List of Dissertation Abstract

（Risk Management and Environmental Sciences　Life and Environment Management Course）

Name	Supervisor	Title	Abstract
Rurika HATAYAMA	Shigeki MASUNAGA	Health Risk Assessment of Pollutants in Car Indoor Environment -Effects of Volatility of Pollutants on Exposure-	To clear the real pollution status for the car indoor environment in Japan, measuring the concentration of the pollutants such as VOCs (Volatile Organic Compounds), aldehydes and OPFRs (Organophosphate flame retardants) in the air and on the dusts collected from car cabins was carried out. The health risk assessment taking into account the effects of the volatility of the pollutants on exposure pass ways for persons in car cabins was also carried out. The assessment results indicated that the exposure to formaldehyde via car indoor air has a cause for concern about the human health (HQ (Hazard Quotient)<1. OPFRs obtained the conclusion of not affecting at the body from the result measured this time.
Yinjie LI	Satoshi NAKAI	Development of a Land Use Regression Model to Estimate Traffic-related Pollutants in Yokohama	Land use regression has been used as a useful tool to estimate urban air pollution distribution in western countries. This useful tool was never been used in Japan. The objective of this research is to develop a land use regression model to prove that it can be used here. Within this research it was possible to develop LUR models in Japan. Land use information, traffic information, road information, population information and elevation information were used as potential predictors. These models explained a large fraction of the spatial variance in measured annual NOx, SPM and Ox concentrations.
Natsuki ITO	Koichi FUJIE	Design of the Biomass residue in Miyako Island Circulation System aiming to reduce Environmental load and Depending off-island	In Miyako Island, sugar cane cultivation and cattle breeding are active. However, the soil has a poor capacity of fertilizer retention, so that Miyako Island has groundwater contamination and depends on support from off-island about fertilizer. This research deals with material flow analyses about sugar cane fields managed different fertilizer, sugar mills, and cattle husbandry to design a biomass residue circulation system which connects sugar cane fields and processing and cattle husbandry. Besides nitrogen leaching and soil microbe crowd structure ware analyzed. The scenario analyses based on those results shows effects which biomass residue circulation system provides.

Kei UDUKA	Shigeki MASUNAGA	Policy evaluation of the photochemical oxidants reduction measures taken by the Tokyo metropolitan government	Cost-benefit analysis has been used in policy evaluation for ensuring efficiency and adequacy of projects, but its applications have been very few in Japan. Thus, in this study, cost-benefit analysis was applied to the photochemical oxidants reduction measures taken by the Tokyo metropolitan government to find out difficulties involved in the analysis process. As a result, only limited numbers of the cost and benefit items could be evaluated based on the current data sources provided by the Tokyo metropolitan government and the Japanese government. Establishment of well planned statistical data collection system is necessary for sufficient quantitative cost-benefit analyses.
Shunichi OBARA	Koichi FUJIE	Establishment of biomass recirculating system based on material balance analysis at sugarcane cultivation	Plantation has some problems that decreasing of soil organic matter, emission of greenhouse gas, decreasing of yield, expance of plantation area and environmental pollution. In this study, I research the material balance analysis at sugarcane factory and assess the effect about soil environment and yield by cultivation and fertilizer management. Based on these research, I study the system that combines sustainable sugarcane cultivation and reduction of the environmental effect.
Ryota KANAI	Koichi FUJIE	Analysis of Material Flow and Assessment of Reuse System for Construction of Cassava Residues Recycling System	Cassava is cultivated at plantation in tropical and sub-tropical. Cultivation and processing of cassava is faced some problems such as decreasing organic carabon in soil and yield, disposing residues from processing. For construction of cassava residues recycling system, studying effect for soil by the difference of cultivation management baced on physico-chemical quality and biochemical character and evaluating effect by introducing the systems, growing up cows and collecting methane, baced on material flow analysis.
Kumiko KAWATA	Takashi Kameya	Development and monitoring analysis of multi-component high-sensitivity collecting analysis of unregulated organic pollutants in the atmosphere and in the rain	In this study, it was carried out continuous monitoring and analysis to develop the collection and analysis method of multi-component high- sensitivity for organic pollutants unregulated in the rain and in the atmosphere. This study enable the measurement of a conventional 25 times more sensitive concentration level for the substance to be measured the analytical method high sensitivity and of 90 % or more in the atmosphere semi-volatile organic compounds .It revealed for the presence conditions of hundreds of species of organic pollutants in the atmosphere and in the rain by continuous monitoring .

Jumpei KIMURA	Nobuhiro KANEKO	Soil-plant nitrogen dynamics under no-tillage with green weed mulch management in Sumatra, Indonesia	No-tillage with green weed mulch management:NTW is the one of the sustainable management supported by soil-plant functions. The objective was to evaluate the N dynamics under NTW and assess the sustainability of NTW in tropics. The main results were below. The yield of NTW was not significantly decreased compared with conventional management. And NTW sequestrated soil carbon, accumulated N in soil-plant, controlled erosion and increased the abundance of soil biota. Therefore, this paper concluded NTW is good land use management in tropics.
Takuma SUZUKI	Takashi KAMEYA	Search of Transformation Products of PRTR Chemicals in Water Environment	PRTR Chemicals are degraded by photolysis, hydrolysis in water environment, and become to other chemicals. The object of this study was to show the status of PRTR Chemicals and transformation products pollution in river water, by using a simultaneous analysis of solid phase extraction (SPE) and GC/MS or LC/MS/MS.
Rie TAI	Shigeki MASUNAGA	Screening-level aquatic ecological risk assessment of copper on Japanese coast	Potential ecological risk of copper in marine environment has become an issue worldwide. The bioavailability-based risk assessment of copper has come to be conducted in western countries. However, little is known about potential risk of copper in Japanese marine area. In this study, I carried out screening-level aquatic ecological risk assessment of copper using plural methods adopted in Japan, EU and US. The results based on Japanese methods indicated that most of the coastal water bodies around Japan were at risk. As excessively conservative risk assessment tends to request excessive countermeasures appropriate assessment methods must be selected and used.
Junya NEGISHI	Shigeki MASUNAGA	Problems concerning the quantification method of total perfluoroalkyl acids (PFAAs) precursors	Diverse perfluorinated compounds (PFCs) are widely used and they decompose into the regulated PFAAs in the environment. Therefore, a method to measure the amounts of PFCs in the environment is necessary. Houtz & Sedlak proposed a quantification method that is based on the chemical oxidization of the PFCs into their corresponding PFAAs. In this research, I studied the precision of this method. I found the decomposition of the PFCs was suppressed when TOC in the sample water was higher than 130 mg/L. In addition, perfluorinated carbon chains were broken by the sulfate radical which was the intermediate product of this method. To quantify more accurately, other oxidation methods must be investigated.

Kanako HATTORI	Masaru OYA	Stabilization of the microbubbles for cleaning application	This study's purpose is to consider the effect of surfactant in microbubble in order to improve the microbuble cleaning. Microbubble cleaning can improve the detergency since the hydrophobic part is increased by adding the surfactant. However, in the case of high concentration, surfactant molecule adsorbs to the gas-liquid interface as well as the soiled. Thus, it’s necessary to choice appropriate surfactant concentration to perform efficient microbubble cleaning. converted to a PDF while retaining the format (font style, size, etc) and uploaded to our school's website.
Yusuke BABA	Satoshi NAKAI	Measurement of $PM_{2.5}$ mass and inorganic component concentrations inside and outside residences	Mass and inorganic elements concentrations of indoor and outdoor $PM_{2.5}$ were determined. The analytical method of inorganic elements for this study based on the "acid digestion/ICP-MS method" by the Ministry of the Environment was also examined. In some cases, indoor $PM_{2.5}$ mass concentrations were different from outdoor concentrations. The inorganic element compositions of indoor $PM_{2.5}$ were not consistent with those of outdoor $PM_{2.5}$ at some homes with short-time ventilation, smokers, etc., even under the same mass concentrations.
ZHANG YIBING	Satoshi NAKAI	Study on Personal Exposure of SPM while Commuting to Campus	It is suggested that short-term exposure to particulate matter is related to adverse health effects. The existing researches show that transport microenvironments always have higher exposure than others. In this study, we measured personal exposure of 8 students to the SPM for 24 hours, using portable monitor and recorded the activity pattern with GPS and questionnaire. The purpose of the study is to clarify the condition of transport microenvironment and to find the factor of concentration fluctuation. As the result, we observed the higher exposure during commuting and found that people crowded and heavy traffic on roads are the major influential factors to personal exposure of SPM while commuting in this study.
Zhiyong Bai	Fumito Koike	The ecological characteristics of Climbing Plants	In order to clarify the ecological charasteristics of climbing plants in suburban, we choose six fields including park in downtown, in suburban, in Satoyama and in mountainous region. As the result, we suggest that the climbing plants which are herbaceous and can grow highly. And it is easy for the parks in downtown to be intruded by invade climbing plants. In order to avoid the Intrusion, we can make the height of vegetation above 6m.