



MAURITIUS

WAVE 1 TECHNICAL REPORT

January 2010





ITC Mauritius Country Investigators

Mr. Premduth Burhoo (Senior Research Officer- Mauritius Institute of Health)
Mr. Deowan Mohee (Ministry of Health and Quality of Life/ World Health Organization)
Mrs. Véronique Le Clézio (President- ViSa NGO)
Mrs. Leelmanee Moussa (Senior Research Officer- Mauritius Institute of Health)
Dr. Marie France Lan Cheong Wah (University of Mauritius)

International Planning Group

Professor Dr. Geoffrey T. Fong (Dept. of Psychology, University of Waterloo, Canada)
Professor Dr. Mary Thompson (Dept. of Statistics and Actuarial Science, University of Waterloo, Canada)
Mr. Pete Driezen (Propel Centre, University of Waterloo, Canada)
Dr. Anne C. K. Quah (Dept. of Psychology, University of Waterloo, Canada)
Ms. Janine Ouimet (Dept. of Psychology, University of Waterloo, Canada)
Ms. Mary McNally (Dept. of Psychology, University of Waterloo, Canada)
Ms. Kathleen Standring (Dept. of Psychology, University of Waterloo, Canada)

Funding

The ITC Mauritius Project has received funding support from:

- International Development Research Center (IDRC), Canada
- Ontario Institute for Cancer Research (OICR), Canada

Table of Contents

1. Introduction	1
2. Sampling Design	5
3. Survey Development and Content	7
4. Protocols and Quality Control	8
5. Disposition Codes and Response Rates.....	12
6. Weights Construction.....	14
7. Appendices	
Appendix A: ITC Mauritius First Stage Sample	18
Appendix B: Household Enumeration Form	19
Appendix C: Sample of Consent Form (Smoker – Written and Verbal)	22
Appendix D: Sample of Wave 1 Adult Smoker Survey.....	24
Appendix E: Pictures of Interviewer Training Activities	26
Appendix F: Pictures of Fieldwork.....	27
Appendix G: Summary of Tobacco Control Policies in Mauritius	28
8. References	32

1. Introduction

1.1 Background

The International Tobacco Control (ITC) Project is a prospective cohort survey designed to evaluate national level tobacco control policies. Since the ITC Project began in 2002, the ITC survey has been administered in 21 countries: Canada, United States, United Kingdom, Australia, Ireland, Thailand, Malaysia, South Korea, Uruguay, Mexico, China, New Zealand, France, Germany, the Netherlands, Sudan (pilot only), Bangladesh, Brazil, Mauritius, Bhutan, and India. Wave 1 of the ITC Mauritius Survey was conducted from April 20 to May 24, 2009. The information contained in this report is from the Wave 1 ITC Mauritius Survey.

1.1.1 *The objectives of the ITC Mauritius Survey are:*

a) To examine patterns of smoking behaviour among adults in Mauritius.

The ITC Mauritius Survey gathers very detailed information about smokers' quitting behaviour, consumption patterns, and other important aspects of smoking behaviour.

b) To examine the impact of specific tobacco control policies that will be implemented in Mauritius during the next 5 years.

The ITC Mauritius Survey contains several sections that are intended to evaluate the impact of specific policies, such as health warning labels on cigarette packs, anti-smoking campaigns, and price/taxation increases. As a result, the survey is able to examine to what extent policies change smoking behaviour and attitudes towards smoking.

c) To continue to compare smoking behaviour and the impact of policies between Mauritius and other ITC countries.

The ITC survey is being administered in 20 countries. Because the vast majority of questions are either identical or functionally equivalent across countries, we will be able to compare patterns of smoking and policies in Mauritius with those of the other 19 countries.

1.2 Survey Design

The ITC Mauritius Survey is a national survey conducted by the Mauritius Institute of Health in conjunction with Mauritius Ministry of Health and Quality of Life, in collaboration with the ITC Mauritius Project team, centered at the University of Waterloo in Canada. The ITC Mauritius Survey is a prospective survey for 2 years. There is a potential to continue, subject to funding. Wave 1 was conducted from April to May 2009, and Wave 2 is being planned for May 2010.

The ITC Survey is a longitudinal cohort study. In other words, the respondents who participate in this survey will be re-contacted in the future to answer follow-up surveys. The longitudinal cohort design allows the evaluation studies arising from the survey data to address research questions of greater precision and complexity because the same individuals are tracked over time, and their responses to tobacco control policies and programs and other important factors

in tobacco use (including tobacco industry activities) can be linked to potential changes in behavior over time. Cohort designs can measure policy impact in a more fine-grained, individual-level way, compared to repeat cross-sectional designs (having separate samples of respondents at multiple points in time). The International Agency for Research on Cancer (IARC) Cancer Prevention Handbook, *Methods for Evaluating Tobacco Control Policies* (2008) provides background on the advantages of cohort designs in the evaluation of policies.

1.3 The Research Team

The ITC Mauritius Project is being conducted through cooperation between researchers at the University of Waterloo, Canada, and public health leaders at the Mauritius Institute of Health (MIH), together with other public health leaders from Mauritius. The team members at MIH have made Mauritius a leader for tobacco control in Africa and the world. This team comprises the Principal Investigator, Mr. Premduth Burhoo, Senior Research Officer at the Mauritius Institute of Health; Mr. Deowan Mohee, Health Information and Promotion Officer at the World Health Organization; Mrs. Véronique Le Clézio, president of ViSa (a non-governmental organization dedicated to reducing tobacco use); and Mrs. Leelmanee Moussa, Senior Research Officer at the Mauritius Institute of Health.

The International Development Research Centre (IDRC) was the funding agency for Wave 1 of the ITC Mauritius Survey through the African Tobacco Situational Analysis (ATSA) Initiative, funded by the Bill and Melinda Gates Foundation. The IDRC strives to provide developing countries with practical and long-term solutions to economic, social and environmental problems. IDRC funding support is directed toward creating a local research community whose work will build healthier, more equitable, and more prosperous societies. This study was also supported by the ITC Project through a grant from the Ontario Institute for Cancer Research.

Maps of Mauritius

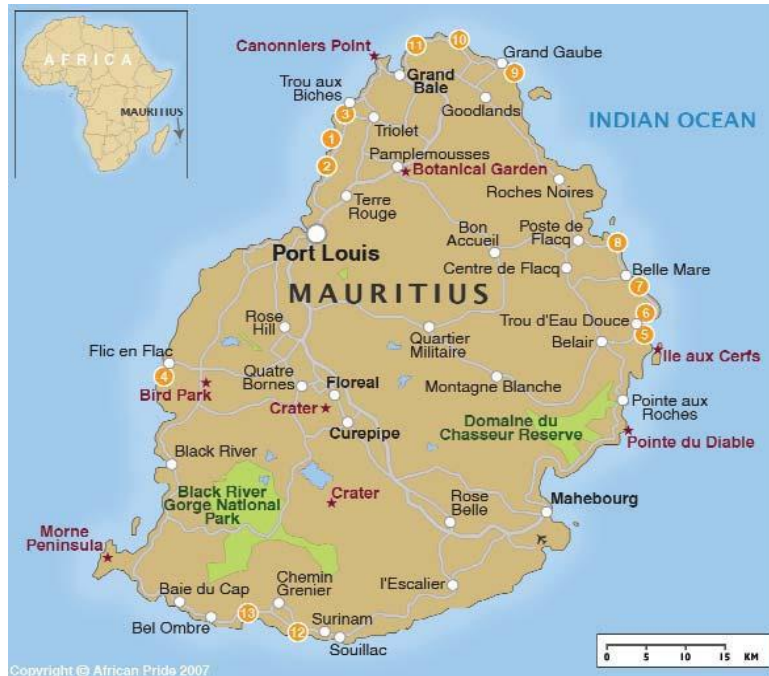


Figure 1. Map of Mauritius ¹



Figure 2. Political Map of Mauritius ²

2. Sampling Design

2.1 Target Population

There were two categories of respondents. **Smokers** were adults (aged ≥ 18 years) who (1) reported having smoked at least 100 cigarettes in their life, and (2) had smoked at least once in the previous 30 days. **Non-smokers** were adults (aged ≥ 18 years) who had not smoked in the previous 30 days, or had not smoked 100 cigarettes in their lifetime. Individuals in jail and those living in institutions were ineligible for the survey. A maximum of three respondents were selected from each household (one female adult smoker, one male adult smoker and one adult non-smoker).

2.2 Sampling design

The sample comprised 60 Enumeration Areas (EAs) which each included approximately 100-125 households. Of these households, 50 from each EA were randomly selected to be contacted. A total of 1750 households were enumerated (see below for the details of the enumeration process). From the 1750 households, a cohort of 840 respondents was sampled: 600 smokers and 240 non-smokers. Of the respondents who were smokers, 32.4% were male and 2.6% were female, which is consistent with prior estimates.

2.3 Sampling Frame

The multi-cluster sampling frame was designed in collaboration with the Mauritius Central Statistics Office to ensure random selection of households within strata defined by the nine geographic districts spanning the island. The urban-rural population split in Mauritius is 42.7% urban and 57.3% rural. The stratification by district provided similar urban-rural representation in the study sample. Mauritius is divided into 3600 enumeration areas (EAs), each with about 100-125 households.

2.4 Stages of Sampling

The study sample was selected from 60 EAs chosen with probability proportional to size within strata. In each EA, 50 households were selected at random to be sampled. A maximum of three respondents per household was allowed. Please refer to Appendix A for details on the first stage sample.

2.5 Sample size

The ITC Mauritius Country cohort consists of 840 respondents. Of these respondents, 600 were adult smokers and 240 were adult non-smokers.

2.6 Private Homes

Dwellings were eligible if they were **private homes**.

A private home is any dwelling that is considered to be the usual place of residence for at least one of the persons living there. That person may be:

- a family member
- a roomer / boarder
- an employee

There are many types of private homes in Mauritius, and for the purposes of this survey they included independent homes, duplexes, apartments and private homes out of which a business was run. Independent homes are considered those that do not share a wall, roof or entrance with another dwelling. Duplexes may share a wall or roof with another dwelling, but are distinct from the other dwelling by having separate facilities. Apartments are private homes within a collection of similar dwellings, all located in the same building. Private homes where businesses were a part of the home were still eligible for inclusion, so long as the dwelling was not solely for the purposes of the business.

Surveys were not conducted in dwellings that were strictly businesses or with individuals living in institutions such as hospitals, nursing homes, jails, or religious institutions. For the purposes of this survey a household is defined as “any person or group of persons living in a dwelling that share meal expenses with other persons in that dwelling”. It may consist of:

- One person living alone
- A family sharing the same dwelling
- A group of people who are not related but share the same dwelling

3. Survey Development and Content

3.1 Survey Development

The ITC Mauritius Survey was first developed by the project team (at Waterloo and in Mauritius together) in English. Two versions of the survey were created: one each of a smoker and non-smoker questionnaire. The surveys were translated into Mauritian Creole by team members at the Mauritius Institute of Health. The translated surveys were then reviewed by a committee composed of five members who were bilingual in English and Creole and who also had experience in population surveys. Nuances in wording were checked by this bilingual committee, which resolved discrepancies and checked nuances by discussion. This committee method of translation is known to be generally superior to traditional double translation methods and is being employed throughout the ITC countries in the development of the ITC surveys.

3.2 Survey Content

The ITC Mauritius Wave 1 Surveys (smoker and non-smoker versions) are available at www.itcproject.org.

3.2.1 Smoker Survey

Respondents who were smokers were asked the following types of survey questions:

1. Smoking- and Cessation-Relevant Questions. Smoking history and frequency, as well as current smoking behaviour and dependence, and quitting behaviours;
2. Knowledge and Basic Beliefs About Smoking. Knowledge of the health effects of smoking and important beliefs relevant to smoking and quitting, perceived risk and perceived severity of tobacco-related diseases;
3. Policy-relevant questions. Awareness of, impact of, and beliefs relevant for each of the FCTC demand reduction policy domains (warning labels, taxation/price, advertising/promotion, smoke-free bans, light/mild);
4. Other important psychosocial predictors of smoking behaviour and potential moderator variables (e.g., normative beliefs, self-efficacy, intentions to quit);
5. Individual difference variables relevant to smoking (e.g., depression, stress, time perspective)
6. Demographics (e.g., age, marital status, income, education).

3.2.2 Non-Smoker Survey

Respondents who were non-smokers were asked parallel survey questions from categories 2 to 6, as listed above for the Smoker Survey. Question phrasing was revised where necessary for the non-smoker context. The inclusion of non-smoker survey items is important in allowing accurate interpretation of survey results for the entire population of Mauritius.

4. Protocols and Quality Control

4.1 ITC Mauritius Survey Protocol

The protocols and scripts used in the ITC Mauritius Survey were similar to those used in the ITC Southeast Asia and ITC China Surveys. At the time of recruitment, the participants were given a survey requesting basic information on demographic variables, smoking status, and preferred cigarette brands. Each participant was given an information and consent letter as well as 200 MUR (approximately \$7 CAD) in appreciation of their time.

4.2 Respondents

- The sample consisted of a total of 840 respondents of which 600 were adult smokers, and 240 were adult non-smokers.
- The eligible respondents for the cohort surveys were those who lived within the 50 households selected at random from 60 different enumeration areas.
- The respondents were smokers and non-smokers aged ≥ 18 years. The first part of the cohort surveys contained the questions that are used to determine whether the individual meets the criteria for inclusion.

4.3 Components of the ITC Mauritius Survey Fieldwork

The ITC Mauritius Survey protocol consisted of four main steps:

1. Household Enumeration (including demographic information)
2. Participant Selection & Consent
3. ITC Mauritius Survey Interview
4. Remuneration and Conclusion

4.3.1 *Household Enumeration (including demographic information)*

- In each of the 60 EAs that had been selected in the sampling plan from the 9 districts across Mauritius, 50 households had been selected at random to be enumerated by one interviewer per EA.
- The interviewers went to each of the 50 households in his/her assigned EA, in the (random) order that the households had been selected.
- If a member of the household agreed to participate in the enumeration of his/her household, then information on all adults (aged 18 years or older) in the home was collected, including their smoking status. The number of children residing in the dwelling was also recorded.
- After enumerating a household, the interviewer used the selection criteria to determine if any members of the household were eligible to participate in the ITC Mauritius Survey. The criteria and protocol for participant selection and consent are described below.

- If a member of the household refused to participate in enumeration, the interviewer would then request the following two pieces of information:
 - 1) The number of children in each enumerated household, and
 - 2) The smoking status of all adults living within the dwelling.
- A maximum of 4 attempts were made to enumerate each household.
- Enumerators kept careful records of which dwellings were visited, the outcome of each visit, and whether or not a listing or an interview was obtained.

4.3.2 Survey Participant Selection and Consent

- In each enumeration area, a quota of 10 completed smoker interviews and 4 completed non-smoker survey interviews was expected.
- Respondents were selected based on their smoking status, and completed the appropriate survey accordingly.
- Within each enumerated household, a maximum of three respondents could be interviewed—a male smoker, a female smoker, and one non-smoker (either male or female).
- If there were several respondents from each category (i.e. male smokers) willing to participate in the survey then the next birthday method was used, and the adult whose birthday appeared next in the calendar year was selected.
- A substitution from the same household was allowed only if a selected respondent had outcome code I2 (Language barrier) or I3 (Health/mentally incapable), or would be away for the entire survey period (refer to Section 4 for details on Individual Outcome Codes).
- In the case of a refusal by an individual who had been selected as a potential survey respondent for a given quota category (e.g., for the male smoker category), the interviewer recorded the outcome code as I5 (Refusal), and moved on to the next household to fill the category quota (i.e., substitution from the same household was not permitted in the case a refusal).
- Consent (either verbal or written) was obtained from each participant and each eligible, consenting participant was interviewed independently of one another, using a standardized consent form (either the smoker or non-smoker version) that had been reviewed and cleared by ethics committees at the University of Waterloo and the Mauritius Ministry of Health and Quality of Life.
- If a selected potential survey respondent (identified through the household enumeration process) was unavailable to complete the survey, the interviewer would return on at least three separate subsequent occasions at different times (i.e., during day/evening on a week day, and during the week evening, and during the day/evening on the weekend). If the interviewer was unable to connect with the selected potential respondent after 4 attempts, then the individual was assigned an individual outcome code of I1 (Missed (after 4 attempts)).

4.3.3 ITC Mauritius Survey Interview

Interview method and procedure

- Cohort respondents were qualified by their responses to the first part of the cohort surveys. Those who qualified and agreed to participate were then surveyed in full.
- The method of the interview was face to face, with interviewers using pen-and-paper surveys to collect the interviewees' responses.
- The majority of survey items offered multiple-choice response options.
- There were several 'open-ended' questions with options that indicated "other-specify", to which the interviewer was required to record the participant's response verbatim.
- All survey interviews were conducted with strict confidentiality.
- Proxy interviews were not conducted under any circumstances.

Length of interviews

- 60 minutes for smokers and 30 minutes for non-smokers, on average.

4.3.4 Remuneration and Conclusion

Conclusion of the survey interview

- At the end of each survey interview, the interviewer thanked the participant for his/her participation. The interviewer then checked to ensure that the participant had been provided with a copy of his/her signed consent form, and ensured that any of the participant's questions or concerns had been addressed to his/her satisfaction.

Remuneration

- 200 MUR (i.e., approximately \$7.00 CAD) was given to both smoker and non-smoker respondents as remuneration for their time.

Invitation to participate in future waves

- The interviewer invited each respondent to participate in the ITC Mauritius Survey Wave 2, in about one year. Respondents were also reminded that if they were to relocate during the time between Wave 1 and Wave 2, they should send their change of address information to the Mauritius Principal Investigator.

4.4 Fieldwork Teams

Fieldwork teams consisted of a single enumerator conducting enumeration independently, as well as a Field Supervisor. Each of the 60 Enumeration Areas had one enumerator conducting fieldwork within it, for a total of 60 enumerators. Supervision of fieldwork was conducted by 10 supervisors and 2 senior supervisors.

4.5 Monitoring & Quality Assurance

All surveys were checked for quality assurance by fieldwork supervisors working at the Mauritius Institute of Health (MIH). The forms submitted by the enumerators were checked for accuracy and completeness. Any surveys or forms that had incorrect or missing information were completed a second time, in the presence of a fieldwork supervisor.

4.6 Retention in subsequent waves as a function of smoking status

- All respondents are retained in consecutive waves; even if they have quit smoking (there will be a set of questions in the re-contact (cohort) survey for those respondents from Wave 1 who have quit smoking since that time).

5. Disposition Codes and Response Rates

5.1 Response Rate

A total of 1794 households were contacted, of which 44 refused to be enumerated. A total of 932 people were eligible and selected for participation; however, 66 refused (47 smokers and 19 non-smokers), and another 20 were missed. In total, 837 interviews were completed (excluding the 3 for whom age was incorrect). Thus, the cooperation rate was 89.8%, and the individual response rate was 80.7%.

- a. The MOH&QL sensitized and encouraged the public to participate in the survey through the press and radio and TV channels.
- b. A cash incentive of MUR 200 (CAN \$7.00) was given to motivate participants.
- c. Trained and experienced field workers were selected to carry out the survey.

5.2 Outcome Codes: Household

The list of Household Outcome codes on the Enumeration Form represents FINAL dispositions, that were assigned either when the household was enumerated or after the 4th visit (a maximum of 4 attempts was made to enumerate each household). See the first page of the Household Enumeration Form in Appendix B.

1. Could not find
2. Vacant Dwelling/Lot
3. Not a household (e.g. Business)
4. Threat to safety
5. No Contact- Weather Condition
6. No Answer- 4 Attempts
7. No answer- Survey Period Ends
8. Household Refusal
9. Language Barrier
10. No one capable of answering
11. Enumeration prevented for other reasons
12. Enumerated

5.3 Outcome Codes: Individual

Individual outcome codes were to be assigned to everyone enumerated for the survey on the household enumeration form. See the third page of the Household Enumeration Form in Appendix B.

1. I1 Missed (after 4 attempts)
2. I2 Language Barrier
3. I3 Health/Mentally Incapable
4. I4 Proxy Refusal
5. I5 Refusal
6. I6 Incomplete (start, breakoff)

7. 17 Complete

5.4 Respondent ID

Each participant was assigned an 11-digit number, which was a combination of the 2-digit District Number, the 4-digit EA Number, the 3-digit Dwelling Number, and the 2-digit Household Member Number (from the right-hand column on Module B). This number was recorded to ensure that each participant had a unique identification number, which could be referred to for recontact and also to indicate the location of the respondent within the districts of Mauritius.

Household Response Rate

Successfully enumerated households	1750
Refusals	44
Potentially eligible households, no contact	155
Total doors knocked	1949
Household contact rate	92.0%
Household cooperation rate	97.5%
Number of households with at least one eligible person	813
Estimated household eligibility rate	46.5%
Estimated eligible households approached	905
Household response rate	89.8%

Individual Response Rate

Total completed interviews	840
Excluded	3
Total completed	837
Total individuals selected AND capable of responding	932
Individual cooperation rate	89.8%
Individual response rate (= household response rate* individual cooperation rate)	80.7%

6. Weights Construction

ITC Mauritius Weights Wave 1

6.1 Wave 1 Sampling Design

Mauritius is divided into 3600 Enumeration Areas (EAs) (Primary Sampling Units), most having around 100-125 households (some have more than 125). The EAs are grouped into 9 geographic districts.

It was decided to sample from a total of 60 EAs, with the EAs being allocated to the districts proportionally to the sizes of the districts.

<i>District</i>	<i>Population</i>	<i>EA allocation</i>
<i>Black River</i>	60587	~3 EAs
<i>Flacq</i>	126839	~7 EAs
<i>Grand Port</i>	106665	~6 EAs
<i>Moka</i>	75479	~4 EAs
<i>Pamplemousses</i>	122352	~6 EAs
<i>Plaines Wilhems</i>	358182	~19EAs
<i>Port Louis</i>	127855	~7 EAs
<i>Rivière du Rempart</i>	98854	~5 EAs
<i>Savanne</i>	66356	~3 EAs
<i>Total</i>	1143169	60 EAs

EAs were selected within districts with probability proportional to size, namely the population size from the 2000 census.

Once selected, the EAs were mapped and the dwelling units listed by field workers. The dwelling units were approached in random order for enumeration and possible recruitment into the survey. Each was to be visited up to 4 times in an attempt to make contact. Where possible the enumeration and interviews were carried out on the same call.

Overall, the plan was to select 600 smokers and 200 non-smokers. Note that a smoker for purposes of this selection is someone who smokes at least monthly.

The urban-rural population split is 42.7% urban, 57.3% rural.

Cigarettes are the main form of tobacco use.

The prevalence of smoking is thought to be currently about 35% for adult males, < 3% for adult females.

Thus the proportion of households with smokers was thought to be about 35%. To achieve a sample size of 600 smokers it was necessary to obtain 10 smokers from an Enumeration Area. (There was also a quota for 3 or 4 non-smokers from an EA, and this quota was expected to be filled easily.) With an expected household cooperation rate of about 75%, it was thought to be necessary to contact 40-50 households to obtain 10 smokers.

Both a male and female smoker were sampled from a household where available. If there was more than one eligible male smoker, one was sampled at random from the household, using the next birthday method; similarly if there was more than one eligible female smoker, one was sampled at random from the household. While the non-smoker quota was still unfilled, a non-smoker was sampled at random from the adult non-smokers in the household.

6.2 Wave 1 Weights

We first constructed a household weight for each enumerated household. (By enumerated household, we mean a household which has been contacted and listed). Following this we constructed a second household weight for each household with an interviewed individual. Finally, we constructed an individual weight for each individual within his/her household. The product of household weight and individual within-household weight, adjusted for non-smokers in smoking households, were the next-to-final individual weights. The final individual weights were obtained by adjusting these to produce the same smoking prevalence estimates as those based on the household, by district. They were not calibrated to official estimates of smoker numbers by gender and age group, since the most recently available estimates are from 2004. However, the ITC survey estimates of prevalence by gender were close to the official figures. The final weights were rescaled to sum to sample sizes within sampling categories for some pooled analyses.

6.3 Computation of Enumerated Household Weights (EHWT)

Step H1: For each enumerated household, an EA level weight $HW1$ was computed:

$$HW1 = H_{EA} / h_{eEA}$$

where H_{EA} is the number of households in the EA of the household in question, and h_{eEA} is the number of households with composition enumerated in that same EA.

Step H2: For each enumerated household, a district (and country) level weight $EHWT$ was computed. This is the approximate number of households in the same district represented by the enumerated household.

$$EHWT = Pop_{dis} \times HW1 / (m_{dis} \times Pop_{EA})$$

where Pop_{dis} is the estimated population of the district based on a census projection, Pop_{EA} is the estimated population of the EA based on the census projection, and m_{dis} is the number of EAs chosen in the district by probability proportional to size.

6.4 Prevalence Estimates

We are able to use the EHWT weights to estimate approximately the prevalence of smoking, by gender and if desired by district

For example,

$$\hat{P}_{sm,male} = (\sum_j EHWT_j MALESM_j) / (\sum_j EHWT_j MALE_j)$$

where the sums are over enumerated households j , and $MALE_j$ and $MALESM_j$ are respectively the numbers of male adults and male adult smokers in household j .

6.5 Computation of Interview Household Weights (IHWT)

Step H4: For each household in which there was an interview, a district (and country) level weight IHWT was computed. It is interpreted as the number of households in the district represented by that household. We can think of this as being 0 for any enumerated household without an interview. The EHWT values for households without an interview (because of refusal or because no one was eligible) are effectively redistributed to households with an interview. For a smoker household with at least one interview

$$IHWT = EHWT \times \frac{h_{esEA}}{h_{isEA}},$$

where h_{isEA} is the number of smoker households in the EA with an interview, and h_{esEA} is the number of enumerated smoker households in the EA. (The ratio should be close to 1.)

Similarly, for a non-smoking household with at least one interview,

$$IHWT = EHWT \times c_{DI},$$

where $c_{DI} = h_{enDI} / h_{inDI}$, h_{inDI} is the number of non-smoking households in the district with an interview, and h_{enDI} is the number of enumerated non-smoking households in the DI. (This ratio is an estimate of the reciprocal of the probability that the non-smoker quota was open, and should be substantially greater than 1, perhaps around 8 or 9.)

If we sum EHWT over all enumerated households, or IHWT over all interview households in the sample, we should get an estimate of the number of households in the country. If we sum IHWT over all interview smoker households in the sample, we should get an estimate of the number of smoker households in the country.

6.6 Computation of Individual Weights

Step I1: Each interviewed individual was given a household level weight W1. This is interpreted as the number of people in the same household in the same sampling category represented by the respondent.

For an adult male smoker, W1 is the number of adult male smokers in the same household.

For an adult female smoker, W1 is the number of adult female smokers in the same household.

For an adult male non-smoker, W1 is the number of adult male non-smokers in the same household.

For an adult female non-smoker, W1 is the number of adult female non-smokers in the same household.

Step I2: Each interviewed individual was given a preliminary country- level weight W4 which is thought of as the number of people in the country represented by that individual.

The weight W4 is given by

$$W4 = IHWT \times W1.$$

If we sum W4 over all smoker individuals interviewed, we should get an estimate of the number of smokers in the country. Similarly if we sum W4 over all non-smoker individuals interviewed, we should get an estimate of the number of non-smokers in the country as well.

The next-to-final weights W5 were set equal to W4 for smokers and for non-smokers in non-smoking households, and equal to $W4 \times c_{DI}$ for non-smokers in smoking households. The final weights W6 were the weights W5 adjusted to sum to the estimated totals from the EHWT calculation for male and female smokers and non-smokers, for age groups <30, 30-39, 40-49, 50-59, 60+. W6 is variable aDE51915v in the data set. For example, for a male smoker, in age group g,

$$W6 = W5 \times \frac{\sum_j EHWT_j MALEgSM_j}{\sum_{mgsm} W5} \quad \text{where } \sum_{mgsm} \text{ is a sum over male smokers in age group g,}$$

\sum_j is a sum over households, and $MALEgSM_j$ is the number of male smokers in age group g in household j.

6.7 Rescaling

Finally, the weights were rescaled to sum to country sample size within each of the following categories, for use in analyses: adult smokers, adult non-smokers in non-smoking households, adult non-smokers in smoker households. The rescaled weight is aDE51919v in the data set.

Appendix A: ITC Mauritius First Stage Sample

Mauritian District	Population	EAs
Black River	60587	3
Flacq	126839	7
Grand Port	106665	6
Moka	75479	4
Pamplemousses	122352	6
Plaines Wilhems	358182	19
Port Louis	127855	7
Riviere du Rempart	98854	5
Savanne	66356	3
Total	1143169	60

Appendix B: Household Enumeration Form

Page 1

INTERNATIONAL TOBACCO CONTROL POLICY SURVEY – MAURITIUS (W1) Form completed: ☐

MODULE A

HOUSEHOLD ENUMERATION FORM

Interviewer ID: ☐ - ☐ ☐

<input type="text"/> District	<input type="text"/> EA	<input type="text"/> Dwelling
Contact details:		
Name of Head of Household: _____		Total Household Members (adults and children): <input type="text"/>
Address: _____		
Phone		
House: <input type="text"/>	<input type="text"/>	Mobile: <input type="text"/>
Name of Informant: _____		Email: _____

VISITING RECORD – HOUSEHOLD LEVEL (FILL IN AFTER END OF EACH VISIT)					
No. of visit	Date (dd/mm/yyyy)	Time	Notes	Next Appointment	
				Date	Time
1					
2					
3					
4					

Final Household Outcome Code (circle one below):	
1. Could not find 2. Vacant Dwelling / Lot 3. Not a Household (e.g. Business) 4. Threat to safety 5. No Contact-Weather Condition 6. No Answer- 4 attempts 7. No Answer –Survey Period Ends	8. Household Refusal 9. Language Barrier 10. No one capable of answering 11. Enumeration prevented for other reasons Specify: 12. Enumerated

IF HOUSEHOLD REFUSAL:	
i) How many people aged 18 years and above live in this household?	
ii) How many of them smoke regularly?	
iii) Reason for refusal:	

Page 2

MODULE B

HOUSEHOLD ENUMERATION FORM

Columns A, B and C: Determining Eligibility and Smoker / Non-smoker Status:

Please ask each adult the following 3 questions and record the response in the appropriate column below.

- A. Do you [*Does <name>*] currently smoke cigarettes? Yes or No → (Record Y or N in A Column)
 B. Have you [*Has <name>*] smoked 100 or more cigarettes in your [*his/her*] lifetime? Yes or No → (Record Y or N in B Column)
 C. Do you [*Does <name>*] smoke at least once a month? Yes or No → (Record Y or N in C Column)

To Calculate Status (for Status Column):

- Status ⇒ Smoker (S) = Respondent must answer 'Yes' to each of A, B and C. → (Record S in Status Column)
 ⇒ Non-smoker (N) = Respondent must answer 'No' to each of A and C (can answer either 'Yes' or 'No' to B). → (Record N in Status Column)
 ⇒ Not Eligible (NE) = Respondent answers any other combination to A, B and C. → (Record NE in Status Column)

No.	ADULT NAME	Sex (M/F)	Date of Birth* (dd/mm/yyyy)	Age*	Age Level*	A (Y/N)	B (Y/N)	C (Y/N)	Status (S/N/NE)	Selection Criteria for Survey Participant(s)	Selected (Y/N)
01										A maximum of 3 persons from each household can be interviewed: 1) Male Smoker with next birthday 2) Female Smoker with next birthday 3) ONE (male or female) non-smoker with next birthday • In the case of a SUBSTITUTION, ask the eligible person with the next birthday. • If no person meets criteria, or if quota has been filled, then go to next household.	
02											
03											
04											
05											
06											
07											
08											
09											
10											

*Date of Birth / Age / Age Level

One of Date of Birth, Age, or Age Level must be obtained.
 If respondent will not provide Date of Birth, then please obtain Age.
 If respondent will not provide Age, then please record Age Level.

Age Levels

Level 1 = 18 to 24 years → (Record L1 in Age Level Column)
 Level 2 = 25 to 39 years → (Record L2 in Age Level Column)
 Level 3 = 40 to 54 years → (Record L3 in Age Level Column)
 Level 4 = 55 years and older → (Record L4 in Age Level Column)

Page 3

Number of Children in HH by Age	
Number of children between 0- 5 years old in HH	
Number of children between 6-12 years old in HH	
Number of youth between 13 -17 years old in HH	

Number of Smokers and Non-Smokers by Gender	
Number of male smokers aged 18+ years in HH	
Number of female smokers aged 18+ years in HH	
Number of male non-smokers aged 18+ years in HH	
Number of female non-smokers aged 18+ years in HH	

INDIVIDUAL OUTCOMES – Record an Individual Outcome for *all* HH members marked with “Y” in the Selected Column (on previous page).

Respondent ID**	Type	Selected Respondent Name	Outcome Code	Individual Outcome Codes (write in table): I1 Missed (after 4 attempts) I2 Language Barrier I3 Health/Mentally Incapable I4 Proxy Refusal I5 Refusal I6 Incomplete (start, breakoff) I7 Complete
	MS			
	FS			
	N			

****Copy the household member identification number from the right-hand column (“No.” Column) on previous page**

Type definitions: MS – male smoker; FS – female smoker; N – non-smoker (male or female)

The additional two rows are for use in the case of substitution. A substitution from the same household is allowed only if a selected respondent has outcome code I2 (language barrier) or I3 (health/mentally incapable), or will be away for the entire survey period.

Before reaching the household, put an “X” in the third column for each Type for which the quota is already filled.

CONTACT PERSON (Note: This is important to obtain)	
Name (of person who would be able to provide contact information at next survey if respondents move):	_____
Address of contact person:	_____

	Telephone number: _____

Appendix C: Sample of Consent Form (Smoker)

PARTICIPANT CONSENT FORM (WCF2)

Research Project: International Tobacco Control Policy Evaluation Project in Mauritius
(The ITC Mauritius Project)

Mauritius National Ethics Committee, Clearance Date: March 18, 2009

Human Research Ethics Committee of the University of Waterloo Clearance Number: ORE 15487

I agree to take part in the above international research project conducted in Mauritius by a research team at the Mauritius Institute of Health in conjunction with the Mauritius Ministry of Health and Quality of Life. I have been given the participant information sheet, which I may keep for my records. I have been informed that:

- This project is being conducted for research purposes.
- I have been informed that I will be given a token of appreciation each time that I participate in the study.
- Participation in the research is voluntary, and that I am free to withdraw from the research at any time or to withdraw any information previously supplied, without penalty or loss of 200 MUR.
- Participation in this research involves completing a face-to-face interview lasting about 45 to 50 minutes today and at least once more, approximately one year from now.
- Only those people involved with this research will have access to any information I supply. After 2 years, researchers interested in tobacco control will have access to the survey data, but this data will not include my name or any other identifying information.
- All the information I provide is treated as strictly confidential.

I, _____ give my consent to take part in this research.
[PARTICIPANT NAME – please write clearly]

Signed: _____ Date: ____/____/____
[PARTICIPANT SIGNATURE] (dd) (mm) (yyyy)

Witness Name: _____

Witness Signature: _____

CONFIRMATION OF VERBAL CONSENT FORM (VCF2)*

Research Project: International Tobacco Control Policy Evaluation Project in Mauritius
(The ITC Mauritius Project)

Mauritius National Ethics Committee, Clearance Date: March 18, 2009

Human Research Ethics Committee of the University of Waterloo Clearance Number: ORE 15487

***NOTE: This form should be completed by the interviewer if the participant agrees to participate in the study, but chooses not to provide written consent.**



I, _____, have provided the study participant with the following
[Interviewer name – please write clearly]
information describing the international research project conducted in Mauritius by a research team at the Mauritius Institute of Health in conjunction with the Mauritius Ministry of Health and Quality of Life:

- This project is being conducted for research purposes.
- Participants will be given a token of appreciation each time that they participate in the study.
- Participation in the research is voluntary. Participants are free to withdraw from the research at any time or to withdraw any information previously supplied, without penalty or loss of 200 MUR.
- Participation in this research involves completing a face-to-face interview lasting about 45 to 50 minutes today and at least once more, approximately one year from now.
- Only those people involved with this research will have access to any information that participants supply. After 2 years, researchers interested in tobacco control will have access to the survey data, but this data will not include participants' names or any other identifying information.
- All the information participants provide is treated as strictly confidential.
- Participants will be given a participant information sheet to keep for their records.

After receiving the above information, _____ has provided verbal
[PARTICIPANT NAME – please write clearly]
consent to take part in this research.

Signed: **Date:**/...../.....
[Interviewer signature] (dd) (mm) (yyyy)

Appendix D: Sample of the Wave 1 Adult Smoker Survey for Mauritius (in English and Mauritian Creole)

	Interviewer ID: <input type="text"/> - <input type="text"/>
	
<p>Mauritius Institute of Health in conjunction with Ministry of Health and Quality of Life</p>	
<p>International Tobacco Control Policy Evaluation Survey Mauritius Wave 1</p>	
<p>SMOKER SURVEY</p>	
<p>ID: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p style="text-align: center;">District EA Dwelling Individual</p>	
<p>Date of Survey: _____(dd)_____(mm)_____(yy)</p>	
<p>Start Time: _____am/pm</p>	
<p>End Time: _____am/pm</p>	
<p>Checked by: _____ (Name of Supervisor)</p>	
<p>Date checked: _____</p>	
<p><i>ITC Mauritius Wave 1 Smoker Survey 2009 (15 April 2009)</i></p>	
<p><i>1</i></p>	

Q#	VarName	
001	B173270	Obtain written or verbal CONSENT and SIGNATURE as per protocol in the training manual before proceeding with the survey.
002	HG73010	Interview Note: Read out response options for all questions EXCEPT: a) Where "DO NOT read out response options" is specified b) Yes/No questions c) True/False questions
Smoking History And Frequency		
003	FR73506	Do you currently smoke cigarettes? (Eski ou fume cigarette?) 1 Yes 2 No 8 Refused (Don't read) 9 Don't Know (Don't read) If response=2, 8, or 9, end interview with thanks.
004	FR73224	Have you smoked 100 or more cigarettes over your lifetime? (Eski ou finne fume 100 cigarette ou plis ki ça dans ou la vie?) 1 Yes 2 No 8 Refused (Don't read) 9 Don't Know (Don't read) If response=2, 8, or 9, end interview with thanks.
005	HG73001	Interviewer Note: Ask the next 4 questions if 003/ FR506=1.
006	FR73211	Do you smoke every day or less than every day? (Eski ou fumer tous les jour oubien pas tous les jours?) 1 Every day (Tous les jours) 2 Less than every day(Pas tous les jours)⇒ Go to 008/FR221 8 Refused (Don't read) ⇒ Go to 008/FR221 9 Don't Know (Don't read) ⇒ Go to 008/FR221
007	FR73216	On average, how many cigarettes do you smoke each day? (En moyenne/ ene dans lotte, combien cigarette ou fumer par jour?) _____ 88 Refused (Don't read) 99 Don't Know (Don't read) ⇒ Skip Go to 012/FR118
008	FR73221	Do you smoke at least once a week? (Eski ou fumer au moins ène fois par semaine?) 1 Yes 2 No ⇒ Go to 010/FR231 8 Refused (Don't read) ⇒ Go to 010/FR231 9 Don't Know (Don't read) ⇒ Go to 010/FR231
009	FR73226	On average, how many cigarettes do you smoke each week? (En moyenne/ ene dans lotte, combien cigarette ou fumer par semaine?) _____ 88 Refused (Don't read) 99 Don't Know (Don't read) ⇒ Skip to 012/FR118
010	FR73231	Do you smoke at least once a month? (Eski ou fumer au moins ène fois par mois?)

Appendix E: Pictures of Interviewer Training



Appendix F: Pictures of Fieldwork



Appendix G: Summary of Tobacco Control Policies in Mauritius

Prior to the ITC Mauritius Survey, the most recent prevalence estimates for smoking in Mauritius were 35.9% for men and 5.1% for women, according to the Non-Communicable Diseases Survey conducted in Mauritius in 2004³. The ITC Mauritius Survey Wave 1 found 32.4% of adult men (18 years and older) in Mauritius smoke, and 2.6% of adult women smoke. These smoking prevalence estimates are comparable with those from the 2004 Mauritius Non-Communicable Diseases Survey; caution should be applied in making comparisons because of differences in survey methods.

Mauritius ratified the FCTC on May 17, 2004. In 2007, the Mauritius government, in collaboration with the World Health Organization and the International Research Development Centre (IDRC) and several other stakeholders, developed a National Action Plan on Tobacco Control 2008-2012. The main objective of the National Action Plan was to reduce tobacco-related mortality and morbidity by preventing the use of tobacco products, promoting cessation and protecting from exposure to environmental tobacco smoke.

On November 28, 2008, Mauritius passed new regulations on tobacco known as the Public Health (Restrictions on Tobacco Products) Regulations 2008⁴. These comprehensive regulations updated previous tobacco control regulations that had been in place since 1999⁵. The 2008 Regulations were consistent with the FCTC Articles 6-16 and were scheduled to be in force as of March 1, 2009 (with the exception of those related to the graphic health warnings which could be displayed as early as June 1, 2009). The section below summarizes the tobacco control policies in Mauritius at the time the ITC Mauritius Wave 1 Survey (April 20 to May 24, 2009), organized according to the FCTC articles.

Article 6: Price and tax measures designed to reduce the demand for tobacco

Mauritius does not manufacture tobacco products domestically. This means that 100% of the cigarettes sold to consumers in Mauritius have been imported from other countries. Since May 2008, an import tax of 15% of the cigarette price has been imposed on all tobacco. A custom excise duty of Rs 2,200 (\$72.50 US) applies per thousand cigarette sticks, and a final tax of 15% of the total of both aforementioned taxes plus the base cost of cigarettes is applied prior to sale.

Article 7: Non price-related measures for tobacco control in Mauritius

Article 7 of the FCTC guidelines encompasses non-price measures to reduce the demand for tobacco. There are no policies specific to this article, but it includes all measures from Article 8 to 13.

Article 8: Protection from exposure to tobacco smoke

The Mauritius Public Health (Restrictions on Tobacco Products) Regulations 1999 included a provision that banned smoking indoors in health care institutions, educational institutions, sports

premises, public transportation, office premises or workplaces open to the public, public places (museums, post office, etc.) as well as when preparing or selling food to the public. In 2008, the Regulations were revised to be more comprehensive and now include: indoor and outdoor premises of health and educational institutions, indoor and outdoor sporting premises, any public conveyance, bus stands and stations, any indoor workplace (excluding designated smoking areas), any indoor area open to the public, recreational public places like gardens (except beaches), cafés, bars, night clubs, and restaurants, while preparing, serving or selling food for/to the public, and while driving or travelling in a private vehicle carrying passengers. “No smoking” signs (with regulated colour, size, and text font) have been placed in public places.

Article 9: Regulation of the contents of tobacco products

No provision has been made regarding testing and measuring the contents and emissions of tobacco products or for the regulation of these contents and emissions in Mauritius.

Article 10: Regulation of tobacco product disclosures

The 2008 Regulations state that cigarette packages must *not* display the tar or nicotine content or the carbon monoxide yield (i.e., the numerical values).

Article 11: Packaging and labeling of tobacco products

The packaging and labeling of tobacco products in Mauritius was a major focus of the 2008 Regulations. Since 1999, health warning labels on cigarette packages in Mauritius had one text-based message reading “smoking causes cancer, heart disease and bronchitis”. Mauritius was the first nation in the African Region to implement pictorial health warning labels—a set of 8 rotating images appearing on the front and the back of packs, in both English (occupying 70% of back) and French (occupying 60% of front) in 2009. These labels are among the largest in the world. Text messages also appear on 65% of the side of packs in both French and English.

Furthermore, as per the 2008 Regulations, misleading descriptors on cigarette packages such as “light” and “mild” are not permitted; cigarette packages must *not* display the tar or nicotine content or the carbon monoxide yield (as described above); the sale of single/loose cigarettes was banned – cigarette packages must contain 20 cigarettes; and distributors of tobacco products must not obscure any part of the warnings.

The official date of implementation for the provisions related to packaging and labeling of tobacco products was June 1, 2009. The first pictorial warning labels were reported to be in public circulation on October 17, 2009.

Article 12: Education, communication, training, and public awareness

Mauritius has made efforts to increase public awareness and communication about the harmful effects of exposure to tobacco smoke and the use of tobacco products. In addition to an ongoing public education campaign, the government launched campaign to raise awareness of

the new regulations through mass media and other channels in February 2009. As part of their Action Plan the Mauritius government has also planned to organize awareness-raising and advocacy sessions in order to bring consensus and support amongst key stakeholders for the implementation and enforcement of the smoke-free policy.

Article 13: Tobacco advertising, promotion, and sponsorship

A ban on tobacco advertising, promotion and sponsorship have been in place in Mauritius since 1999. Effective as of March 1, 2009, the regulations were made more comprehensive to include a ban on the offer or supply of tobacco products free of charge or at a discounted price. The display of tobacco products at point of sale was also banned, with the exception of airport duty free shops in Mauritius and Rodrigues.

Article 14: Demand reduction measures concerning tobacco dependence and cessation

Reduction measures concerning tobacco dependence and cessation efforts include a pilot smoking cessation clinic implemented in December 2008 by the Ministry of Health and Quality of Life in Mauritius. Cessation clinics are expected to appear nation-wide beginning in 2010.

Article 15: Illicit trade in tobacco products

To curb illicit trade of tobacco products in Mauritius, the 2008 Regulations included a provision that requires the country of origin to be noted on the cigarette packages. The package must also carry the statement “sale allowed in Mauritius only” and must have an affixed excise stamp on the package.

Article 16: Sales to and by minors

The sale of tobacco to minors in Mauritius has been illegal since 1999; however, the sale of tobacco *by* minors was made illegal in March 2009. To discourage the uptake of smoking by youth, the sale of single or “loose” cigarettes is now banned, and packages being sold must contain 20 cigarettes (as described above). The sale of tobacco through vending machines was prohibited and any person selling tobacco must seek out evidence of legal age. The seller of tobacco must also display a prohibition sign. The sale of sweets, toys, etc., in the form of cigarettes has also been banned.

Penalties for failures to adhere to the Public Health (Restrictions on Tobacco Products) Regulations 2008

Penalties for failures to adhere to the conditions of the smoke-free laws include the following: at first conviction, a fine of not less than MUR 5,000 and not more than MUR 8,000; at second conviction, a fine of not less than MUR 8,000 and not more than MUR 10,000; and at third or subsequent conviction, an imprisonment for a term not exceeding 12 months (as per the Mauritius Public Health Act 2008)⁴.

Policy Implications for the ITC Mauritius Survey Wave 2

Wave 2 of the ITC Mauritius Survey will provide strong evaluation of the ongoing tobacco control policies and interventions that are being implemented in Mauritius, including the impact of the pictorial warning labels, support for/ adherence to the new smoke-free ban, and support for/use of the proposed cessation clinics.

References

- ¹ Map of Mauritius (October 21, 2009).
<http://mauritiuseyelles.co.uk/wpcontent/uploads/2008/06/mauritiu-map.jpg>
- ² Political Map of Mauritius (October 21, 2009). <http://aadicon.com/img/mauritiu-political-map.jpg>
- ³ Republic of Mauritius Ministry of Health and Quality of Life. Mauritius Non-Communicable Diseases Survey 2004. July 2006.
http://www.who.int/chp/steps/STEPS_Report_Mauritius.pdf.
- ⁴ Government of Mauritius, (2008). *The Public Health Act*. Regulations made by the Minister under sections 193 and 194 of the Public Health Act. Government Notice No. 263 of 2008.
- ⁵ Government of Mauritius, (1999). *The Public Health Act*. Regulations made by the Minister under section 193 of the Public Health Act. Government Notice No. 62 of 1999. <http://www.globalink.org/tobacco/docs/af-docs/legislation/0101mauritiu.shtml>.