KYOTO UNIVERSITY GSGES
SHORT TERM PROGRAMME

STUDY AND RESEARCH PLAN PRESENTATION

Student: Nguyen Thi Thuy An
Supervisor: Prof. Eiji NAWATA
INTRODUCTION

**Name:** NGUYEN THI THUY AN
From: Hue College of Science, Hue university
The period of study in Kyoto: 6 months

My supervisor in Kyoto ➔ Prof. Eiji Nawata
My supervisor in Vietnam ➔ PhD. Duong Van Hieu

**First study topic:** Research on the management of Biological resources in Tam Giang- Cau Hai lagoon in Thua Thien Hue province

**Objective**

Assessing the management of biological resources in Tam Giang – Cau Hai lagoon in Thua Thien Hue province
MASTER’S THESIS

Study topic: “Determination of Heavy Metals in Sea Fish and Health Risk Assessment for Hue Consumers”.

objectives

- Investigating the species of fish that were consumed most popularly
- Determine the contents of heavy metals in the muscle of sea fish
- Assess sea fish quality and the health risk for humans

CASE STUDY:

- To study some species of fish that Hue people eat commonly and some kinds of heavy metals such as: Pb, As, Cu, Cd, Hg
- Study area: inner citadel Hue area (including 4 communes)
MATERIALS AND METHODS (1/3):

- **Dietary survey:** A questionnaire-based dietary survey was conducted to about 200 household wives randomly selected from the general population.

- **Sample collection:** 4 species of fish were purchased from local markets in inner citadel area in March 2013. Fish were wrapped in aluminum foil, placed in polyethylene bags, and then stored frozen at -20°C until analysis.

- **Sample preparation and extraction:**
  - Filleting muscle tissues without skin of individual fish
  - Homogenised subsamples (about 2g) were digested in a HNO$_3$ - HCl mixture
MATERIALS AND METHODS (2/3):

- **Instrumental analysis:** Determination of metals was performed with a ICP-AES (Inductively Coupled Plasma – Atomic Emission Spectrometry)

- **Health Risk Estimation for Fish Consumption:**

  Non – carcinogenic Heath Effects: the basic equation for calculating systemic toxicity:

  $$HQ = \frac{(C \times IR \times EF \times ED)}{(RfD \times BW \times ATn)}$$

  HQ: Harzard ratio
  C: Metal concentration in fish (mg kg\(^{-1}\))
  IR: Fish Ingestion Rate (kg day\(^{-1}\))
  EF: Exposure Frequency (day year\(^{-1}\))
  ED: Exposure Duration (years)
  RfD: Reference Dose (mg kg day\(^{-1}\))
  BW: Body Weight (kg)
  ATn: Lifetime (Average) (day year\(^{-1}\))

  $$HI = \sum HQs$$

  HI: Hazard Index = sum of the Hazard ratios
Carcinogenic Health Effects: the basic equation for calculating excess lifetime cancer risk is

\[ R = \frac{(C \times IR \times EF \times ED \times SF)}{(BW \times ATc)} \]

- **C**: Metal concentration in fish (mg kg\(^{-1}\))
- **IR**: Fish Ingestion Rate (kg day\(^{-1}\))
- **EF**: Exposure Frequency (day year\(^{-1}\))
- **ED**: Exposure Duration (years)
- **SF**: Slope factor
- **BW**: Body Weight (kg)
- **ATc**: Average time (day year\(^{-1}\))
STUDY PLAN IN KYOTO UNIVERSITY

**Topic:** Research on Japanese organic farming as a model for Vietnamese alternative agriculture

**Objectives**
- Study on the systems of handling agricultural wastes that Japanese farmers are using for their farming.
- Study on the way they control pests and use pesticides effectively that did not affect consumer’s health.
- Learn how the efficiency of current methods that Japanese farmers are operating.

**Case Study:**
- Focus on studying Agricultural wastes and Pesticides
- Study area: Kyoto
STUDY PLAN IN KYOTO UNIVERSITY

Research Japanese organic farming as a model for Vietnamese alternative agriculture

Research Methodologies:
- Investigating community: A questionnaire-based survey is conducted to about 20 to 30 farmer households randomly selected from the general population.
  - Interview and discuss with experts
  - Data analysis

Expecting outcome:
- Find out the most suitable and effective way for handling Vietnamese agricultural wastes and using pesticides and fertilizers
STUDY PLAN IN KYOTO UNIVERSITY

Research Japanese organic farming as a model for Vietnamese alternative agriculture

Detailed study schedule:

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study and research plan presentation</td>
<td></td>
<td>24th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Enjoy class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Study at lab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. investigating community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Doing reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Field trip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Achievement presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20th</td>
<td></td>
</tr>
</tbody>
</table>
BENEFITS FROM STUDYING IN KYOTO UNIVERSITY

- There is huge literature sources for studying.
- Receive the large support of experienced professors.
- Contact to new methods for solving agricultural problems in real life and gain experiences in process of reaching sustainable agriculture
- Learn how to carry out a research
CONCLUSION

Studying in Kyoto university provides a great chance not only for completing my master thesis but also enhancing my background knowledge in my environmental department. Particularly, my current study in my country only is a way of agricultural product’s testing because of healthy consumers. My study here, in Kyoto university is an addition for my thesis. In other ways, I will learn how to create safer agricultural products and an environmentally friendly agricultural system.

THANK YOU FOR YOUR LISTENING!