

**Entomological Assessment
of *Wuchereria bancrofti*
Transmission
following mass treatment in
Gampaha district,
Sri Lanka**

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INTRODUCTION

LYMPHATIC FILARIASIS

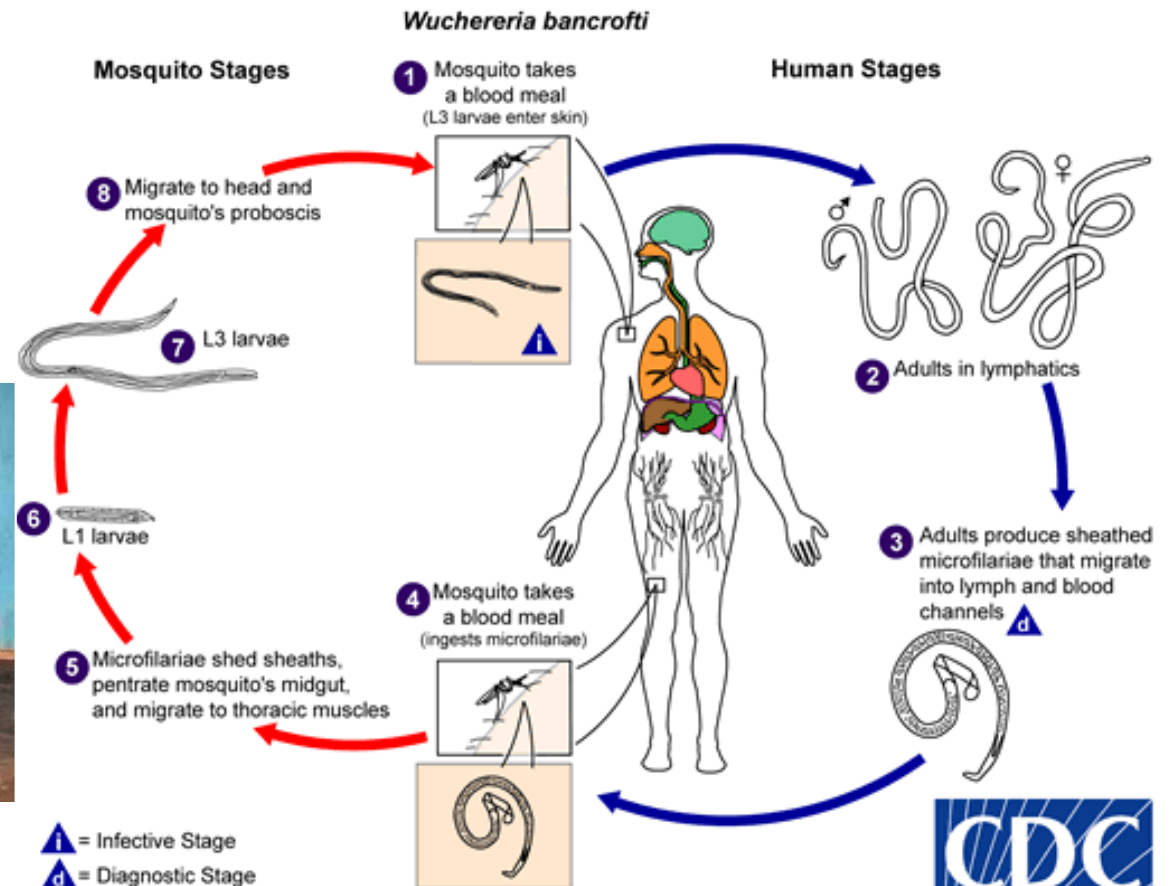
CLINICAL MANIFESTATIONS



lymphedema



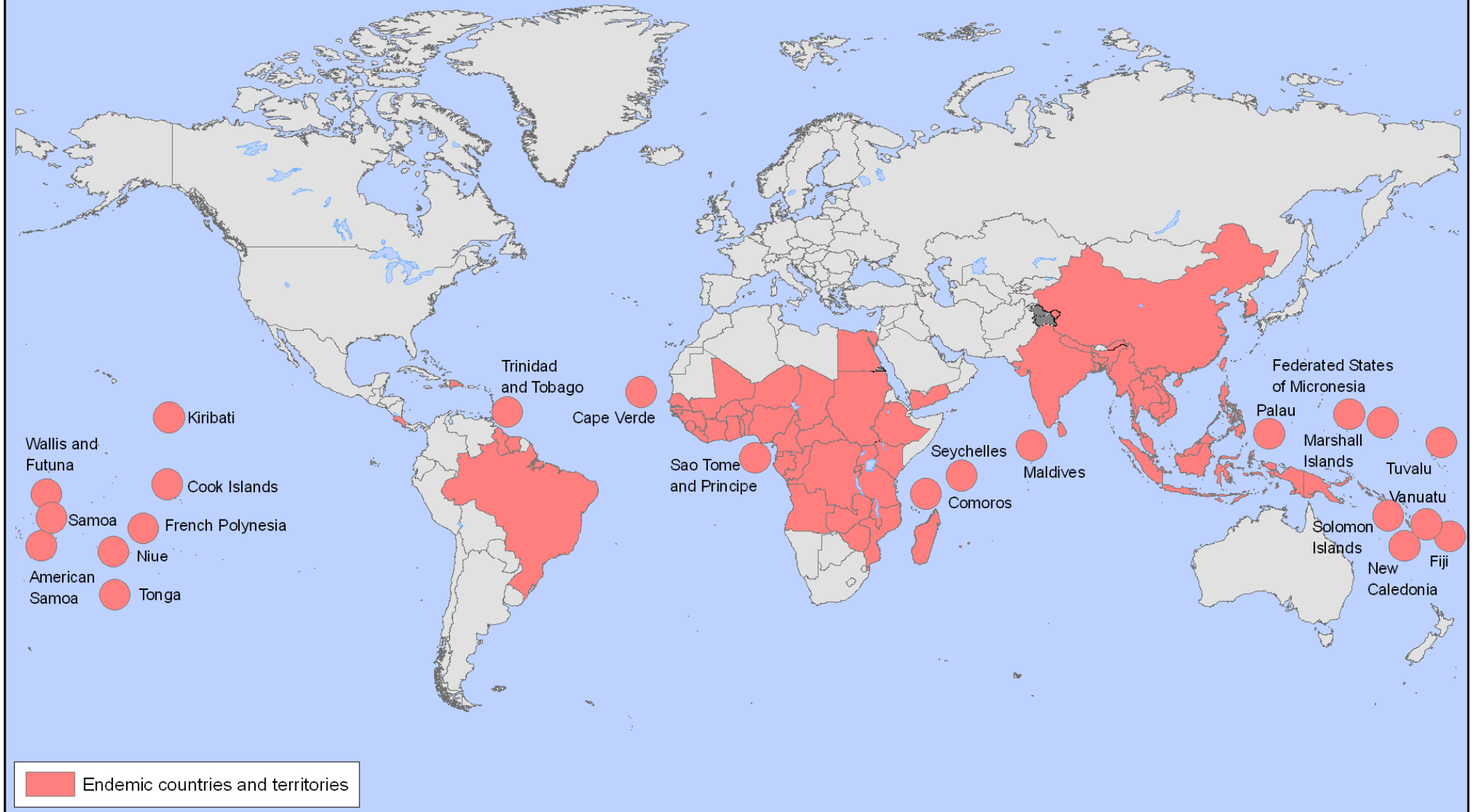
Culex quinquefasciatus



Cycle of Transmission

INTRODUCTION cont...

Lymphatic filariasis endemic countries and territories, 2006



World Health Organization

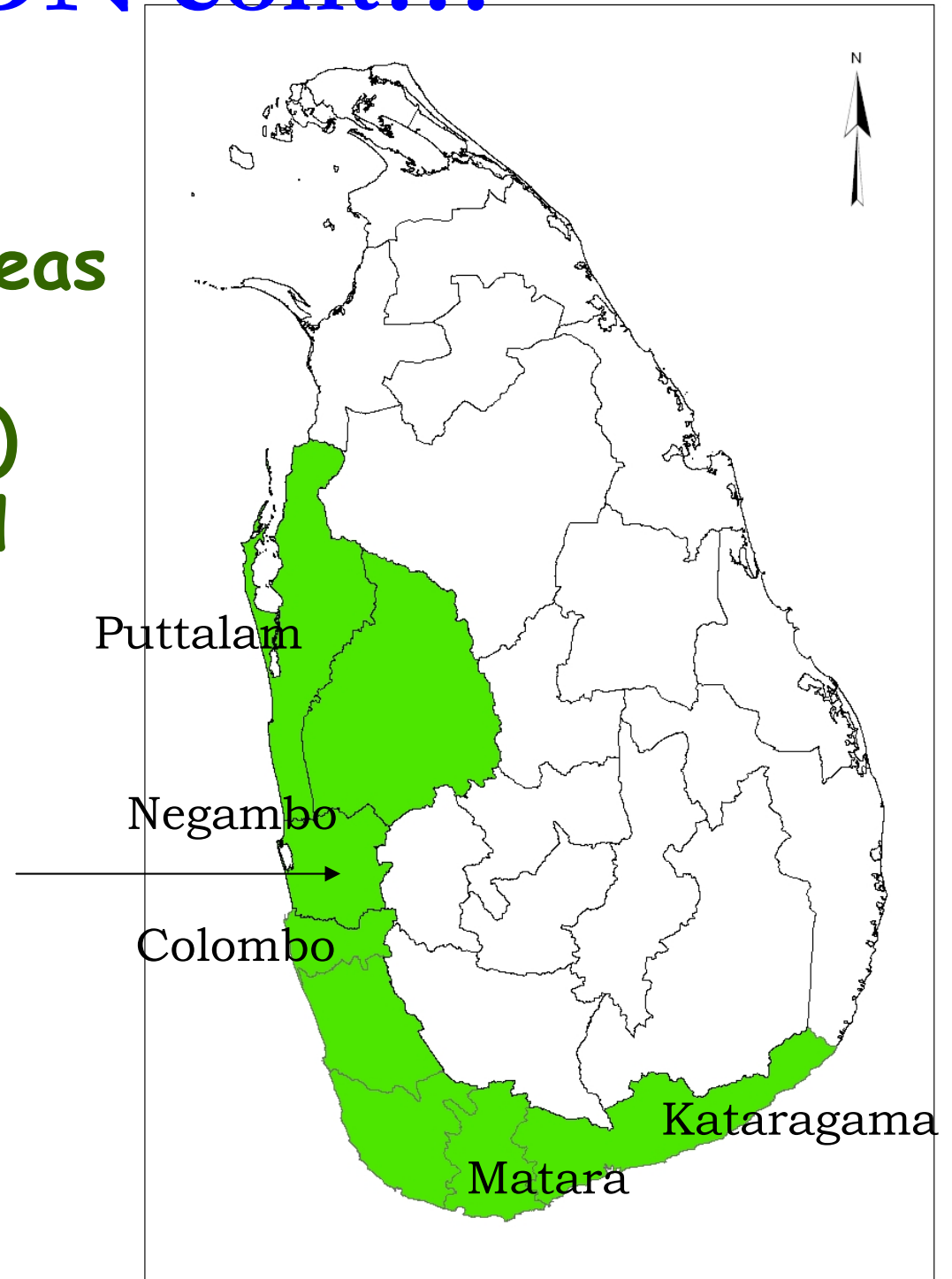
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2006. All rights reserved.

Data Source: Lymphatic Filariasis Elimination Programme Map
Production: Public Health Mapping and GIS
Communicable Diseases (CDS) World Health Organization

INTRODUCTION cont...

Map of Sri Lanka,
showing the endemic areas
of Mass Drug
Administration (MDA)
program implemented

Gampaha



INTRODUCTION cont...

HOW IS LF DIAGNOSED ?

- Night blood films
- Antigen-detection test (ICT test)
- PCR techniques

HOW CAN WE ELIMINATE LF ?

- Single doses of albendazole (400mg) plus DEC (6mg/kg/body wt).



INTRODUCTION cont...

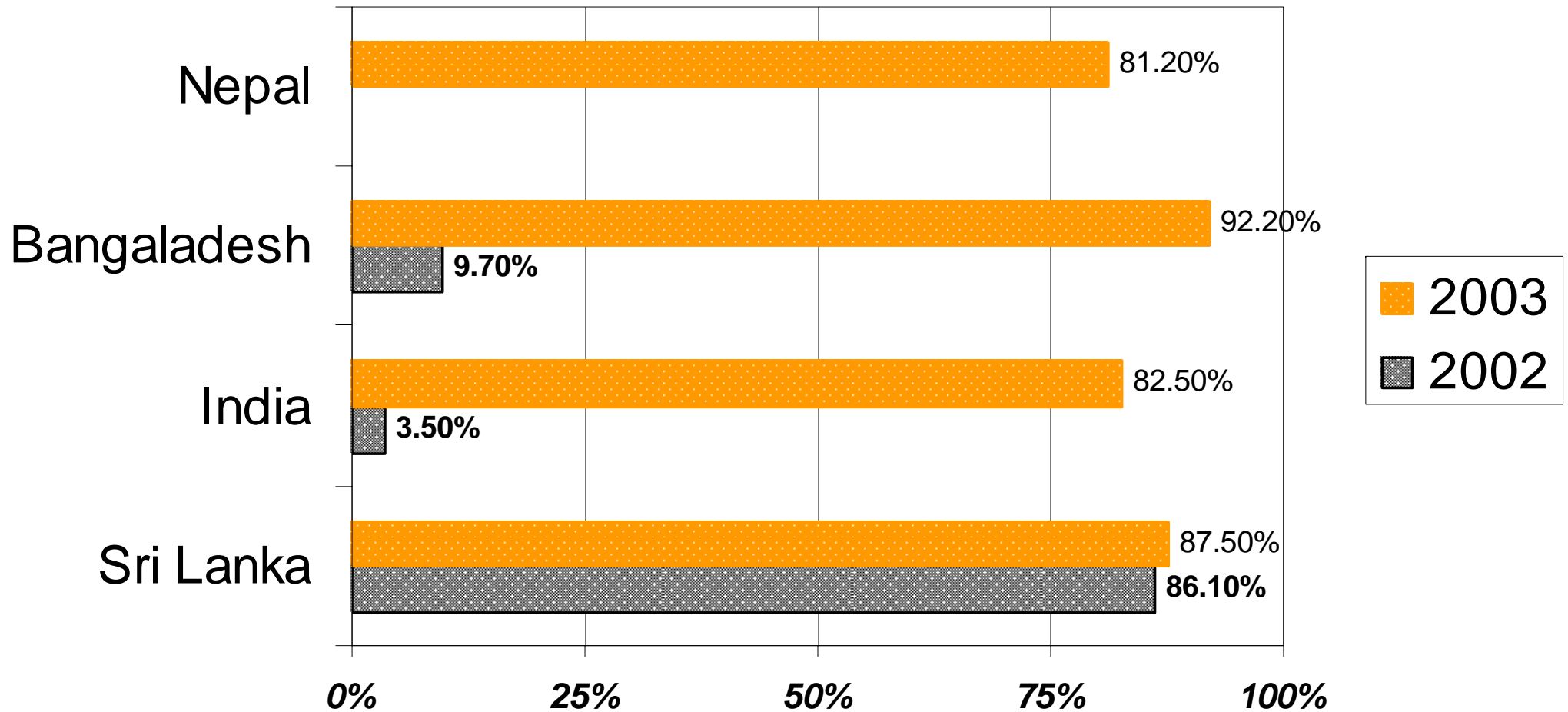
ELIMINATION OF LF.....

- Global Program to Eliminate Lymphatic Filariasis (GPELF) was launched in 2000, based on two strategies:
 - interruption of transmission and
 - alleviation of disability due to the disease.
- Current national program focuses primarily on achieving high rates MDA coverage.



INTRODUCTION cont...

Figure 1. Indian subcontinent - Geographic coverage* by country in 2002 and 2003



* Geographic coverage = $\frac{\text{total population in Implementing Unites (IUs) where MDA is taking place}}{\text{total population of all endemic IUs}} \times 100$

OBJECTIVE

To assess the current situation of lymphatic filariasis following Mass Drug Administration (MDA) program in Gampaha district using entomological and parasitological data.

METHODOLOGY

Pilot survey - To assess the current filariasis situation in Gampaha district

Study carried out - February to September 2007

Sampling sites - based on endemic areas recorded by the AFC

Gampaha district (WP) → 15 MOH areas → 2 sentinel sites
→ 1 non-sentinel site

R	MOH area	Sentinel site (V)	Sentinel site (U)	Non-sentinel site (R)
1	Wattala	Hekiththa	Weliamuna Rd	Alwis town
2	Ja-ela	Batagama south	St.Sebstian Rd	Kapuagara Rd
3	Mahara	Galwalawatta	Aldeniya	Symphoniawatta
4	Kelaniya	Pitikadewatta	Meegahawatta	Pethiyagoda
5	Gampaha	Pahalagama	Madagama	Ihalagama
6	Negambo	Sooriya Rd	Kristhuraja Mt	Rasik fareed Mt
7	Attanagalla	Naranawatta	Veyangoda	Kalagedihena
8	Katana	Jayawardanapura	Katunayaka	Seeduwa
9	Meerigama	Wijayarajadahana	Kamarangawa	Kalpallewela
10	Dompe	Kapugoda	Pugoda	Dompe
11	Divulapitiya	Bombugamma	Aththamniwasa	Induragara
12	Minuwangoda	Kehelbaddara	Asgiriwlpola	Madelgamuwa
13	Ragama	Ransiri Mt	Siriwardanaplace	Temple road
14	Biyagama	Biyagama	Delgoda	Malwana
15	Katunayaka	Sarath Mt	Awariwaththa	Colombo Rd

METHODOLOGY cont...

Mosquito collections -20 households/site
Indoor-resting mosquitoes
7.00 a.m.-11.00 a.m.

Questionnaire;

- Knowledge of LF
- Presence of filaria-infected patients and
- Use of anti mosquito activities and control activities

METHODOLOGY cont...

- **Collected mosquitoes;**
 - Knocked down in the laboratory
 - (-20°C, 10 min)
 - Separated - species and sex
 - Female *Culex* mosquitoes
 - _ pooled by site of collection
- **Conventional dissection and microscopic examination;**
 - Head, thorax and abdomen
 - dissected separately
 - in a drop of 0.15% saline (1.5 g of NaCl in 1 L of H₂O) on a slide and examined for filarial worms

METHODOLOGY cont...

During dissections developing worms were classified as;

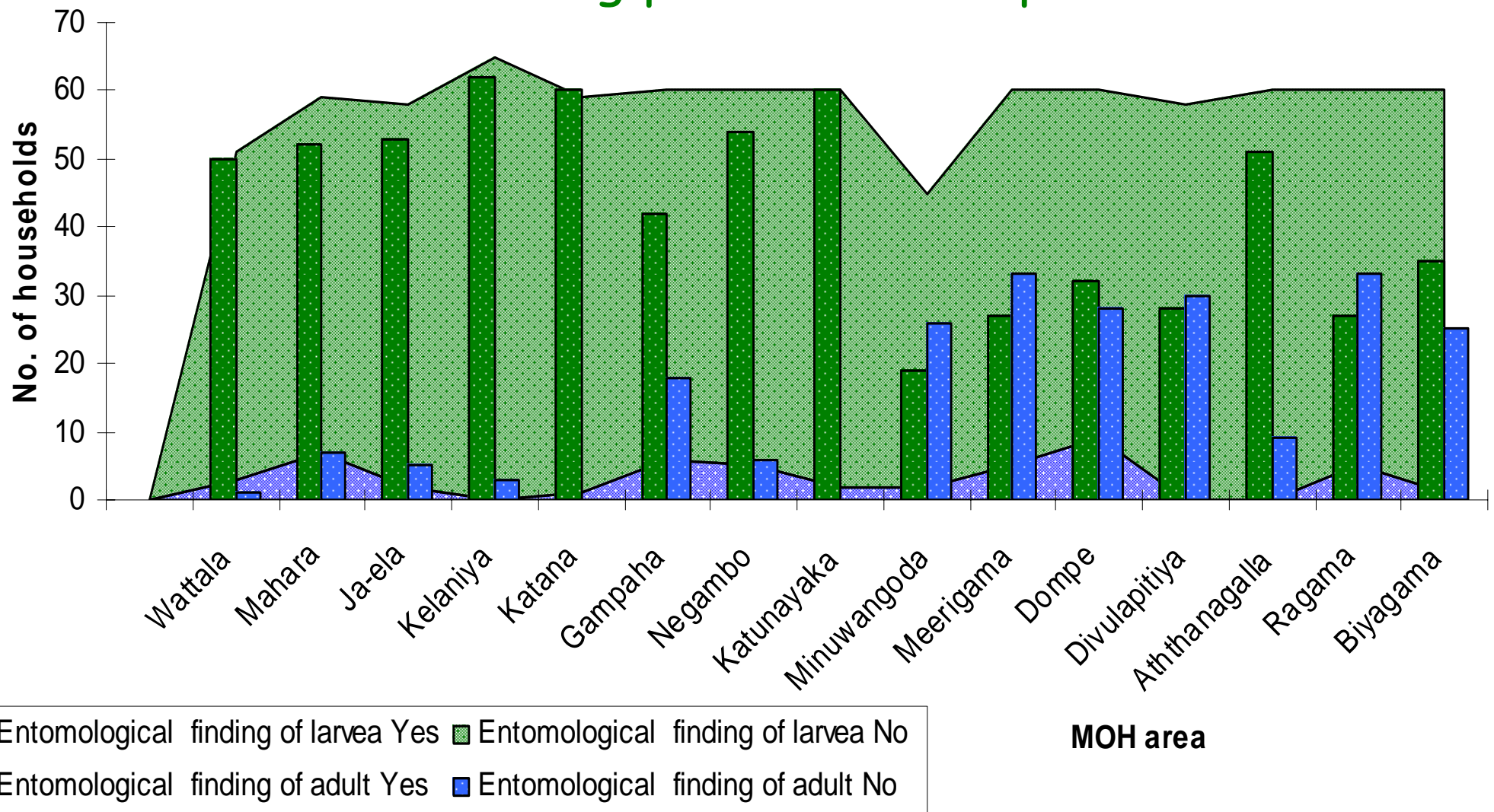
- L_1 (sausage stage)
- L_2 (motile short)
- L_3 (motile, infective and with caudal papillae)

The number of larvae were counted to determine;

- the infection rate and the
- the no. of developing worms per mosquito

RESULTS

Figure 2. Entomological finding of adult *Culex* mosquito and breeding places with respect of MOH area



RESULTS cont...

- No. of mosquitoes collected;
varied from 0 - 45 per household
- Rate of infestation \longrightarrow 42.22%
(19/45)
- % of positive mosquitoes;
5.26% (123/2340)
- L1 density \longrightarrow 8.7 per +ve Mosq.

Figure 3. Percentage and number of positive mosquito and mean number of Mf per positive mosquito with respect of study site

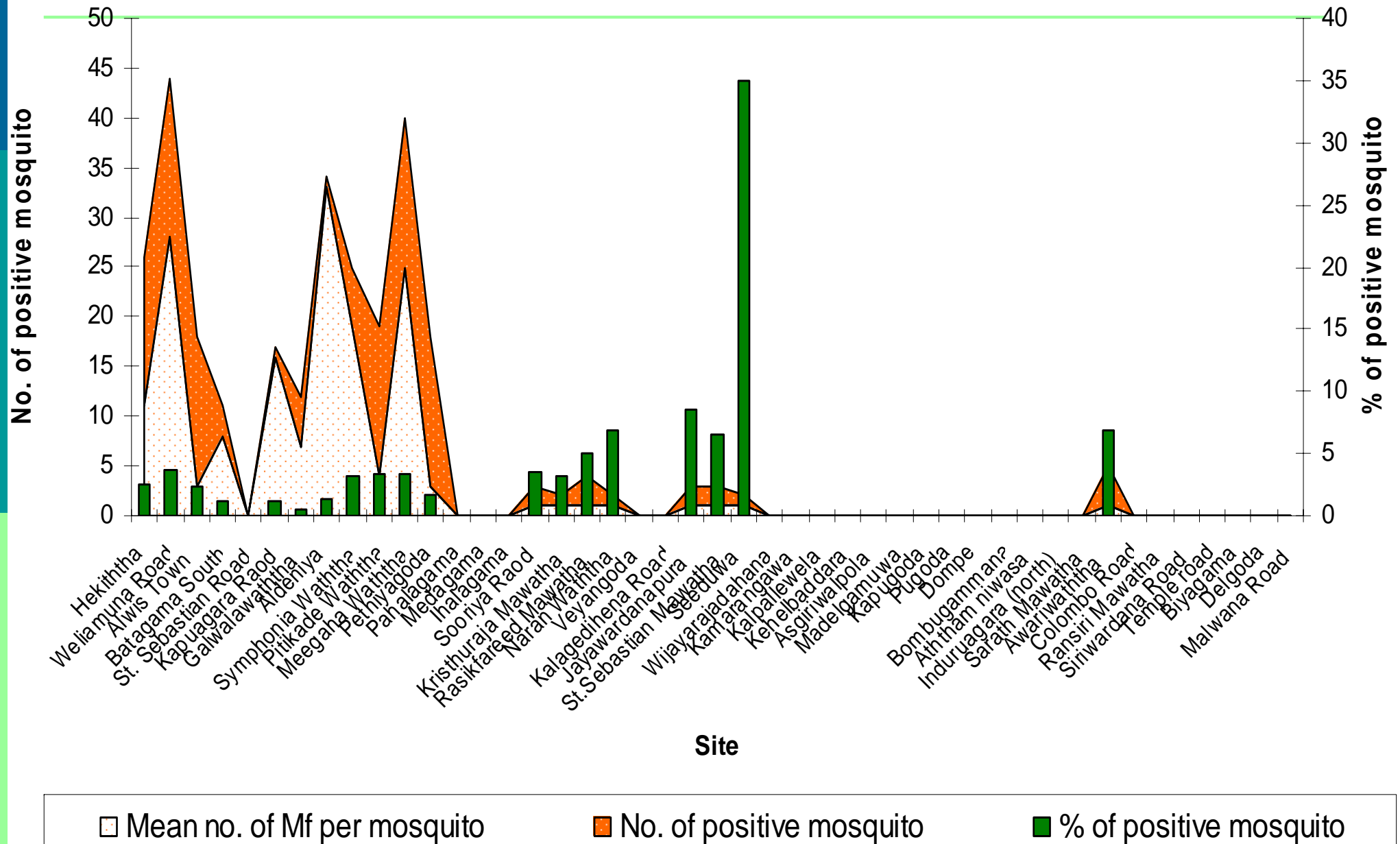
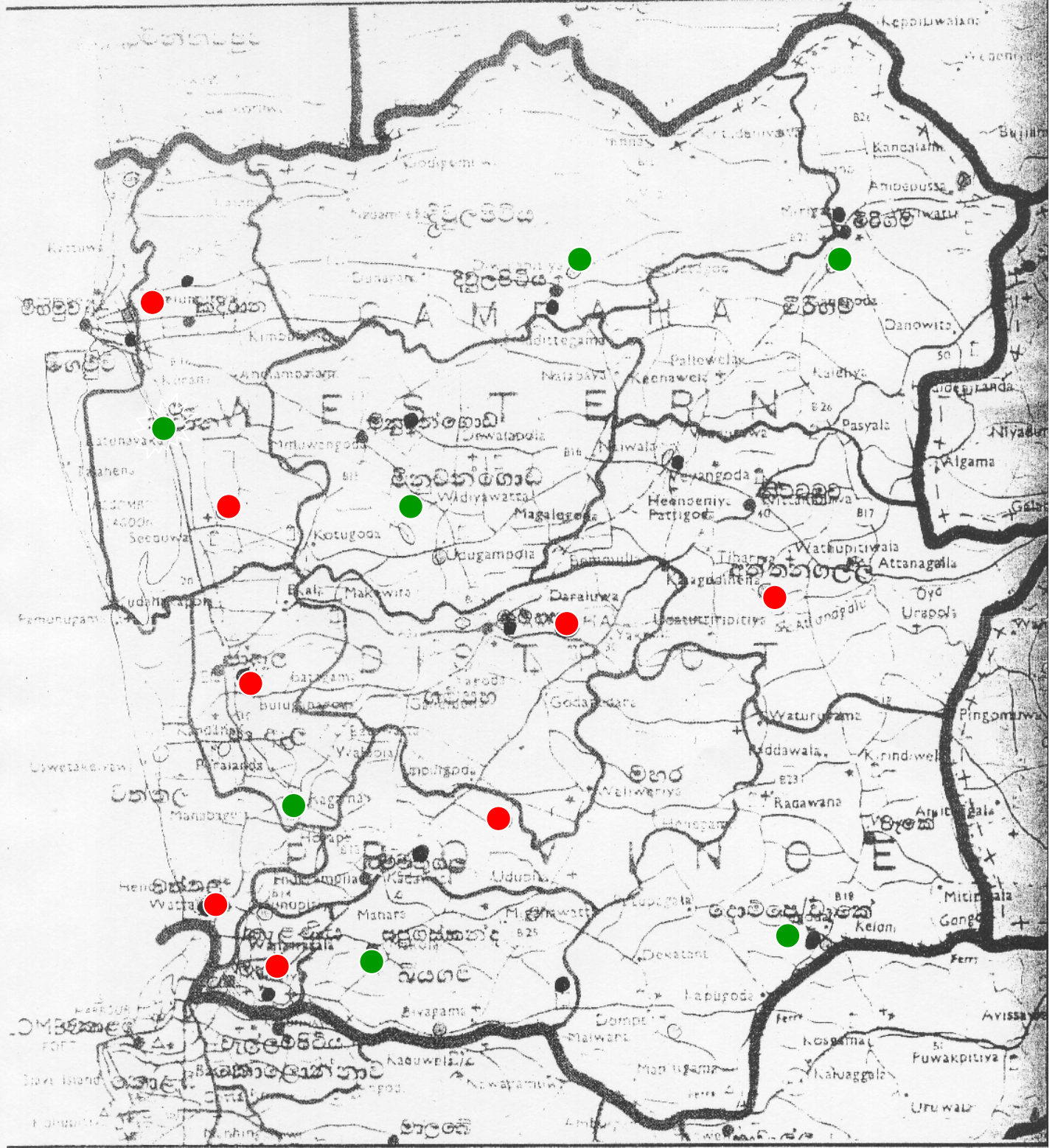


Figure 4.

MOH areas of Gampaha district, showing the extent of the mapping exercise

- Positive areas
- Negative areas



DISCUSSION

- The present study indicates the presence of bancroftian filariasis in different MOH areas in Gampaha district.
- This could lead to a widespread public health problem in the country.

CONCLUSION

Active transmission of *Wuchereria bancrofti* is currently taking place in Gampaha district, despite the MDA program being implemented since 2002.

RECOMMENDATION

There is an urgent need for a proper screening program together with anti filarial treatment and vector control programs to minimize morbidity and interrupt transmission in the district of Gampaha, Sri Lanka.

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Thank You

