Appendices I-III
Appendix I

Consent from and questionnaire used in 2008

ENGLISH - CONSENT FORM

Request for participation

We ask you to participate in a research study related to work in coffee production and health. The aim of this study is to assess the dust exposures and the associated respiratory health problems among workers. This study will help us come up with recommendations on how to improve the work environment.

We are going to interview you on your demographic characteristics and respiratory symptoms. Please answer the questions as frankly and accurately as possible.

[For some of the workers: We will also take some measurements on lung function before, during and after your work shift, and ask about your work tasks and symptoms at work. You will also be asked to carry a pump for sampling of dust.]

Your participation in this interview and every aspect of this study is completely voluntary.

Those found with respiratory disorders will be referred to the district hospital. All the questionnaires with the information will be destroyed when this study ends, in 2010.

ALL INFORMATION OBTAINED IN THIS STUDY WILL BE KEPT CONFIDENTIAL AND USED FOR MEDICAL RESEARCH ONLY. Your personal physician will be informed on the test results if you desire.

CONSENT FORM
I __________________________ agree to participate in this study

Date __________________ Signature __________________
QUESTIONNAIRE FOR ASSESSING RESPIRATORY HEALTH PROBLEMS IN COFFEE PRODUCTION

*(the questions will be administered by a researcher, interviewing)*

1. 1. Identification number IDNO: [___][___]

Name_____________________________________________________


3. Date of birth ______________________________ (day/month/year)

4. Education level by number of school years: ________________

5. For how long have you been working in this factory? (Months and years)

6. How long have you been working in coffee industry, summarizing all periods?

7. Have you ever worked in other dusty types of work?
   1. [Yes] 0. [No]

8. If yes, for how long have you worked in any of the following types of work? (years)

   Mines [__]__  Cotton [__]__
   Foundry [__]__  Sisal, flax [__]__
   Stone quarry [__]__  Flower industry [__]__
   Asbestos [__]__  Millet processing [__]__
   Other dusty industry [__]__  Other dusty agriculture [__]__

9. Do you have you own small coffee farm? 1[Yes] 0 [No]

10. Do you process coffee at home 1[Yes] 0 [No]

11. Are you normally cooking food at home? 1[Yes] 0 [No]

12. Have you sprayed with pesticides the past year? 1[Yes] 0 [No]

   If yes, what type of pesticides did you use?___________________
   _______________________________________________________

13. Where is cooking normally taking place in your home? [Inside house] or [Outside house]

14. What kind of fuel do you use in your home for cooking?
a. [Charcoal] or [Fire wood]?

_I am going to ask you some questions, mainly about your chest. I would like you to answer Yes or No wherever possible._

**COUGH**
15. Do you usually cough first thing in the morning  1. [Yes]  0 [No]
16. Do you usually cough during the day or at night  1. [Yes]  0 [No]

If yes to any of the above:
17. Do you usually cough as much as 4-6 times a day for 4 or more days in a week  1. [Yes]  0 [No]
18. Do you cough like this on most of days for as much as 3 Consecutive months or more in a year  1. [Yes]  0 [No]

**COUGH WITH SPUTUM PRODUCTION**
19. Do you usually cough with sputum when you wake up in the morning  1. [Yes]  0 [No]
20. Do you usually cough with sputum during the day or at night  1. [Yes]  0 [No]

If yes to any of the above:
21. Do you usually cough with sputum as much as 4 –6 times a day, or 4 or more days in a week  1. [Yes]  0 [No]
22. Do you cough with sputum on most of days for as much as 3 consecutive months or more in a year  1. [Yes]  0 [No]

**BREATHLESSNESS**
23. Are you troubled by shortness of breath when hurrying on level ground or walking up slight hill?  1. [Yes]  0 [No]
24. Do you get shortness of breath walking with other people of your own age on level ground?  1. [Yes]  0 [No]

If yes to any of the above:
25. Do you have to stop for breath when walking at your own pace on level ground?  1. [Yes]  0 [No]
WHEEZING
26. Have had attacks of wheezing in your chest at any time   
   1. [Yes]  0 [No]
27. How long do you have wheezing in your chest?  
   [___] years  [___] months  (e.g. 5 years and 4 months  [0][5]  [0][4])

If yes to any of the above:
28. Do you usually experience chest tightness while at work or just after work  
   1. [Yes]  0 [No]
29. For how long do you have this problem?  
   [___]  [___]

CHRONIC BRONCHITIS
30. During the past 3 years have you had a period of increased cough with increased sputum production for as long as three weeks or more?  
   1. [Yes]  0 [No]

PREVIOUS DISEASES
Have you ever had any of the following:
31. An injury/operation affecting your chest.  1. [Yes]  0 [No]
32. Heart trouble  1. [Yes]  0 [No]
33. Bronchitis  1. [Yes]  0 [No]
34. Pneumonia  1. [Yes]  0 [No]
35. Pleurisy  1. [Yes]  0 [No]
36. Pulmonary tuberculosis  1. [Yes]  0 [No]
37. Bronchial asthma  1. [Yes]  0 [No]
38. Any other chest trouble?  1. [Yes]  0 [No]
39. SPECIFY ________________________________

CIGARETTE SMOKING
40. Have you ever smoked cigarettes?  1. [Yes]  0 [No]
41. At what age did you started smoking?  
   [___] years
42. Do you now smoke cigarettes daily?  1. [Yes]  0 [No]

IF NO, GO TO QUESTION 44
43. For how long have you being smoking daily?  
   [___] years
44. How many cigarettes do you normally smoke per day now?  
   [___] number No.48
45. How long did you smoke?  
   [___] years
46. How long ago did you give up cigarette smoking?  
   [___] years
47. How many cigarettes did you normally smoke when you smoked earlier?  
   [___] number

PHYSICAL MEASUREMENTS
48. Weight  
   [___] [___] kg  49. Standing height  
   [___] [___] cm
APPENDIX II

Consent form and questionnaire used in 2010

ENGLISH - CONSENT FORM 2010

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
DIRECTORATE OF RESEARCH AND PUBLICATIONS, MUHAS

INFORMED CONSENT FORM

ID-NO

Consent to Participate in a study titled “Dust exposure and respiratory health among workers processing Arabica and Robusta coffee in Tanzania.”

Greetings! My name is Ms Gloria Sakwari; I am a PhD student working on this research project with the objective of determining dust levels and examining respiratory health among workers in coffee processing factories.

Purpose of the Study
We are examining respiratory health of all production workers in this factory by measuring lung function and the amount of exhaled nitric oxide to determine the status of the lungs. This will enable us to tell if you have healthy lungs or if you have a problem in your lungs.

What Participation Involves

If you agree to join the study, you will be required to participate in an interview which will be on your personal background, some respiratory symptoms and information on your previous job experiences. Your lung function will be examined by a non invasive machine and the level of Nitric oxide in your exhaled air will also be measured.

Some of you will be requested to carry dust sampling pumps which measure the amount of dust in your breathing zone for the whole shift.

Confidentiality
All information obtained from you will be kept confidentially in a computer using the identification number. The information will only be used for the purpose of this research.
Your employer will have neither access to any of the information you gave us nor the results of your lung function test.

**Risks**
We do not expect that any harm will happen to you because of joining this study.

**Rights to Withdraw and Alternatives**
Your participation in the interview and every aspect of this study is completely voluntary. You have the choice to participate or not to. Your employer will have no access to your decision to participate or not.

**Benefits**
If you decide to participate you will get to know the state of your lungs so you can take better care. In case you are found to have problems in your airway you will be referred to the regional hospital for more investigation and treatment if needed. Sharing of your lung function results with any physician will be your decision.

**In Case of Injury**
We do not anticipate that any harm will occur to you in the course of this study.

**Who to Contact**
If you ever have questions about this study, you should contact the study Coordinator **Dr. Simon Mamuya** or the Principal Investigator **Ms Gloria Sakwari** Muhimbili University College of Health Sciences, P.O.Box 65001, Dar es Salaam). If you ever have questions about your rights as a participant, you may call **Prof. Aboud**, Chairman of the College Research and Publications Committee, P.O. Box 65001, Dar es Salaam. Tel: 2150302-6.

**Signature:**
Do you agree?

Participant agrees ……………………… Participant does NOT agree …………………

I, __________________________________ have read the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of participant ____________________________________________

Signature of witness (if the participant cannot read) ______________________

Signature of research assistant _______________________________________

Date of signed consent ______________________
ENGLISH - QUESTIONNAIRE FOR ASSESSING RESPIRATORY HEALTH PROBLEMS IN COFFEE PROCESSING WORKERS

(the questions will be administered by the researcher)

1. Identification number IDNO: [ ]

Name_____________________________________________________

3. Date of birth ______________________________ (day/month/year)

4. Education level by number of school years:__________________

5. For how long have you been working in this factory? (years and Months) [ ]

6. How long have you been working in coffee industry, summarizing all periods? [ ]

7. Have you ever worked in other dusty types of work? 1. [Yes] 0. [No]

8. If yes, for how long have you worked in any of the following types of work? (years and months)

- Mines [ ]
- Foundry [ ]
- Stone quarry [ ]
- Asbestos [ ]
- Other dusty industry [ ]

- Cotton [ ]
- Sisal, flax [ ]
- Flower industry [ ]
- Millet processing [ ]
- Other dusty agriculture [ ]

9. Do you have your own small coffee farm? 1[Yes] 0 [No]

10. Do you process coffee at home? 1[Yes] 0 [No]

11. Are you normally cooking food at home? 1[Yes] 0 [No]

12. Have you sprayed with pesticides the past year? 1[Yes] 0 [No]

If yes, what type of pesticides did you use? ___________________________________________________________________

13. Where is cooking normally taking place in your home?
    1. [Inside house]   2. [Outside house in open area]   3. [Outside in a kitchen]

14. What kind of fuel do you use in your home for cooking?
    1. [Charcoal]   2. [Fire wood]   3. [Kerosene]?

I am going to ask you some questions, mainly about your chest. I would like you to answer Yes or No wherever possible.

COUGH

15. Do you usually cough first thing in the morning 1. [Yes] 0 [No]

16. Do you usually cough during the day or at night 1. [Yes] 0 [No]
COUGH WITH SPUTUM PRODUCTION
17. Do you usually cough with sputum first thing in the morning
   1. [Yes] 0 [No]
18. Do you usually cough with sputum during the day or at night
   1. [Yes] 0 [No]

ASTHMA ATTACKS
19. Have you ever in the past 12 months woken up and felt that you had problems with breathing
   1. [Yes] 0 [No]
20. Have you ever in the past 12 months had attacks of breathing problems during the day when you have been sitting still?
   1. [Yes] 0 [No]
21. Have you ever in the past 12 months had attacks of breathing problems after physical strain?
   1. [Yes] 0 [No]
22. Have you ever in the past 12 months woken up because you have had an attack of breathing problems?
   1. [Yes] 0 [No]

BREATHELESSNESS
23. Are you troubled by shortness of breath when hurrying on level ground or walking up slight hill?
   1. [Yes] 0 [No]
24. Do you get shortness of breath walking with other people of your own age on level ground?
   1. [Yes] 0 [No]
25. Do you have to stop for breath when walking at your own pace on level ground?
   1. [Yes] 0 [No]

WHEEZING
26. Have you ever had attacks of wheezing in your chest at any time?
   1. [Yes] 0 [No]
27. Have you ever in the past 12 months had attacks with wheezing in the chest?
   1. [Yes] 0 [No]
28. Do you usually experience chest tightness while at work or just after work?
   1. [Yes] 0 [No]
29. For how long do you have this problem? Yrs.[___]__ Months [___]

CHRONIC BRONCHITIS
30. During the past 3 years have you had a period of increased cough with increased sputum production for as long as three weeks or more?
   1. [Yes] 0 [No]

PREVIOUS ILLNESS
Have a doctor ever told you had any of the following:
31. An injury/operation affecting your chest.
   1. [Yes] 0 [No]
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>32. Heart trouble</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>33. Bronchitis</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>34. Pneumonia</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>35. Pleurisy</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>36. Pulmonary tuberculosis</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>37. Bronchial asthma</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>38. Any other chest trouble?</td>
<td>1. [Yes]</td>
<td>0 [No]</td>
</tr>
<tr>
<td>39. SPECIFY ________________________________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SMOKING**

40. Have you ever smoked cigarettes daily? 1. [Yes] 0 [No]
41. Do you now smoke cigarettes daily? 1. [Yes] 0 [No]

*IF NO, GO TO QUESTION 44*

42. For how long have you been smoking daily  [__]__ years
43. How many cigarettes do you normally smoke per day now?  [__]__ number
46
44. How long ago did you give up cigarette smoking?  [__]__ years
45. How many cigarettes did you normally smoke when you smoked earlier?  [__]__ number

**PHYSICAL MEASUREMENTS**

46. Weight  [__]__ kg
47. Standing height  [__]__ cm
<table>
<thead>
<tr>
<th>Date</th>
<th>Weather conditions</th>
<th>Temp</th>
<th>Rain</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDNO</td>
<td>Pump No</td>
<td>Start time</td>
<td>Flow rate</td>
<td>End time</td>
</tr>
<tr>
<td>IDNO</td>
<td>Job Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDNO</td>
<td>Job Description</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Errata for
Dust exposure and respiratory health among Tanzanian Coffee factory workers
Gloria Sakwari

Thesis for the degree philosophiae doctor (PhD)
at the University of Bergen

Gloria Sakwari
(signature of candidate)

4th April 2013
Errata

Paper II

Page 848 Subtitle; Exhaled Nitric Oxide

The second sentence should read “The mean level of exhaled NO was 24 ppb and standard error was 4 ppb among the coffee workers.”

Paper III

Page 178 Table 3;

The titles for columns 5 and 7 should read “Total dust (mg/m$^3$)” and “Endotoxin (mg/m$^3$)”, respectively