], D.L. Swain[c], T. Wark[d], R.N. Handcock[e], V.A.J. Doerr[a], C.J. Bishop-Hurley[e], E.D. Doerr[a], P.C. Gibbons[f], C. Lobsey[b] [a] CSIRO Sustainable Ecosystems, Australia [b] CSIRO Land and Water, Australia [c] Centre for Environmental Management, CQUniversity, Australia [d] CSIRO ICT Centre, Australia [e] CSIRO Livestock Industries, Australia [f] Australian National University, Australia
168	Ecotoxicology and Environmental Safety 73 (2010) 1820–1827 Contents lists available at ScienceDirect Ecotoxicology and Environmental Safety journal homepage: www.elsevier.com/locate/ecoenv **Soil and vegetables enrichment with heavy metals from geological sources in Gilgit, northern Pakistan** Sardar Khan[a,*], Shafiqur Rehman[a], Anwar Zeb Khan[a], M. Amjad Khan[a], M. Tahir Shah[b] [a] Department of Environmental Sciences, University of Peshawar, Peshawar 25120, Pakistan [b] National Center of Excellence in Geology, University of Peshawar, Peshawar 25120, Pakistan
169	Palaeogeography, Palaeoclimatology, Palaeoecology 297 (2010) 377–390 Contents lists available at ScienceDirect Palaeogeography, Palaeoclimatology, Palaeoecology journal homepage: www.elsevier.com/locate/palaeo **Toarcian carbon isotope shifts and nutrient changes from the Northern margin of Gondwana (High Atlas, Morocco, Jurassic): Palaeoenvironmental implications** S. Bodin[a,*], E. Mattioli[b], S. Fröhlich[a], J.D. Marshall[c], L. Boutib[d], S. Lahsini[d], J. Redfern[a] [a] North Africa Research Group, Basin Studies and Petroleum Geosciences, School of Earth, Atmospheric and Environmental Sciences, University of Manchester, Williamson Building, Oxford Road, Manchester M13 9PL, United Kingdom [b] UMR 5125 PEPS, Université Lyon 1, Campus de la Doua, Bâtiment Géode, 69622 Villeurbanne Cedex, France [c] Department of Earth and Ocean Sciences, University of Liverpool, Liverpool L69 3GP, United Kingdom [d] Office National des Hydrocarbures et des Mines (ONHYM), 34 Avenue Al Fadila, 10050 Rabat, Morocco
170	Environmental Pollution 158 (2010) 1809–1816 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Environmental and human health risk assessment of organic micro-pollutants occurring in a Spanish marine fish farm** Ivan Muñoz*, María J. Martínez Bueno, Ana Agüera, Amadeo R. Fernández-Alba Departamento de Hidrogeología y Química Analítica, Universidad de Almería, 04120 Almería, Spain *Exposure and effects of twelve organic micro-pollutants are evaluated at a Spanish fish farm.*
171	Journal of Environmental Management 91 (2010) 2707–2718 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Regulatory requirements and tools for environmental assessment of hazardous wastes: Understanding tribal and stakeholder concerns using Department of Energy sites** Joanna Burger[a,b,c,*], Charles Powers[b,d], Michael Gochfeld[b,c,e] [a] Division of Life Sciences, Rutgers University, 604 Allison Road, Piscataway, NJ 08854-8082, USA [b] Consortium for Risk Evaluation with Stakeholder Participation (CRESP), Rutgers University and Vanderbilt University, USA [c] Environmental and Occupational Health Sciences Institute (EOHSI), Piscataway, NJ 08854, USA [d] Civil and Environmental Engineering, Vanderbilt University, 400 24th Avenue, Nashville, TN, 37235, USA [e] Environmental and Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ 08854, USA
172	Available online at www.sciencedirect.com ScienceDirect Journal of Environmental Sciences 2010, 22(11) 1792–1799 JOURNAL OF ENVIRONMENTAL SCIENCES ISSN 1001-0742 CN 11-2629/X www.jesc.ac.cn **Heavy metals in rice and garden vegetables and their potential health risks to inhabitants in the vicinity of an industrial zone in Jiangsu, China** Hongbin Cao[1,2], Jianjiang Chen[1,2], Jun Zhang[1,2], Hui Zhang[1,2], Li Qiao[1,2], Yi Men[3,*] 1. State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, Beijing 100875, China. E-mail: caohongbin@gmail.com 2. College of Resource Science & Technology, Beijing Normal University, Beijing 100875, China 3. College of Chemistry, Beijing Normal University, Beijing 100875, China Received 24 December 2009; revised 01 February 2010; accepted 03 March 2010

No.	Journal Year 2010
173	WATER RESEARCH 44 (2010) 3147–3160 Available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/watres **Innovative method for prioritizing emerging disinfection by-products (DBPs) in drinking water on the basis of their potential impact on public health** Armelle Hebert [a,*], Delphine Forestier [a], Dorothée Lenes [b], David Benanou [b], Severine Jacob [c], Catherine Arfi [d], Lucie Lambolez [a], Yves Levi [e] [a] Health Assessment and Surveillance Department, Veolia Environnement Research and Innovation, 10 rue Jacques Daguerre, 92500 Rueil Malmaison, France [b] Water Research Center, Veolia Environnement, Chemin de la Digue, 78600 Maisons Laffitte, France [c] Technical Direction, Veolia Water, Immeuble Giovanni Battista B, 1 rue Giovanni Battista Pirelli, 94410 Saint-Maurice, France [d] Catherine Arfi: 38 boulevard Gallieni, 92130 Issy les Moulineaux, France [e] Univ. Paris Sud 11-Faculté de Pharmacie, Laboratoire Santé Publique-Environnement, 5, rue Jean-Baptiste Clement, 92296 Chatenay-Malabry cedex, France
174	Ecotoxicology and Environmental Safety 73 (2010) 1797–1803 Contents lists available at ScienceDirect Ecotoxicology and Environmental Safety journal homepage: www.elsevier.com/locate/ecoenv Monitoring exposure to heavy metals among children in Lake Victoria, Kenya: Environmental and fish matrix Elijah Oyoo-Okoth [a,b,*], Wim Admiraal [b], Odipo Osano [a], Veronica Ngure [a,c], Michiel H.S. Kraak [b], Elijah S. Omutange [d] [a] Department of Environmental Sciences, School of Environmental Studies, Moi University, P.O. Box 3900, Eldoret, Kenya [b] Department of Aquatic Ecology and Ecotoxicology, Institute of Biodiversity and Ecosystem Dynamics, University of Amsterdam, Kruislaan 320, 1098 XH, The Netherlands [c] Department of Wildlife Management, Moi University, Eldoret, Kenya, P.O. Box 1125, Eldoret, Kenya [d] Department of Technology Education, Moi University, Eldoret, Kenya, P.O. Box 1125, Eldoret, Kenya
175	Science of the Total Environment 409 (2010) 1–8 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv Review What do we know about effects of desert dust on air quality and human health in West Africa compared to other regions? Florence De Longueville [a,*], Yvon-Carmen Hountondji [b], Sabine Henry [a], Pierre Ozer [c] [a] Department of Geography, FUNDP—University of Namur, Rue de Bruxelles 61, 5000 Namur, Belgium [b] Faculty of Agronomy, University of Parakou, BP 123, Parakou, Benin [c] Environmental Sciences and Management Department, University of Liège, Avenue de Longwy 185, 6700 Arlon, Belgium
176	Journal of Hazardous Materials 176 (2010) 870–877 Contents lists available at ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat Health risk assessment of BTEX emissions in the landfill environment Ertan Durmusoglu [a,*], Fatih Taspinar [b], Aykan Karademir [a] [a] Department of Environmental Engineering, University of Kocaeli, 41380 Izmit, Kocaeli, Turkey [b] A.R. Veziroglu School of Vocation, University of Kocaeli, Kartepe, Kocaeli, Turkey
177	Waste Management 30 (2010) 1608–1613 Contents lists available at ScienceDirect Waste Management journal homepage: www.elsevier.com/locate/wasman Waste management health risk assessment: A case study of a solid waste landfill in South Italy E. Davoli [a,*], E. Fattore [a], V. Paiano [a], A. Colombo [a], M. Palmiotto [a], A.N. Rossi [b], M. Il Grande [b], R. Fanelli [a] [a] Istituto di Ricerche Farmacologiche "Mario Negri", Environmental Health Sciences Department, Via Giuseppe La Masa 19, 20156 Milano, Italy [b] Progress S.r.l., Via Nicola A. Porpora 142, 20131 Milano, Italy

No.	Journal Year 2010
178	Journal of Environmental Management 91 (2010) 1707–1717 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **An empirical study on the driving mechanism of proactive corporate environmental management in China** Xianbing Liu [a,*], Beibei Liu [b], Tomohiro Shishime [a], Qinqin Yu [b], Jun Bi [b], Tetsuro Fujitsuka [a] [a] Kansai Research Centre, Institute for Global Environmental Strategies (IGES), Hitomiral Building 4F, 1-5-2, Wakinohama Kaigan Dori, Chuo-ku, Hyogo 651-0073, Japan [b] School of Environment, Nanjing University, China
179	Journal of Environmental Management 91 (2010) 1766–1777 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Integrating local and scientific knowledge for environmental management** Christopher M. Raymond [a,b,*], Ioan Fazey [c], Mark S. Reed [d,e], Lindsay C. Stringer [f], Guy M. Robinson [g], Anna C. Evely [h] [a] Centre for Rural Health and Community Development, University of South Australia, Australia [b] Environeered Pty Ltd, Australia [c] School of Geography and Geosciences, Irvine Building, University of St Andrews, North Street, St Andrews, KY16 9AL Fife, UK [d] Aberdeen Centre for Environmental Sustainability, UK [e] Centre for Planning and Environmental Management, School of Geosciences, University of Aberdeen, St Mary's, Aberdeen AB24 3UF, UK [f] Sustainability Research Institute, School of Earth & Environment, University of Leeds, Leeds, West Yorkshire LS2 9JT, UK [g] Centre for Rural Health and Community Development, University of South Australia, Whyalla Campus, 111 Nicholas Avenue, Whyalla Norrie SA 5608, Australia [h] Aberdeen Centre for Environmental Sustainability, University of Aberdeen and Macaulay Institute, School of Biological Sciences, Tillydrone Avenue, Aberdeen AB24 2TZ, UK
180	Journal of Environmental Management 91 (2010) 906–917 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Performance of newly implemented Environmental Management Systems in primary schools in South Africa** Luc Hens [a,1], Torsten Wiedemann [a,*], Schalk Raath [b,2], Riana Stone [c,3], Paul Renders [d,4], Eric Craenhals [d,4] [a] Department of Human Ecology, University of Brussels, Laarbeeklaan 103, 1090 Brussels, Belgium [b] Museum Park Enviro Centre, Posbus 413, Pretoria 0001, South Africa [c] Tshwane University of Technology, Private Bag X680, Pretoria 0001, South Africa [d] Department LNE, Flemish Government, Koning Albert II-laan 20 bus 8, 1000 Brussels, Belgium
181	Journal of Environmental Management 91 (2010) 906–917 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Performance of newly implemented Environmental Management Systems in primary schools in South Africa** Luc Hens [a,1], Torsten Wiedemann [a,*], Schalk Raath [b,2], Riana Stone [c,3], Paul Renders [d,4], Eric Craenhals [d,4] [a] Department of Human Ecology, University of Brussels, Laarbeeklaan 103, 1090 Brussels, Belgium [b] Museum Park Enviro Centre, Posbus 413, Pretoria 0001, South Africa [c] Tshwane University of Technology, Private Bag X680, Pretoria 0001, South Africa [d] Department LNE, Flemish Government, Koning Albert II-laan 20 bus 8, 1000 Brussels, Belgium
182	Bioresource Technology 101 (2010) 1544–1557 Contents lists available at ScienceDirect Bioresource Technology journal homepage: www.elsevier.com/locate/biortech Review **Environmental management systems as sustainable tools in the way of life for the SMEs and VSMEs** Antonis Zorpas [*] ENVITECH – Institute of Environmental Technology and Sustainable Development, P.O. Box 34073, 5309 Paralimni, Cyprus

No.	Journal Year 2010
183	Resources Policy 35 (2010) 226–234 Contents lists available at ScienceDirect Resources Policy journal homepage: www.elsevier.com/locate/resourpol **A SWOT analysis of environmental management practices in Greek Mining and Mineral Industry** I.E. Nikolaou [a], K.I. Evangelinos [b,*] [a] Department of Environmental Engineering, Democritus University of Thrace, 67100 Xanthi, Greece [b] Department of Environment, University of the Aegean, 81100 Mytilini, Greece
184	Journal of Cleaner Production 18 (2010) 1222–1225 Contents lists available at ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro Note from the field **Non-linear pathways of corporate environmental management: a survey of ISO 14001-certified companies in Brazil** Charbel Jose Chiappetta Jabbour* College of Economics, Business Administration and Accounting (FEA-Ribeirao Preto), University of Sao Paulo, Avenida Bandeirantes 3900, FEA-RP/USP, 14040-900 Ribeirao Preto-SP, Brazil
185	Journal of Cleaner Production 18 (2010) 666–677 Contents lists available at ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro **Monitoring environmental management at primary schools in South Africa** Luc Hens [a,1], Torsten Wiedemann [a,*], Schalk Raath [b,2], Riana Stone [c,3], Paul Renders [d,4], Eric Craenhals [d,4], Barry Richter [e,5] [a] Department of Human Ecology Department, University of Brussels, Laarbeeklaan 103, 1090 Brussels, Belgium [b] Museum Park Enviro Centre, Posbus 413, Pretoria 0001, South Africa [c] Tshwane University of Technology, Private Bag X680, Pretoria 0001, South Africa [d] Department LNE, Flemish Government, Koning Albert II-laan 20 bus 8, 1000 Brussel, Belgium [e] Faculty of Educational Sciences, NW University, South Africa
186	Environmental Impact Assessment Review 30 (2010) 229–239 Contents lists available at ScienceDirect Environmental Impact Assessment Review journal homepage: www.elsevier.com/locate/eiar **Integrated farm sustainability assessment for the environmental management of rural activities** Geraldo Stachetti Rodrigues [a,*], Izilda Aparecida Rodrigues [b], Cláudio Cesar de Almeida Buschinelli [b], Inácio de Barros [c] [a] Embrapa Labex Europe, Agropolis International, Avenue Agropolis, 34394, Montpellier, France [b] Environmental Management Laboratory, Embrapa Environment, Rodovia SP340, km 127.5, Jaguariúna (SP), CEP 13820-000, Brazil [c] INRA, Unité de Recherche Agropédoclimatique de la Zone Caraïbe, Domaine Duclos, 97170 Petit-Bourg (Guadeloupe), France
187	Waste Management 30 (2010) 2383–2395 Contents lists available at ScienceDirect Waste Management journal homepage: www.elsevier.com/locate/wasman **Environmental assessment of alternative municipal solid waste management strategies. A Spanish case study** M.D. Bovea *, V. Ibáñez-Forés, A. Gallardo, F.J. Colomer-Mendoza Departamento de Ingeniería Mecánica y Construcción, Universitat Jaume I, Av. Sos Baynat s/n, E-12071 Castellón, Spain

No.	Journal Year 2010
188	Ecological Modelling 221 (2010) 900–910 Contents lists available at ScienceDirect Ecological Modelling journal homepage: www.elsevier.com/locate/ecolmodel A herbivore specific grazing capacity model accounting for spatio-temporal environmental variation: A tool for a more sustainable nature conservation and rangeland management A. Ebrahimi [a,b], T. Milotić [c,*], M. Hoffmann [a,c] [a] Terrestrial Ecology Unit, Department of Biology, Ghent University, Ghent, Belgium [b] Department of Range and Watershed Management, Faculty of Agriculture, Shahrekord University, Shahrekord, Iran [c] Research Institute for Nature and Forest, Department of Biodiversity & Natural Environment, Kliniekstraat 25, BE-1070 Brussels, Belgium
189	Journal of Cleaner Production 18 (2010) 953–962 Contents lists available at ScienceDirect Journal of Cleaner Production Journal homepage: www.elsevier.com/locate/jclepro Shadows and lights of GSCM (Green Supply Chain Management): determinants and effects of these practices based on a multi-national study Francesco Testa [a,*], Fabio Iraldo [a,b] [a] Sant'Anna School of Advanced Studies, Piazza Martiri della Libertà 33, 56127 Pisa, Italy [b] IEFE – Institute for Environmental and Energy Policy and Economics, Bocconi University, Milan, Italy
190	Ecotoxicology and Environmental Safety 73 (2010) 1797–1803 Contents lists available at ScienceDirect Ecotoxicology and Environmental Safety journal homepage: www.elsevier.com/locate/ecoenv Monitoring exposure to heavy metals among children in Lake Victoria, Kenya: Environmental and fish matrix Elijah Oyoo-Okoth [a,b,*], Wim Admiraal [b], Odipo Osano [a], Veronica Ngure [a,c], Michiel H.S. Kraak [b], Elijah S. Omutange [d] [a] Department of Environmental Sciences, School of Environmental Studies, Moi University, P.O. Box 3900, Eldoret, Kenya [b] Department of Aquatic Ecology and Ecotoxicology, Institute of Biodiversity and Ecosystem Dynamics, University of Amsterdam, Kruislaan 320, 1098 SM, The Netherlands [c] Department of Wildlife Management, Moi University, Eldoret, Kenya, P.O. Box 1125, Eldoret, Kenya [d] Department of Technology Education, Moi University, Eldoret, Kenya, P.O. Box 1125, Eldoret, Kenya
191	Atmospheric Environment 44 (2010) 432–440 Contents lists available at ScienceDirect Atmospheric Environment journal homepage: www.elsevier.com/locate/atmosenv A holistic approach for optimal design of air quality monitoring network expansion in an urban area Abdullah Mofarrah [a,*], Tahir Husain [b] [a] Department of Civil Engineering, Memorial University, St. John's, NL, A1B3X5 Canada [b] Faculty of Engineering and Applied Science, Memorial University, St. John's, NL, A1B 3X5 Canada
192	WATER RESEARCH 44 (2010) 3498–3510 Available at www.sciencedirect.com ScienceDirect journal homepage: www.elsevier.com/locate/watres **Comparing *in situ* particle monitoring to microscopic counts of plankton in a drinking water reservoir** *Nicole Scheifhacken [a,*], Heidi Horn [b], Lothar Paul [a]* [a] Technische Universität Dresden, Neunzehnhain Ecological Station, Neunzehnhainer Str. 14, D-09514 Lengefeld, Germany [b] Saxon Academy of Sciences at Leipzig, Research Group "Biotic Structure of Reservoirs", Neunzehnhain Ecological Station, Neunzehnhainer Str. 14, D-09514 Lengefeld, Germany

No.	Journal Year 2010

Available online at www.sciencedirect.com
ScienceDirect
Journal of Environmental Sciences 2010, 22(9) 1357–1363
JOURNAL OF ENVIRONMENTAL SCIENCES
ISSN 1001-0742
CN 11-2629/X
www.jesc.ac.cn

Instrumental and bio-monitoring of heavy metal and nanoparticle emissions from diesel engine exhaust in controlled environment

Simonetta Giordano[1,*], Paola Adamo[2], Valeria Spagnuolo[1], Bianca Maria Vaglieco[3]

1. Department of Structural and Functional Biology, University of Naples Federico II, Via Cinzia 4, I-80126 Napoli, Italy. E-mail: simonetta.giordano@unina.it
2. Department of Soil, Plant, Environment and Animal Production Sciences, University of Naples Federico II, Via Università, 100, I-80055 Portici (NA), Italy
3. Istituto Motori, CNR, Via Marconi 8, I-80125 Napoli, Italy

193

Received 05 November 2009; revised 23 February 2010; accepted 22 March 2010

No.	Journal Year 2011

Environmental Pollution 159 (2011) 1682–1691
Contents lists available at ScienceDirect
Environmental Pollution
journal homepage: www.elsevier.com/locate/envpol

DNA damage in caged *Gammarus fossarum* amphipods: A tool for freshwater genotoxicity assessment

Emilie Lacaze[a,b], Alain Devaux[a], Raphaël Mons[b], Sylvie Bony[a], Jeanne Garric[b], Alain Geffard[c], Olivier Geffard[b,*]

[a] Université de Lyon, INRA-ENTPE, Laboratoire des Sciences de l'Environnement, rue Maurice Audin, Vaulx en Velin F-69518, France
[b] Cemagref, Unité de Recherche des Milieux Aquatiques (UR MALY), 3 bis quai Chauveau, 69336 Lyon, Cedex 9, France
[c] EA 2069 URVVC-SE, Laboratoire d'Eco-Toxicologie, UFR Sciences, Moulin de la Housse, BP 1039, 51687 Reims, Cedex 2, France

We propose an approach to assess freshwater genotoxicity in the field based on caged Gammarus fossarum (Crustacea, Amphipoda).

194

Environmental Pollution 159 (2011) 182–189
Contents lists available at ScienceDirect
Environmental Pollution
journal homepage: www.elsevier.com/locate/envpol

Plant communities in relation to flooding and soil contamination in a lowland Rhine River floodplain

Aafke M. Schipper[a,*], Kim Lotterman[a,b], Rob S.E.W. Leuven[a], Ad M.J. Ragas[a], Hans de Kroon[c], A. Jan Hendriks[a]

[a] Radboud University Nijmegen, Institute for Water and Wetland Research, Department of Environmental Science, P.O. Box 9010, 6500 GL, Nijmegen, The Netherlands
[b] Bureau Natuurbeleid – Unies Diversiteit, P.O. Box 21070, 6503 CB Nijmegen, The Netherlands
[c] Radboud University Nijmegen, Institute for Water and Wetland Research, Department of Experimental Plant Ecology, P.O. Box 9010, 6500 GL, Nijmegen, The Netherlands

Multiple contaminants and periodic flooding may pose cumulative stress to plants in lowland floodplains.

195

Environmental Pollution 159 (2011) 2575–2585
Contents lists available at ScienceDirect
Environmental Pollution
journal homepage: www.elsevier.com/locate/envpol

Ecological risk assessment of heavy metals in sediment and human health risk assessment of heavy metals in fishes in the middle and lower reaches of the Yangtze River basin

Yujun Yi[a], Zhifeng Yang[a,*], Shanghong Zhang[b]

[a] State Key Laboratory of Water Environment Simulation and Pollution Control, School of Environment, Beijing Normal University, Beijing 100875, China
[b] Renewable Energy School, North China Electric Power University, Beijing 102206, China

196

Environmental Pollution 159 (2011) 2320–2327
Contents lists available at ScienceDirect
Environmental Pollution
journal homepage: www.elsevier.com/locate/envpol

Review

In vitro and *in vivo* approaches for the measurement of oral bioavailability of lead (Pb) in contaminated soils: A review

Munir Hussain Zia[a,b,*], Eton E. Codling[b], Kirk G. Scheckel[c], Rufus L. Chaney[b]

[a] Technical Services Department, Fauji Fertilizer Company Limited, Lahore, Pakistan
[b] USDA-ARS, Environmental Management and By-products Utilization Laboratory, Bldg. 007, BARC-West, Beltsville, MD 20705-2350, USA
[c] US-Environmental Protection Agency, National Risk Management Research Laboratory Land Remediation and Pollution Control Division, 5995 Center Hill Avenue, Cincinnati, OH 45224-1702, USA

197

No.	Journal Year 2011
198	Environmental Pollution 159 (2011) 1317–1326 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Distribution, availability, and sources of trace metals in different particle size fractions of urban soils in Hong Kong: Implications for assessing the risk to human health** Xiao-san Luo [a,b], Shen Yu [b], Xiang-dong Li [a,*] [a] Department of Civil and Structural Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong [b] Key Laboratory of Urban Environment and Health, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, China *Anthropogenic trace metals tend to accumulate in fine fractions of urban soils, and may pose potential risks to human health through the inhalation of resuspened soil particles and ingestion of soil materials.*
199	Environmental Pollution 159 (2011) 1297–1306 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Analyzing trophic transfer of heavy metals for food webs in the newly-formed wetlands of the Yellow River Delta, China** Baoshan Cui [a,*], Qijun Zhang [a], Kejiang Zhang [b], Xinhui Liu [a], Honggang Zhang [a] [a] State Key Joint Laboratory of Environmental Simulation and Pollution Control, School of Environment, Beijing Normal University, Beijing 100875, China [b] Department of Civil Engineering, University of Calgary, Alberta, Canada T2N 1N4 *The newly-formed wetlands show slight heavy metal contamination and weak biomagnification through the food webs in the Yellow River Delta.*
200	Environmental Pollution 159 (2011) 3604–3612 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Assessment of organochlorine pesticide residues in Atlantic Rain Forest fragments, Rio de Janeiro, Brazil** Natalia Soares Quinete [a,*], Elba dos Santos de Oliveira [b], Daniella R. Fernandes [c], Andre de Souza Avelar [d], Ricardo Erthal Santelli [e] [a] Instituto Nacional de Tecnologia, Departamento de Química Analítica, Laboratório de Química Analítica e Metrologia em Química, Av. Venezuela, 82 – Rio de Janeiro, RJ 20081-312, Brazil [b] Instituto Nacional de Tecnologia, Departamento de Energia, Av. Venezuela, 82 – Rio de Janeiro, RJ 20081-312, Brazil [c] Universidade Federal do Rio de Janeiro, Instituto de Química, Departamento de Química Analítica, CT – Bloco A, Cidade Universitária, 21941-909 – Rio de Janeiro, Brazil [d] Universidade Federal do Rio de Janeiro, Departamento de Geografia, Instituto de Geociências, CCMN, Ilha do F, Cidade Universitária, 21941-919 – Rio de Janeiro, Brazil
201	Environmental Pollution 159 (2011) 3540–3546 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **New DDT inputs after 30 years of prohibition in Spain. A case study in agricultural soils from south-western Spain** Juan Muñoz-Arnanz, Begoña Jiménez* CSIC, Institute of Organic Chemistry, Department of Instrumental Analysis and Environmental Chemistry, Juan de la Cierva 3, 28006 Madrid, Spain
202	C. R. Geoscience 343 (2011) 246–259 Contents lists available at ScienceDirect Comptes Rendus Geoscience www.sciencedirect.com Petrology, geochemistry (Mineralogy) **CO_2 geological storage: The environmental mineralogy perspective** ***Minéralogie environnementale et stockage géologique de CO_2*** François Guyot [a,*,b], Damien Daval [a,c,d], Sébastien Dupraz [a,e], Isabelle Martinez [a], Bénédicte Ménez [a], Olivier Sissmann [a,f] [a] Équipe de recherche technologique, stockage géologique de CO_2, université Paris-Diderot and Institut de Physique du Globe de Paris (IPGP), 1, rue Jussieu, 75005 Paris, France [b] Institut de minéralogie et de physique des milieux condensés (IMPMC), 4, place Jussieu, 75005 Paris, France [c] UMR 8539 du CNRS, laboratoire de géologie, École normale supérieure, 24, rue Lhomond, 75005 Paris, France [d] Lawrence Berkeley National Laboratory, Earth Sciences Division, Berkeley, USA [e] BRGM, 3, avenue Claude Guillemin, 45060 Orléans, France

No.	Journal Year 2011
203	ARTICLE IN PRESS Journal of Environmental Radioactivity xxx (2011) 1–4 Contents lists available at SciVerse ScienceDirect Journal of Environmental Radioactivity journal homepage: www.elsevier.com/locate/jenvrad **Comparison of neutron activation analysis techniques for the determination of uranium concentrations in geological and environmental materials** S. Landsberger, R. Kapsimalis* Nuclear Engineering Teaching Laboratory, The University of Texas at Austin, Austin, TX, USA
204	Resources Policy 36 (2011) 315–329 Contents lists available at SciVerse ScienceDirect Resources Policy journal homepage: www.elsevier.com/locate/resourpol **Metalliferous sediments in the Atlantis II Deep—Assessing the geological and economic resource potential and legal constraints** Christine Bertram [a,*], Anna Krätschell [b], Killian O'Brien [c], Warner Brückmann [b], Alexander Proelss [d], Katrin Rehdanz [a,e] [a] Kiel Institute for the World Economy, (IfW) Hindenburgufer 66, D-24105 Kiel, Germany [b] IFM-GEOMAR, Leibniz Institute of Marine Sciences, Kiel, Germany [c] Academy of European Law (ERA), Trier, Germany [d] Department of Law, University of Trier, Trier, Germany [e] Department of Economics, Christian-Albrechts-University at Kiel, Kiel, Germany
205	Global and Planetary Change 79 (2011) 157–162 Contents lists available at ScienceDirect Global and Planetary Change journal homepage: www.elsevier.com/locate/gloplacha **Rapid climate change: lessons from the recent geological past** Jonathan Holmes [a,*], John Lowe [b], Eric Wolff [c], Meric Srokosz [d] [a] Environmental Change Research Centre, Department of Geography, University College London, Gower Street, London, WC1E 6BT, UK [b] Department of Geography, Royal Holloway University of London, Egham, Surrey, TW20 0EX, UK [c] British Antarctic Survey, High Cross Madingley Road, Cambridge, CB3 0ET, UK [d] National Oceanography Centre, Southampton, SO14 3ZH, UK
206	Journal of Environmental Radioactivity 102 (2011) 735–741 Contents lists available at ScienceDirect Journal of Environmental Radioactivity journal homepage: www.elsevier.com/locate/jenvrad **Mean annual ^{222}Rn concentration in homes located in different geological regions of Poland — first approach to whole country area** Tadeusz A. Przylibski [a,*], Adam Żebrowski [b], Maria Karpińska [c], Jacek Kapała [c], Krzysztof Kozak [d], Jadwiga Mazur [d], Dominik Orządziel [d], Kalina Mamont-Cieśla [e], Olga Sławarz [e], Beata Kozłowska [f], Barbara Kłos [f], Jerzy Dorda [f], Małgorzata Wysocka [g], Jerzy Olszewski [h], Marek Dohojda [i] [a] Wrocław University of Technology, Faculty of Geoengineering, Mining and Geology, Institute of Mining, Division of Geology and Mineral Waters, Wybrzeże S. Wyspiańskiego 27, 50-370 Wrocław, Poland [b] Wrocław University of Technology, Wybrzeże S. Wyspiańskiego 27, 50-370 Wrocław, Poland [c] Medical University of Białystok, Department of Biophysics, ul. Mickiewicza 2A, 15-089 Białystok, Poland [d] The Henryk Niewodniczański Institute of Nuclear Physics, Polish Academy of Science, Laboratory of Radiometric Expertise, ul. W. E. Radzikowskiego 152, 31-342 Kraków, Poland [e] General Laboratory for Radiological Protection, ul. Konwaliowa 7, 03-194 Warsaw, Poland [f] University of Silesia, Institute of Physics, Department of Nuclear Physics and its Applications, ul. Uniwersytecka 4, 40-007 Katowice, Poland [g] Central Mining Institute, Department of Technical Acquisites, Laser Techniques and Radiometry, Laboratory of Radiometry, Plac Gwarków 1, 40-166 Katowice, Poland [h] The Soltan Institute of Geophysical Medicine, Radiation Protection Department, ul. Św. Teresy 8, 91-348 Łódź, Poland [i] Building Research Institute, Department of Structures and Building Elements, ul. Filtrowa 1, 00-611 Warsaw, Poland
207	Chemosphere 82 (2011) 866–871 Contents lists available at ScienceDirect Chemosphere journal homepage: www.elsevier.com/locate/chemosphere **Sorption of thallium(I) onto geological materials: Influence of pH and humic matter** Juan Liu [a,b], Holger Lippold [b], Jin Wang [a,c], Johanna Lippmann-Pipke [b], Yongheng Chen [a,*] [a] Guangzhou University (GU), Key Laboratory of Waters Safety & Protection in the Pearl River Delta, Ministry of Education, 510006 Guangzhou, China [b] Forschungszentrum Dresden-Rossendorf (FZD), Institute of Radiochemistry, Research Site Leipzig, 04318 Leipzig, Germany [c] Department of Environmental Sciences and Engineering, Guangzhou University, 510006 Guangzhou, China
208	International Journal of Greenhouse Gas Control 5 (2011) 1566–1577 Contents lists available at SciVerse ScienceDirect International Journal of Greenhouse Gas Control journal homepage: www.elsevier.com/locate/ijggc **Pore-scale study of capillary trapping mechanism during CO_2 injection in geological formations** Uditha C. Bandara, Alexandre M. Tartakovsky*, Bruce J. Palmer Pacific Northwest National Laboratory, Computational Sciences and Mathematics, 902 Battelle Blvd, Richland, WA 99352, USA

No.	Journal Year 2011
209	International Journal of Greenhouse Gas Control 5 (2011) 565–570 Contents lists available at ScienceDirect International Journal of Greenhouse Gas Control journal homepage: www.elsevier.com/locate/ijggc **Permanent shallow subsoil CO_2 flux chambers for monitoring of onshore CO_2 geological storage sites** C. Bernardo[a,b,*], D.F.de Vries[a,b] [a] GenSyd Australia Pty Ltd., PO Box 460, Dickson, ACT 2602, Australia [b] CO2CRC, Ground Floor, NFF House, 14-16 Brisbane Ave., Barton, ACT 2600, Australia
210	International Journal of Greenhouse Gas Control 5 (2011) 115–124 Contents lists available at ScienceDirect International Journal of Greenhouse Gas Control journal homepage: www.elsevier.com/locate/ijggc **Characterization of cement from a well at Teapot Dome Oil Field: Implications for geological sequestration** George W. Scherer[a,*], Barbara Kutchko[b], Niels Thaulow[c], Andrew Duguid[a,1], Bryant Mook[d,2] [a] Princeton University, Civil & Env. Eng/PRISM, Eng. Quad, E-319, Princeton, NJ 08544, USA [b] US Department of Energy, National Energy Technology Laboratory, Pittsburgh, PA 15236, USA [c] RJ Lee Group, Inc., Monroeville, PA 15146, USA [d] Rocky Mountain Oilfield Testing Center, U.S. Department of Energy, 907 N. Poplar St., Suite 150, Casper, WY 82601, USA
211	Environmental Research 111 (2011) 57–66 Contents lists available at ScienceDirect Environmental Research journal homepage: www.elsevier.com/locate/envres Review **Environmental health indicators and a case study of air pollution in Latin American cities** Michelle L. Bell[a,*], Luis A. Cifuentes[b], Devra L. Davis[c], Erin Cushing[a], Adriana Gusman Telles[d], Nelson Gouveia[e] [a] School of Forestry and Environmental Studies, Yale University, 195 Prospect St., New Haven, CT 06511, USA [b] Pontificia Universidad Católica de Chile, Industrial and Systems Engineering Department, Santiago, Chile [c] University of Pittsburgh, Center for Environmental Oncology, Pittsburgh, PA, USA [d] Harvard University School of Public Health, Department of Environmental Health, Boston, MA, USA [e] University of São Paulo, Faculty of Medical Sciences, Department of Preventive Medicine, São Paulo, Brazil
212	Environment International 37 (2011) 393–403 Contents lists available at ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint **Integration of environmental and human health risk assessment for industries using hazardous materials: A quantitative multi criteria approach for environmental decision makers** E. Topuz *, I. Talinli, E. Aydin Department of Environmental Engineering, Civil Engineering Faculty, Istanbul Technical University, Maslak, Istanbul, 34469, Turkey
213	Environment International 37 (2011) 342–348 Contents lists available at ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint **Health impact assessment of a reduction in ambient $PM_{2.5}$ levels in Spain** Elena Boldo[a,b,*], Cristina Linares[a,b], Julio Lumbreras[c], Rafael Borge[c], Adolfo Narros[c], Javier García-Pérez[a,b], Pablo Fernández-Navarro[a,b], Beatriz Pérez-Gómez[a,b], Nuria Aragonés[a,b], Rebeca Ramis[a,b], Marina Pollán[a,b], Teresa Moreno[d], Angeliki Karanasiou[d], Gonzalo López-Abente[a,b] [a] Cancer and Environmental Epidemiology Unit, National Centre for Epidemiology, Carlos III Institute of Health, Avda. Monforte de Lemos, 5, 28029 Madrid, Spain [b] Consortium for Biomedical Research in Epidemiology and Public Health (CIBER en Epidemiología y Salud Pública — CIBERESP), Spain [c] Department of Chemical and Environmental Engineering, Technical University of Madrid (Universidad Politécnica de Madrid — UPM), José Gutiérrez Abascal, 2, 28006 Madrid, Spain [d] Institute of Environmental Assessment and Water Research (Instituto de Diagnóstico Ambiental y Estudios del Agua-Consejo Superior de Investigaciones Científicas — IDAEA-CSIC), C/ Jordi Girona, 18-26, 08034 Barcelona, Spain

No.	Journal Year 2011
214	Environmental Research 111 (2011) 1321–1327 Contents lists available at ScienceDirect Environmental Research journal homepage: www.elsevier.com/locate/envres **Human health risk in relation to air quality in two municipalities in an industrialized area of Northern Italy** Elena Fattore [a,*], Viviana Paiano [a], Alessandro Borgini [b], Andrea Tittarelli [b], Martina Bertoldi [b], Paolo Crosignani [b], Roberto Fanelli [a] [a] Department of Environmental Health Sciences, Mario Negri Institute for Pharmacological Research, Via Giuseppe La Masa 19, 20154 Milano, Italy [b] Environmental Epidemiology and Cancer Registry Unit, National Cancer Institute, Via Venezian 1, 20133 Milano, Italy
215	Environment International 37 (2011) 479–497 Contents lists available at ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint Review **Water pollution in Pakistan and its impact on public health — A review** Azizullah Azizullah [a], Muhammad Nasir Khan Khattak [b], Peter Richter [a,*], Donat-Peter Häder [a] [a] Department of Biology, Friedrich-Alexander University, Staudtstr. 5, 91058 Erlangen, Germany [b] Department of Neurosurgery, Friedrich-Alexander University, Schwabachanlage 6, 91054 Erlangen, Germany
216	Journal of Environmental Management 92 (2011) 892–901 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Spatial variations of human health risk associated with exposure to chlorination by-products occurring in drinking water** Christelle Legay [a], Manuel J. Rodriguez [a,*], Rehan Sadiq [b], Jean B. Sérodes [c], Patrick Levallois [d], Francois Proulx [e] [a] École supérieure d'aménagement du territoire, Université Laval, Pavillon Antoine Savard, Québec City, QC, Canada G1K 7P4 [b] Okanagan School of Engineering, University of British Columbia, 3333 University Way, Kelowna BC, Canada V1V 1V7 [c] Département de Génie Civil, Université Laval, 2977B Pavillon Pouliot, Québec City, QC, Canada G1K 7P4 [d] Institut National de Santé Publique du Québec, 945 Avenue Wolfe, Québec City, QC, Canada G1V 5B3 [e] Ville de Québec, Service de l'Environnement, 210 avenue Saint-Sacrement, Québec City, QC, Canada G1N 3X6
217	Environmental Pollution 159 (2011) 2575–2585 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Ecological risk assessment of heavy metals in sediment and human health risk assessment of heavy metals in fishes in the middle and lower reaches of the Yangtze River basin** Yujun Yi [a], Zhifeng Yang [a,*], Shanghong Zhang [b] [a] State Key Laboratory of Water Environment Simulation and Pollution Control, School of Environment, Beijing Normal University, Beijing 100875, China [b] Renewable Energy School, North China Electric Power University, Beijing 102206, China
218	Environmental Research 111 (2011) 1258–1264 Contents lists available at SciVerse ScienceDirect Environmental Research journal homepage: www.elsevier.com/locate/envres **Quantifying the health impacts of future changes in temperature in California** Bart Ostro [a,b,*], Stephen Rauch [a], Shelley Green [a] [a] Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, Oakland, CA, USA [b] Centre for Research in Environmental Epidemiology, Barcelona, Spain

No.	Journal Year 2011
219	Journal of Hazardous Materials 185 (2011) 1374–1380 Contents lists available at ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat **Determination of a risk management primer at petroleum-contaminated sites: Developing new human health risk assessment strategy** In-Sun Park, Jae-Woo Park* *Department of Civil and Environmental Engineering, Hanyang University, 17 Haengdong-dong, Seongdong-gu, Seoul 133-791, South Korea*
220	Environmental Pollution 159 (2011) 2487–2492 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Reporting and evaluation criteria as means towards a transparent use of ecotoxicity data for environmental risk assessment of pharmaceuticals** M. Ågerstrand[a,*], A. Küster[b], J. Bachmann[b], M. Breitholtz[c], I. Ebert[b], B. Rechenberg[b], C. Rudén[a] [a] *Royal Institute of Technology/Kungliga Tekniska Högskolan, Department of Philosophy and the History of Technology, Teknikringen 78B, SE-100 44 Stockholm, Sweden* [b] *Federal Environment Agency (UBA), Pharmaceuticals, Washing and Cleaning Agents, Wörlitzer Platz 1, 06813 Dessau, Germany* [c] *Stockholm University, Department of Applied Environmental Science, Svante Arrhenius väg 8C, SE-106 91Stockholm, Sweden*
221	Environment International 37 (2011) 1143–1156 Contents lists available at ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint **Analysis of currently available data for characterising the risk of engineered nanomaterials to the environment and human health — Lessons learned from four case studies☆** Karin Aschberger*, Christian Micheletti, Birgit Sokull-Klüttgen, Frans M. Christensen *European Commission, Joint Research Centre (JRC), Institute for Health and Consumer Protection (IHCP), Via E. Fermi, 2749, I-21027 Ispra, Italy*
No.	Journal Year 2011
222	Atmospheric Environment 45 (2011) 5240–5246 Contents lists available at ScienceDirect Atmospheric Environment journal homepage: www.elsevier.com/locate/atmosenv **Outdoor NO_2 and benzene exposure in the INMA (Environment and Childhood) Asturias cohort (Spain)** Ana Fernández-Somoano[a,b,*], Marisa Estarlich[a,c], Ferran Ballester[a,c,d], Rosalía Fernández-Patier[e], Amelia Aguirre-Alfaro[e], Ma Dolores Herce-Garraleta[e], Adonina Tardón[a,b] [a] *Spanish Consortium for Research on Epidemiology and Public Health (CIBERESP), Doctor Aiguader, 88, 08003 Barcelona, Spain* [b] *Preventive Medicine and Public Health, University of Oviedo, Asturias, Spain* [c] *Cancer and Public Health Research (CSISP), Conselleria de Sanitat, Valencia, Spain* [d] *University of Valencia, Valencia, Spain* [e] *National Center for Environmental Health, Carlos III Health Institute, 28220 Majadahonda, Madrid, Spain*
223	Journal of Environmental Management 92 (2011) 878–885 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **The limitations of environmental management systems in Australian agriculture** John Cary[a,*], Anna Roberts[b] [a] *Institute for Sustainability and Innovation, Victoria University, PO Box 14428, Melbourne Vic 8001, Australia* [b] *Department of Primary Industries, Rutherglen Centre, RMB 1145 Rutherglen, Victoria 3685, Australia*
224	Journal of Environmental Management 92 (2011) 2260–2271 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Learning about knowledge management for improving environmental impact assessment in a government agency: The Western Australian experience** Luis Enrique Sánchez[a,*], Angus Morrison-Saunders[b] [a] *Escola Politécnica, University of São Paulo, Av. Prof. Mello Moraes, 2373 São Paulo, SP 05508-900, Brazil* [b] *North-West University, South Africa and Murdoch University, Australia*

No.	Journal Year 2011
225	Journal of Environmental Management 92 (2011) 1858–1866 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Evaluation of environmental management resources (ISO 14001) at civil engineering construction worksites: A case study of the community of Madrid** Gracia Rodríguez*, Francisco Javier Alegre, Germán Martínez *Engineering Projects, Department of Civil Engineering, University of Granada, Avda. Severo Ochoa s/n, 18071 Granada, Spain*
226	Journal of Environmental Management 92 (2011) 788–795 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Environmental management system vs green specifications: How do they complement each other in the construction industry?** Patrick T.I. Lam [a,*], Edwin H.W. Chan [a], C.K. Chau [b], C.S. Poon [c], K.P. Chun [a] [a] *Dept. of Building & Real Estate, The Hong Kong Polytechnic University, Kowloon, Hong Kong* [b] *Dept of Building Services Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong* [c] *Dept of Civil Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*
227	Journal of Cleaner Production 19 (2011) 1622–1630 Contents lists available at ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro **Stakeholders and environmental management systems: a synergistic influence on environmental imbalance** Javier González-Benito*, Gustavo Lannelongue, Dolores Queiruga *Universidad de Salamanca, Administración y Economía de la Empresa, Edificio FES, Campus Unamuno, 37007 Salamanca, Spain*
228	Journal of Environmental Management 92 (2011) 14–22 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman Review **A framework for sustainable invasive species management: Environmental, social, and economic objectives☆** Diane L. Larson [a,*], Laura Phillips-Mao [b], Gina Quiram [b], Leah Sharpe [b], Rebecca Stark [b,1], Shinya Sugita [b,c], Annie Weiler [b,d] [a] *U.S. Geological Survey, Northern Prairie Wildlife Research Center, 1561 Lindig St., St. Paul, MN 55108-6097, USA* [b] *University of Minnesota, 1987 Upper Buford Circle, St. Paul, MN 55108-6097, USA* [c] *Currently Ecology Institute, Tallinn University, Uus-Sadama 5, 10120 Tallinn, Estonia* [d] *Currently University of Central Florida, 4000 Central Florida Blvd., Orlando, FL 32816-2368, USA*
229	Journal of Environmental Management 92 (2011) 2944–2952 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Assessing the environmental performance of urban wastewater systems using the INSA model: Application to the Algés-Alcântara wastewater system, in Portugal** F. Ferreira [a,*], J. Matos [a], A. Galvão [a], M.A. Cardoso [b] [a] *Instituto Superior Técnico, Technical University of Lisbon, DECivil, SHRHA, Av. Rovisco Pais, 1049-001 Lisboa, Portugal* [b] *National Laboratory of Civil Engineering, LNEC, Av. do Brasil, 101, 1700-066 Lisboa, Portugal*

No.	Journal Year 2011
230	Environmental Impact Assessment Review 31 (2011) 17–24 Contents lists available at ScienceDirect Environmental Impact Assessment Review journal homepage: www.elsevier.com/locate/eiar **Comfort monitoring? Environmental assessment follow-up under community–industry negotiated environmental agreements** Bram Noble *, Jasmine Birk Department of Geography and Planning, University of Saskatchewan, 117 Science Place, Saskatoon, Saskatchewan, Canada, S7N 5C8
231	Journal of Environmental Management 92 (2011) 195–204 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Environmental effects of oil and gas lease sites in a grassland ecosystem** Lawrence C. Nasen [a], Bram F. Noble [a,*], Jill F. Johnstone [b] [a] Department of Geography and Planning, School of Environment and Sustainability, 117 Science Place, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, S7N 5C8 [b] Department of Biology, 112 Science Place, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, S7N 5E2
232	Journal of Environmental Management 92 (2011) 2295–2303 Contents lists available at ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman Review **Resource management as a key factor for sustainable urban planning** Claudia M. Agudelo-Vera [a,*], Adriaan R. Mels [a], Karel J. Keesman [b], Huub H.M. Rijnaarts [a] [a] Sub-department of Environmental Technology, Wageningen University, P.O. Box 17, 6700 AA Wageningen, The Netherlands [b] Systems and Control Group, Wageningen University, P.O. Box 17, 6700 AA Wageningen, The Netherlands
231	Ecotoxicology and Environmental Safety 74 (2011) 382–393 Contents lists available at ScienceDirect Ecotoxicology and Environmental Safety journal homepage: www.elsevier.com/locate/ecoenv **Use of biomarkers in resident organisms as a tool for environmental monitoring in a cold coastal system, Tierra del Fuego Island** L. Comoglio [a], O. Amin [a,*], S. Botté [b], J. Marcovecchio [b] [a] Laboratorio de Ecotoxicología y Contaminación Acuática, Centro Austral de Investigaciones Científicas (CADIC-CONICET), Bernardo Houssay 200, V9410CAB Ushuaia, Tierra del Fuego, Argentina [b] Área de Oceanografía Química, Instituto Argentino de Oceanografía (IADO-CONICET-CCT-BB), Camino la Carrindanga Km 7, CC: 804, B8000FVW Bahía Blanca, Argentina
232	WATER RESEARCH 45 (2011) 741–747 Available at www.sciencedirect.com ScienceDirect Journal homepage: www.elsevier.com/locate/watres **Advances in on-line drinking water quality monitoring and early warning systems** *Michael V. Storey [a,*], Bram van der Gaag [b], Brendan P. Burns [c]* [a] Customer Strategy and Planning, Sydney Water, 1 Smith Street, Parramatta NSW 2150, Australia [b] KWR Groningenhaven 7, 3433 PE Nieuwegein, The Netherlands [c] School of Biotechnology and Biomolecular Sciences, The University of New South Wales, Sydney 2052, Australia
233	Environmental Pollution 159 (2011) 954–962 Contents lists available at ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Monitoring of heavy metal concentrations in home outdoor air using moss bags** Marcela Rivera [a,b,c,d,*], Harald Zechmeister [e], Mercedes Medina-Ramón [a,b,d], Xavier Basagaña [a,b,d], María Foraster [a,b,c,d], Laura Bouso [a,b,d], Teresa Moreno [f], Pascual Solanas [g,h], Rafael Ramos [g,h], Gunda Köllensperger [i], Alexandre Deltell [j], David Vizcaya [a,b,c,d], Nino Künzli [a,k,l] [a] Centre for Research in Environmental Epidemiology, CREAL, Barcelona, Spain [b] Municipal Institute of Medical Research (IMIM)-Hospital del Mar, Barcelona, Spain [c] Universitat Pompeu Fabra, Barcelona, Spain [d] CIBER Epidemiología y Salud Pública (CIBERESP), Spain [e] University of Vienna, Faculty of Life Sciences, Vienna, Austria [f] Institute of Environmental Assessment and Water Research (IDAEA-CSIC), Barcelona, Spain [g] Research Unit, Family Medicine, Girona, Jordi Gol Institute for Primary Care Research (IDIAP Jordi Gol), Catalan Institute of Health, Catalonia, Spain [h] Department of Medical Sciences, School of Medicine, University of Girona, Spain [i] University of Natural Resources and Applied Life Sciences, Vienna, Austria [j] Polytechnic School, GREFEMA, University of Girona, Spain [k] Swiss Tropical and Public Health Institute, Basel, Switzerland [l] University of Basel, Basel, Switzerland *The long-term spatial distribution of heavy metals, measured with moss bags, is mainly determined by proximity to bus lines.*

No.	Journal Year 2012
234	Science of the Total Environment 423 (2012) 62–72 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Comparative evaluation of environmental contamination and DNA damage induced by electronic-waste in Nigeria and China** Okunola A. Alabi [a,b,c], Adekunle A. Bakare [c], Xijin Xu [a], Bin Li [a], Yuling Zhang [a], Xia Huo [a,*] [a] Analytic Cytology Laboratory and the Key Immunopathology Laboratory of Guangdong Province, Shantou University Medical College, Shantou, PR China [b] Biosciences and Biotechnology Department, Babcock University, Ilisan-remo, Ogun State, Nigeria [c] Cell Biology and Genetics Unit, Department of Zoology, University of Ibadan, Ibadan, Nigeria
235	Environmental Pollution 161 (2012) 93–100 Contents lists available at SciVerse ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Long term trends in PBDE concentrations in gannet (*Morus bassanus*) eggs from two UK colonies** John D. Crosse [a,b,*], Richard F. Shore [a], Kevin C. Jones [b], M. Glória Pereira [a] [a] NERC Centre for Ecology & Hydrology, Lancaster Environment Centre, Library Avenue, Bailrigg, Lancaster LA1 4AP, UK [b] Lancaster Environment Centre, Lancaster University, Lancaster LA1 4YQ, UK
236	Science of the Total Environment 420 (2012) 24–32 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **The role of qualitative risk assessment in environmental management: A Kazakhstani case study** Arani Kajenthira [a,b,*], John Holmes [c,1], Rachael McDonnell [d,2] [a] Belfer Center for Science and International Affairs, Harvard Kennedy School, United States [b] Department of Engineering Science, University of Oxford, United Kingdom [c] Department of Earth Sciences, University of Oxford, United Kingdom [d] School of Geography and the Environment, University of Oxford, United Kingdom
237	Environmental Pollution 161 (2012) 201–206 Contents lists available at SciVerse ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol Commentary **Towards a renewed research agenda in ecotoxicology**[☆] Joan Artigas [a,*], Certic Arts [b], Marc Babut [c], Anna Barra Caracciolo [d], Sandrine Charles [e], Arnaud Chaumot [f], Bruno Combourieu [g], Ingela Dahllöf [h], Denis Despréaux [i], Benoit Ferrari [j], Nikolai Friberg [k], Jeanne Garric [l], Olivier Gerrard [m], Catherine Gourlay-France [n], Michaela Hein [o], Morten Ljorth [p], Martin Krauss [q], Hendrika J. De Lange [r], Joost Lahr [s], Jörg K. Lechtenfeld [t], Teresa Lettieri [u], Matthias Liess [v], Stephen Lofts [w], Philipp Mayer [x], Solgic Morin [y], Albrecht Paschke [z], Claus Svendsen [aa], Philippe Usseglio-Polatera [ab], Nico van den Brink [ac], Eric Vindimian [ad,*], Richard Williams [ae]
238	Science of the Total Environment 426 (2012) 160–165 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Impacts of the phenylpyrazole insecticide fipronil on larval fish: Time-series gene transcription responses in fathead minnow (*Pimephales promelas*) following short-term exposure** Sebastian Beggel [a], Inge Werner [b], Richard E. Connon [c], Juergen P. Geist [a,b,*] [a] Aquatic Systems Biology Unit, Department of Ecology and Ecosystem Management, Technische Universität München, Mühlenweg 22, D-85354 Freising, Germany [b] Swiss Centre for Applied Ecotoxicology, Eawag/EPFL, Überlandstrasse 133, CH-8600 Dübendorf, Switzerland [c] Aquatic Toxicology Program, Department of Anatomy, Physiology and Cell Biology, School of Veterinary Medicine, University of California, One Shields Avenue, Davis, CA 95616, USA

No.	Journal Year 2012

Science of the Total Environment 427–428 (2012) 1–10

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

239 State of the art of contaminated site management in The Netherlands: Policy framework and risk assessment tools

F.A. Swartjes *, M. Rutgers, J.P.A. Lijzen, P.J.C.M. Janssen, P.F. Otte, A. Wintersen, E. Brand, L. Posthuma

National Institute of Public Health and the Environment (RIVM), PO Box 1, 3720 BA, Bilthoven, The Netherlands

Science of the Total Environment 420 (2012) 183–190

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

240 Prenatal exposure to DDT in malaria endemic region following indoor residual spraying and in non-malaria coastal regions of South Africa☆

Kalavati Channa [a,b], Halina B. Röllin [c,d,*], Therese H. Nøst [a,e], Jon Ø. Odland [a], Torkjel M. Sandanger [a,e]

[a] Institute of Community Medicine, University of Tromsø, Tromsø, Norway
[b] National Health Laboratory Services, NICH, Johannesburg, South Africa
[c] Medical Research Council, Johannesburg, South Africa
[d] University of Pretoria, Pretoria, South Africa
[e] Norwegian Institute for Air Research (NILU), Fram Centre, Tromsø, Norway

Science of the Total Environment 431 (2012) 221–232

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

241 A new perspective on human health risk assessment: Development of a time dependent methodology and the effect of varying exposure durations

Erica R. Siirila [a,c,*], Reed M. Maxwell [a,b,c]

[a] Hydrologic Science and Engineering Program, Colorado School of Mines, 1500 Illinois St., Golden, CO 80401, United States
[b] Integrated Groundwater Modeling Center (IGWMC), Colorado School of Mines, 1500 Illinois St., Golden, CO 80401, United States
[c] Department of Geology and Geological Engineering, Colorado School of Mines, 1500 Illinois St., Golden, CO 80401, United States

Science of the Total Environment 419 (2012) 26–35

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

242 Assessment of indirect human exposure to environmental sources of nickel: Oral exposure and risk characterization for systemic effects

Katleen De Brouwere [a,*], Jurgen Buekers [a], Christa Cornelis [a], Christian E. Schlekat [b], Adriana R. Oller [b]

[a] Flemish Institute for Technological Research (VITO), Boeretang 200, 2400 Mol, Belgium
[b] NiPERA, 2605 Meridian Parkway, Suite 200, Durham, NC 27713, USA

Science of the Total Environment 426 (2012) 150–165

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

243 Impacts of the phenylpyrazole insecticide fipronil on larval fish: Time-series gene transcription responses in fathead minnow (*Pimephales promelas*) following short-term exposure

Sebastian Beggel [a], Inge Werner [b], Richard E. Connon [c], Juergen P. Geist [a,*]

[a] Aquatic Systems Biology Unit, Department of Ecology and Ecosystem Management, Technische Universität München, Mühlenweg 22, D-85354 Freising, Germany
[b] Swiss Centre for Applied Ecotoxicology, Eawag/EPFL, Überlandstrasse 133, CH-8600 Dübendorf, Switzerland
[c] Aquatic Toxicology Program, Department of Anatomy, Physiology and Cell Biology, School of Veterinary Medicine, University of California, One Shields Avenue, Davis, CA 95616, USA

No.	Journal Year 2012

244

Science of the Total Environment 416 (2012) 1–21

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

Review

Review of risk from potential emerging contaminants in UK groundwater

Marianne Stuart [a,*], Dan Lapworth [a], Emily Crane [a], Alwyn Hart [b]

[a] British Geological Survey, Maclean Building, Wallingford, OX10 8BB, UK
[b] Environment Agency, Olton Court, Solihull, B92 7HX, UK

245

Environmental Pollution 170 (2012) 63–70

Contents lists available at SciVerse ScienceDirect

Environmental Pollution

journal homepage: www.elsevier.com/locate/envpol

High levels of DDT in breast milk: Intake, risk, lactation duration, and involvement of gender

Hindrik Bouwman [a,*], Henrik Kylin [b,c], Barbara Sereda [d], Riana Bornman [e]

[a] School of Environmental Sciences and Development, North-West University, P. Bag X6001, Potchefstroom 2520, South Africa
[b] Department of Water and Environmental Studies, Linköping University, Linköping, Sweden
[c] Norwegian Institute of Air Research, Fram Centre, Tromsø, Norway
[d] Plant Protection Research Institute, Agricultural Research Council, Pretoria, South Africa
[e] Department of Urology, University of Pretoria, Pretoria, South Africa

246

ARTICLE IN PRESS

DES-11322; No of Pages 15

Desalination xxx (2012) xxx–xxx

Contents lists available at SciVerse ScienceDirect

Desalination

journal homepage: www.elsevier.com/locate/desal

Progress on ^{129}I analysis and its application in environmental and geological researches

Yukun Fan [a,c], Xiaolin Hou [a,b,*], Weijian Zhou [a]

[a] Xi'an AMS Center, State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences, Xi'an 710075, China
[b] Centre for Nuclear Technologies, Technical University of Denmark, Risø Campus, 4000 Roskilde, Denmark
[c] Graduate University of Chinese Academy of Science, Beijing, 100049, China

247

International Journal of Greenhouse Gas Control 9 (2012) 322–333

Contents lists available at SciVerse ScienceDirect

International Journal of Greenhouse Gas Control

journal homepage: www.elsevier.com/locate/ijggc

Assessing health impacts of CO_2 leakage from a geological storage site into buildings: Role of attenuation in the unsaturated zone and building foundation

L. de Lary [a,*], A. Loschetter [a], O. Bouc [a], J. Rohmer [a], C.M. Oldenburg [b]

[a] BRGM, 3 av. C. Guillemin BP36009, F-45060 Orléans Cedex 2, France
[b] Earth Sciences Division, Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley, CA 94720, USA

248

GModel
IJHEH-12901; No. of Pages 9

ARTICLE IN PRESS

International Journal of Hygiene and Environmental Health xxx (2012) xxx–xxx

Contents lists available at SciVerse ScienceDirect

International Journal of Hygiene and Environmental Health

journal homepage: www.elsevier.de/ijheh

Contribution of soil, water and food consumption to metal exposure of children from geological enriched environments in the coastal zone of Lake Victoria, Kenya

Elijah Oyoo-Okoth [a,b,*], Wim Admiraal [b], Odipo Osano [a], David Manguya-Lusega [c], Veronica Ngure [d], Michiel H.S. Kraak [b], Victoria Chepkirui-Boit [c], Judith Makwali [c]

[a] Division of Environmental Health, School of Environmental Studies, Chepkoilel University College, P.O. Box 1125, Eldoret, Kenya
[b] Department of Aquatic Ecology and Ecotoxicology, Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Science Park 904, 1098 SM, The Netherlands
[c] Department of Fisheries and Aquatic Sciences, Chepkoilel University College, P.O. Box 1125, Eldoret, Kenya
[d] Department of Wildlife Management, Chepkoilel University College, P.O. Box 1125, Eldoret, Kenya
[e] Department of Biological Sciences, Chepkoilel University College, P.O. Box 1125, Eldoret, Kenya

No.	Journal Year 2012
249	Journal of Geochemical Exploration 112 (2012) 347–356 Contents lists available at SciVerse ScienceDirect Journal of Geochemical Exploration journal homepage: www.elsevier.com/locate/jgeoexp Arsenic distribution and geological factors in the western Jilin province, China Jianmin Bian *, Jie Tang, Lishu Zhang, Haiyan Ma, Juan Zhao Key Laboratory of Groundwater Resources and Environment, Ministry of Education, College of Environment and Resources, Jilin University, ChangChun, 130026, China
250	Energy Policy 44 (2012) 362–373 Contents lists available at SciVerse ScienceDirect Energy Policy journal homepage: www.elsevier.com/locate/enpol Providing adequate economic incentives for bioenergies with CO_2 capture and geological storage Olivia Ricci * Laboratoire d'Economie d'Orléans (LEO), UMR 6221–CNRS, Université d'Orléans, Rue de Blois, 45067 Orléans Cedex 2, France
251	ARTICLE IN PRESS Journal of Cleaner Production xxx (2012) 1–9 Contents lists available at SciVerse ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro Storage of carbon dioxide in geological reservoirs: is it a cleaner technology? George Câmara [a,*], Célio Andrade [a], Antônio Silva Júnior [a], Paulo Rocha [b] [a] Universidade Federal da Bahia – UFBA, 40210-630 Salvador, Bahia, Brazil [b] Universidade Salvador – UNIFACS/Laureate International Universities, Brazil
252	International Journal of Greenhouse Gas Control 7 (2012) 39–47 Contents lists available at SciVerse ScienceDirect International Journal of Greenhouse Gas Control journal homepage: www.elsevier.com/locate/ijggc A methodology to estimate maximum probable leakage along old wells in a geological sequestration operation Juan P. Nogues [a,*], Benjamin Court [a], Mark Dobossy [a], Jan M. Nordbotten [a,b], Michael A. Celia [a] [a] Department of Civil and Environmental Engineering, Princeton University, United States [b] Faculty of Mathematics and Natural Sciences, University of Bergen, Norway
253	Global and Planetary Change 92–93 (2012) 146–161 Contents lists available at SciVerse ScienceDirect Global and Planetary Change journal homepage: www.elsevier.com/locate/gloplacha Holocene environmental changes in northeast Thailand as reconstructed from a tropical wetland Barbara Wohlfarth [a,*], Wichuratree Klubseang [b], Suda Inthongkaew [b], Sherilyn C. Fritz [c], Maarten Blaauw [d], Paula J. Reimer [d], Alekaneewut Chabangborn [a], Ludvig Löwemark [a], Sakonvan Chawchai [a] [a] Department of Geological Sciences, Stockholm University, Stockholm SE-10961, Sweden [b] Department of Geology, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand [c] Department of Earth and Atmospheric Sciences and School of Biological Sciences, University of Nebraska – Lincoln, 214 Bessey Hall, Lincoln 68588-0340, USA [d] Centre for Climate, The Environment & Chronology (14CHRONO), School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, Belfast BT7 1NN, UK

No.	Journal Year 2012

254

Journal of Environmental Radioactivity 112 (2012) 1–3

Contents lists available at SciVerse ScienceDirect

Journal of Environmental Radioactivity

journal homepage: www.elsevier.com/locate/jenvrad

Short communication

Combination of geological data and radon survey results for radon mapping

Michael Zhukovsky [a,*], Ilia Yarmoshenko [a], Sergey Kiselev [b]

[a] Institute of Industrial Ecology UB RAS, Sophy Kovalevskoy st., 20, Yekaterinburg, 620219, GSP-594, Russia
[b] Burnasyan Federal Medical Biophysical Center, Zhivopisnaya st. 46, Moscow 123182, Russia

255

International Journal of Greenhouse Gas Control 9 (2012) 72–84

Contents lists available at SciVerse ScienceDirect

International Journal of Greenhouse Gas Control

journal homepage: www.elsevier.com/locate/ijggc

Application of simplified models to CO_2 migration and immobilization in large-scale geological systems

Sarah E. Gasda [a,*], Jan M. Nordbotten [b,c], Michael A. Celia [c]

[a] Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC 27599, USA
[b] Department of Mathematics, University of Bergen, 5020 Bergen, Norway
[c] Civil and Environmental Engineering, Princeton University, Princeton, NJ 08544, USA

256

ATMOSPHERIC ENVIRONMENT

Atmospheric Environment xxx (2012) 1–7

Contents lists available at SciVerse ScienceDirect

Atmospheric Environment

journal homepage: www.elsevier.com/locate/atmosenv

Developing a risk-based air quality health index

Tze Wai Wong [a,*], Wilson Wai San Tam [a], Ignatius Tak Sun Yu [a], Alexis Kai Hon Lau [b], Sik Wing Pang [c], Andromeda H.S. Wong [a]

[a] JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Prince of Wales Hospital, Sha Tin, New Territories, Hong Kong
[b] Division of Environment, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong
[c] Environmental Protection Department, 33/F Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong

257

Science of the Total Environment 430 (2012) 24–32

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

The role of qualitative risk assessment in environmental management: A Kazakhstani case study

Arani Kajenthira [a,b,*], John Holmes [c,1], Rachael McDonnell [d,2]

[a] Belfer Center for Science and International Affairs, Harvard Kennedy School, United States
[b] Department of Engineering Science, University of Oxford, United Kingdom
[c] Department of Earth Sciences, University of Oxford, United Kingdom
[d] School of Geography and the Environment, University of Oxford, United Kingdom

258

Science of the Total Environment 424 (2012) 79–87

Contents lists available at SciVerse ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

Human health risk assessment of air emissions from development of unconventional natural gas resources ☆,☆☆

Lisa M. McKenzie *, Roxana Z. Witter, Lee S. Newman, John L. Adgate

Colorado School of Public Health, University of Colorado, Anschutz Medical Campus, Aurora, Colorado, USA

No.	Journal Year 2012
259	Environment International 39 (2012) 38–49 Contents lists available at SciVerse ScienceDirect Environment International journal homepage: www.elsevier.com/locate/envint Review **Human health effects of residual carbon nanotubes and traditional water treatment chemicals in drinking water** Geoffrey S. Simate [a,*], Sunny E. Iyuke [a], Sehliselo Ndlovu [a], Mike Heydenrych [b], Lubinda F. Walubita [c] [a] School of Chemical and Metallurgical Engineering, University of the Witwatersrand, Johannesburg, P/Bag 3, Wits 2050, South Africa [b] Department of Chemical Engineering, University of Pretoria, P/Bag X20, Hatfield 0028, South Africa [c] TTI — Texas A&M University System, College Station, TX, USA
260	Science of the Total Environment 424 (2012) 88–96 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Incorporating bioaccessibility into human health risk assessments of heavy metals in urban park soils** Xiao-San Luo [a], Jing Ding [a,b], Bo Xu [a,b], Yi-Jie Wang [a,b], Hong-Bo Li [a,b], Shen Yu [a,*] [a] Key Laboratory of Urban Environment and Health, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, China [b] Graduate University of Chinese Academy of Sciences, Beijing 100049, China
261	Science of the Total Environment 415 (2012) 31–38 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Development of a framework based on an ecosystem services approach for deriving specific protection goals for environmental risk assessment of pesticides** Karin M. Nienstedt [a,1], Theo C.M. Brock [b], Joke van Wensem [c], Mark Montforts [d], Andy Hart [e], Alf Aagaard [a,2], Anne Alix [f], Jos Boesten [b], Stephanie K. Bopp [g,*], Colin Brown [e], Ettore Capri [h], Valery Forbes [i,3], Herbert Köpp [j], Matthias Liess [k], Robert Luttik [l], Lorraine Maltby [i], José P. Sousa [m], Franz Streissl [g], Anthony R. Hardy [n] [a] European Food Safety Authority (EFSA), Largo N. Palli 5/A, 43121 Parma, Italy [b] Alterra, Wageningen University and Research Centre, Droevendaalsesteeg 3a, 6708PB Wageningen, The Netherlands [c] Soil Protection Technical Committee, P.O. Box 30947, The Hague, The Netherlands [d] National Institute for Public Health and the Environment (RIVM), P.O. Box 1, 3720 BA Bilthoven, The Netherlands [e] Food and Environment Research Agency, Sand Hutton, York YO41 1LZ, UK [f] General Directorate of Food, Ministry of Food, Agriculture, Fisheries and Rural Affairs, 251 rue de Vaugirard, 75732 Paris Cedex, France [g] Environment Department, University of York, Heslington, York YO10 5DD, UK [h] Istituto di Chimica Agraria ed Ambientale, Università Cattolica del Sacro Cuore, Via Emilia Parmense 84, 29100 Piacenza, Italy [i] Department of Environmental, Social and Spatial Change, Roskilde University, P.O. Box 260, 4000 Roskilde, Denmark [j] Federal Office of Consumer Protection and Food Safety (BVL), Mauerstraße 39–42, 10117 Berlin, Germany [k] UFZ Helmholtz Centre for Environmental Research, Dept. System Ecotoxicology, Permoserstr. 15, 04318 Leipzig, Germany [l] Department of Animal and Plant Sciences, The University of Sheffield, Western Bank, Sheffield, S10 2TN, UK [m] IMAR-CMA, Department of Life Sciences, University of Coimbra, 3001-401 Coimbra, Portugal [n] Syngenta Ltd, 3 Church Lane, Bishopthorpe, York, YO23 2QU, UK
262	Science of the Total Environment 433 (2012) 364–372 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Impact of sources of environmental degradation on microbial community dynamics in non-polluted and metal-polluted soils** Lur Epelde, Iker Martín-Sánchez, José A. González-Oreja, Mikel Anza, María T. Gómez-Sagasti, Carlos Garbisu [*] NEIKER-Tecnalia, Department of Ecology and Natural Resources, Soil Microbial Ecology Group, Gobierno Vasco 4, E-48160 Derio, Spain
263	Journal of Hazardous Materials 227–228 (2012) 148–154 Contents lists available at SciVerse ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat **Health risk of heavy metals in food crops grown on reclaimed tidal flat soil in the Pearl River Estuary, China** QuSheng Li [a,b,*], Yan Chen [a,b], HongBo Fu [a,b], ZhiHong Cui [a,b], Lei Shi [a,b], LiLi Wang [a,b], ZhanFei Liu [a,b] [a] Department of Environmental Engineering, JiNan University, Guangzhou 510632, China [b] Key Laboratory of Water/Soil Toxic Pollutants Control and Bioremediation, Department of Education of Guangdong province, Guangzhou 510632, China
264	Science of the Total Environment 419 (2012) 25–36 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Assessment of indirect human exposure to environmental sources of nickel: Oral exposure and risk characterization for systemic effects** Katleen De Brouwere [a,*], Jurgen Buekers [a], Christa Cornelis [a], Christian E. Schlekat [b], Adriana R. Oller [b] [a] Flemish Institute for Technological Research (VITO), Boeretang 200, 2400 Mol, Belgium [b] NiPERA, 2605 Meridian Parkway, Suite 200, Durham, NC 27713, USA

No.	Journal Year 2012
265	Environmental Pollution 165 (2012) 77–90 Contents lists available at SciVerse ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol Review **Establishing indices for groundwater contamination risk assessment in the vicinity of hazardous waste landfills in China** Ying Li [a,*], Jinhui Li [a,*], Shusheng Chen [b], Weihua Diao [b] [a] School of Environment, Tsinghua University, Beijing 100084, China [b] Dongjiang Environmental Company Limited, Shenzhen 518057, China
266	Environmental Development 3 (2012) 137–147 Contents lists available at SciVerse ScienceDirect Environmental Development journal homepage: www.elsevier.com/locate/envdev **Environmental development in Brazilian companies: The role of human resource management** Charbel Jose Chiappetta Jabbour *, Ana Beatriz Lopes Jabbour, Adriano Alves Teixeira, Wesley Ricardo S. Freitas UNESP - Univ Estadual Paulista (The Sao Paulo State University) Av. Eng. Edmundo C. Coube, 14-01, 17360030 Bauru, Sao Paulo Brazil
267	Landscape and Urban Planning 107 (2012) 55–68 Contents lists available at SciVerse ScienceDirect Landscape and Urban Planning journal homepage: www.elsevier.com/locate/landurbplan **The influence of landscape preference and environmental education on public attitudes toward wildfire management in the Northeast pine barrens (USA)** Robert L. Ryan* Department of Landscape Architecture and Regional Planning, University of Massachusetts, Amherst, 109 Hills North, Amherst, MA 01003-9326, United States
268	ARTICLE IN PRESS Journal of Cleaner Production xxx (2012) 1–11 Contents lists available at SciVerse ScienceDirect Journal of Cleaner Production journal homepage: www.elsevier.com/locate/jclepro **Quality management, environmental management and firm performance: direct and mediating effects in the hotel industry** Jorge Pereira-Moliner*, Enrique Claver-Cortés, José F. Molina-Azorín, Juan José Tarí Department of Business Management, University of Alicante, PO Box 99, E-03080 Alicante, Spain
269	Science of the Total Environment 424 (2012) 162–173 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Airport environmental noise mapping and land use management as an environmental protection action policy tool. The case of the Larnaka International Airport (Cyprus)** Konstantinos Vogiatzis Faculty of Civil Engineering, Transportation Department, University of Thessaly, Pedion Areos, 383 34 Volos, Greece

No.	Journal Year 2012
270	Journal of Hazardous Materials 229–230 (2012) 107–114 Contents lists available at SciVerse ScienceDirect Journal of Hazardous Materials journal homepage: www.elsevier.com/locate/jhazmat **Environmental assessment and management of metal-rich wastes generated in acid mine drainage passive remediation systems** Francisco Macías[a,*], Manuel A. Caraballo[a,b], José Miguel Nieto[a] [a] Geology Department, University of Huelva, Campus "El Carmen", E-21071 Huelva, Spain [b] Department of Geosciences, Virginia Tech, Blacksburg, VA 24061, USA
271	Journal of Environmental Management 103 (2012) 9–14 Contents lists available at SciVerse ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Analysis of barriers and success factors affecting the adoption of sustainable management of municipal solid waste in Nigeria** Chukwunonye Ezeah*, Clive L. Roberts School of Applied Sciences, University of Wolverhampton, City Campus-South, Wulfruna Street, Wolverhampton WV1 1LY, UK
272	Ecological Indicators 13 (2012) 326–337 Contents lists available at SciVerse ScienceDirect Ecological Indicators journal homepage: www.elsevier.com/locate/ecolind **Operational performance indicators for litter management at festivals in semi-natural landscapes** Arne Gierjacks[a,*], Friederike Behr[b], Ingo Kowarik[a] [a] Department of Ecology, Technische Universität Berlin, Rothenburgstr. 12, 12165 Berlin, Germany [b] Ecocontrolling GbR, Gesserhainer Str. 3, 14197 Berlin, Germany
273	Journal of Environmental Management 103 (2012) 154–164 Contents lists available at SciVerse ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Community engagement in the management of biosolids: Lessons from four New Zealand studies** Joanna Goven[a,*], E.R. (Lisa) Langer[b], Virginia Baker[c], James Ataria[d], Alan Leckie[b] [a] School of Social and Political Sciences, University of Canterbury, Private Bag 4800, Christchurch 8140, New Zealand [b] Scion, P.O. Box 29 237, Christchurch 8540, New Zealand [c] Institute of Environmental Science and Research (ESR) Ltd., P.O. Box 5 0348, Porirua 5028, New Zealand [d] Landcare Research (Manaaki Whenua), P.O. Box 40, Lincoln 7640, Canterbury, New Zealand
274	Journal of Environmental Management 105 (2012) 1–11 Contents lists available at SciVerse ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman **Expanding the table: The web as a tool for participatory adaptive management in California forests** Maggi Kelly[a,b,*], Shasta Ferranto[a], Shufei Lei[a], Ken-ichi Ueda[a], Lynn Huntsinger[a] [a] 130 Mulford Hall, #3114, University of California, Berkeley, CA 94720-3114, United States [b] Geospatial Innovation Facility, University of California, Berkeley, CA 94720-3114, United States

No.	Journal Year 2012
275	Journal of Environmental Management 93 (2012) 194–206 Contents lists available at SciVerse ScienceDirect Journal of Environmental Management journal homepage: www.elsevier.com/locate/jenvman From the LCA of food products to the environmental assessment of protected crops districts: A case-study in the south of Italy Maurizio Cellura[a,*], Fulvio Ardente[b], Sonia Longo[a] [a] Dipartimento dell'Energia, Università degli Studi di Palermo, Viale delle Scienze Ed. 9, 90128 Palermo, Italy [b] European Commission - Joint Research Centre, Institute for Environment and Sustainability (IES), Via E. Fermi 2749, 21027 Ispra, Italy
276	Environmental Pollution 161 (2012) 70–75 Contents lists available at SciVerse ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol Long-term biological monitoring of environmental quality around a solid waste landfill assessed with lichens L. Paoli[a,c], A. Corsini[b], V. Bigagli[b], J. Vannini[b], C. Bruscoli[b], S. Loppi[a,*] [a] Department of Environmental Science, University of Siena, Italy [b] ARPAT, Department of Pistoia, Italy [c] Institute of Botany, Slovak Academy of Sciences, Slovakia
277	Atmospheric Environment 47 (2012) 111–123 Contents lists available at SciVerse ScienceDirect Atmospheric Environment journal homepage: www.elsevier.com/locate/atmosenv Objective classification of air quality monitoring sites over Europe Mathieu Joly[a,*], Vincent-Henri Peuch[b] [a] Météo-France CNRM-GAME, 42 av. Coriolis, 31057 Toulouse Cedex 1, France [b] ECMWF, Shinfield Park, Reading, United Kingdom
278	WATER RESEARCH 46 (2012) 233–246 Available online at www.sciencedirect.com SciVerse ScienceDirect journal homepage: www.elsevier.com/locate/watres In-pipe water quality monitoring in water supply systems under steady and unsteady state flow conditions: A quantitative assessment Angeliki Aisopou[a,*], Ivan Stoianov[b], Nigel J.D. Graham[b] [a] Department of Civil and Environmental Engineering, Imperial College London, South Kensington, London SW7 2AZ, UK [b] Imperial College, London
279	Chemosphere 87 (2012) 62–67 Contents lists available at SciVerse ScienceDirect Chemosphere journal homepage: www.elsevier.com/locate/chemosphere Genotoxicity monitoring of freshwater environments using caged crayfish (*Astacus leptodactylus*) Göran I.V. Klobučar[a,*], Olga Malev[b], Maja Šrut[a], Anamaria Štambuk[a], Simonetta Lorenzon[c], Želimira Cvetković[d], Enrico A. Ferrero[e], Ivana Maguire[a] [a] Department of Zoology, Faculty of Science, University of Zagreb, Rooseveltov trg 6, 10000 Zagreb, Croatia [b] School of Environmental Sciences, University of Nova Gorica, Vipavska 13, PO Box 301, 5000 Nova Gorica, Slovenia [c] Department of Biological Oceanography, National Institute of Oceanography and Applied Geophysics, via A. Piccard 54, I-34151 S. Croce, Trieste, Italy [d] Department of Ecology, Institute of Public Health, Mirogojska c. 16, 10000 Zagreb, Croatia [e] Department of Life Science, University of Trieste, via Giorgieri 7, I-34127 Trieste, Italy

No.	Journal Year 2012
280	Science of the Total Environment 420 (2012) 24–32 Contents lists available at SciVerse ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **The role of qualitative risk assessment in environmental management: A Kazakhstani case study** Arani Kajenthira [a,b,*], John Holmes [c,1], Rachael McDonnell [d,2] [a] Belfer Center for Science and International Affairs, Harvard Kennedy School, United States [b] Department of Engineering Science, University of Oxford, United Kingdom [c] Department of Earth Sciences, University of Oxford, United Kingdom [d] School of Geography and the Environment, University of Oxford, United Kingdom
281	Science of the Total Environment 415 (2012) 56–60 Contents lists available at ScienceDirect Science of the Total Environment journal homepage: www.elsevier.com/locate/scitotenv **Adaptive monitoring based on ecosystem services** Peter M. Chapman * Golder Associates Ltd, 500-4260 Still Creek Drive, Burnaby, BC, Canada V5C 6C6
282	Atmospheric Environment 59 (2012) 492–500 Contents lists available at SciVerse ScienceDirect Atmospheric Environment journal homepage: www.elsevier.com/locate/atmosenv **Land use to characterize spatial representativeness of air quality monitoring stations and its relevance for model validation** Stijn Janssen [a,*], Gerwin Dumont [b], Frans Fierens [b], Felix Deutsch [a], Bino Maiheu [a], David Celis [c], Elke Trimpeneers [b], Clemens Mensink [a] [a] Flemish Institute for Technological Research (VITO), Boeretang 200, B-2400 Mol, Belgium [b] Belgian Interregional Environment Agency (IRCEL), Kunstlaan 10-11, B-1210 Brussels, Belgium [c] Flemish Environment Agency (VMM), Koningin Astridlaan 59, B-2000 Antwerp, Belgium
283	Environmental Pollution 161 (2012) 70–75 Contents lists available at SciVerse ScienceDirect Environmental Pollution journal homepage: www.elsevier.com/locate/envpol **Long-term biological monitoring of environmental quality around a solid waste landfill assessed with lichens** L. Paoli [a,c], A. Corsini [b], V. Bigagli [b], J. Vannini [b], C. Bruscoli [b], S. Loppi [a,*] [a] Department of Environmental Science, University of Siena, Italy [b] ARPAT, Department of Pistoia, Italy [c] Institute of Botany, Slovak Academy of Sciences, Slovakia
284	WATER RESEARCH 46 (2012) 233–246 Available online at www.sciencedirect.com SciVerse ScienceDirect journal homepage: www.elsevier.com/locate/watres **In-pipe water quality monitoring in water supply systems under steady and unsteady state flow conditions: A quantitative assessment** *Angeliki Aisopou [a,*], Ivan Stoianov [b], Nigel J.D. Graham [b]* [a] Department of Civil and Environmental Engineering, Imperial College London, South Kensington, London SW7 2AZ, UK [b] Imperial College, London

No.	Journal Year 2012

Chemosphere 87 (2012) 62–67

Contents lists available at SciVerse ScienceDirect

Chemosphere

journal homepage: www.elsevier.com/locate/chemosphere

285

Genotoxicity monitoring of freshwater environments using caged crayfish (*Astacus leptodactylus*)

Göran I.V. Klobučar [a,*], Olga Malev [b], Maja Šrut [a], Anamaria Štambuk [a], Simonetta Lorenzon [c], Želimira Cvetković [d], Enrico A. Ferrero [e], Ivana Maguire [a]

[a] Department of Zoology, Faculty of Science, University of Zagreb, Rooseveltov trg 6, 10000 Zagreb, Croatia
[b] School of Environmental Sciences, University of Nova Gorica, Vipavska 13, PO Box 301, 5000 Nova Gorica, Slovenia
[c] Department of Biological Oceanography, National Institute of Oceanography and Applied Geophysics, via A. Piccard 54, I-34151 S. Croce, Trieste, Italy
[d] Department of Ecology, Institute of Public Health, Mirogojska c. 16, 10000 Zagreb, Croatia
[e] Department of Life Science, University of Trieste, via Giorgieri 7, I-34127 Trieste, Italy

AUTHOR BIOGRAPHY

Name: PIYANUCH CHAROENSRI

Date of Birth: 24th October, 1967

Place of Birth: Bangkok

Education

1982-1989	Bachelor's degree of Science, majoring in Animal Husbandry, King Mongkut's Institute of Technology Ladkrabang
1994-1997	Master's degree of Science, majoring in Environmental Management in Prince of Songkhla University (Hat Yai Campus)
2010-2013	Master's degree of Arts in Applied Linguistics-English for Science and Technology from King Mongkut's Institute of Technology Ladkrabang

Work Experience

1985	Thai Volunteer Service at Pichit and Trang Province
1986	Instructor (Level 3), Ubonratchathanee College of Agriculture and Technology
1996- present	Instructor (Level 7), Petchaburi College of Agriculture and Technology

Scholarships

1984-1988	Scholarship for the needy from Major General Prasit and Kunying Rajit Perunawinin King Mongkut's Institute of Technology Ladkrabang
1996	Scholarship for Master's degree Thesis in topic "Sustainable Agriculture in Mixed-Farming Systems at Amphoe Sating Pra Changwat Songkhla"
2004	Scholarship for Thai Official Training in Curriculum of Sustainable Grassland in Livestock at Inner Mongolia China from Chinese Government

Scholarships (Continued)

2007	Scholarship for Research Project from Thailand Research Fund (TRF) Code: RDG50M0004 Topic: Learning Process for Develop Graduated Students in Department of Animal Husbandry at Petchaburi College of Agriculture and Technology
2008	Scholarship for Thai Official Training in Curriculum of Multimedia in Education at Multimedia University (MMU) in Melaka Malaysia from Malaysia Government
2009	Scholarship for Teachers in Vocational Education Commission from Center for Professional Assessment (Thailand) for Investigate in English Teaching at SMK Negeri Dua Malang, Indonesia
2010	Scholarship to Upgrade Teachers in Vocational Education Commission from Thai Government in Master's degree of Art in Applied Linguistics-English for Science and Technology from King Mongkut's Institute of Technology Ladkrabang