

# **The Malaria Cost Estimation Tool**

## **User Manual**

**(Preliminary Version Prepared for the Malaria Costing Tool  
Version 1.2, April 2006)**

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### ***Acknowledgements***

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### ***List of abbreviations***

|        |  |
|--------|--|
| CDS    | - WHO/Communicable Diseases  |
| DCD    | - WHO/EMRO/Communicable Disease Control  |
| DHS    | - Demographic Health Surveys   |
| EIP    | - Evidence and Information for Policy  |
| EMRO   | - World Health Organization, Regional Office for the Eastern Mediterranean             |
| HMM    | - Home-based Management of Malaria   |
| IDPs   | - Internally Displaced Persons   |
| IEC    | - Information, Education and Communication   |
| IPT    | - Intermittent Preventive Treatment  |
| IRS    | - Indoor Residual Spraying   |
| ITM    | - Insecticide Treated Materials  |
| ITN    | - Insecticide Treated Nets   |
| LLITNs | - Long Lasting Insecticide Treated Nets  |
| M&E    | - Monitoring and Evaluation  |
| MAL    | - WHO/CDS/Malaria  |
| MICS   | - Multiple Indicator Cluster surveys (UNICEF)  |
| RBM    | - Roll Back Malaria  |
| RDT    | - Rapid Diagnostic Test  |
| TDR    | - UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases |
| UNICEF | - United Nations Children's Fund   |
| USAID  | - United States Agency for International Development                                   |
| WHO    | - World Health Organization  |

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## 1.0 Introduction

The ***Malaria Cost Estimation Tool*** is a tool for estimating the resource requirements of proven malaria interventions over a period of time. The tool is based on a review of costing studies and an extensive consultation with malaria experts. It provides a simple user interface requiring only basic technical and computer skills. The tool is intended for use by malaria control programme staff as well as other individuals working in the field of malaria.

Once in agreement with the major assumptions in the tool, the user simply enters the data from national health statistics and programme documents into the ***Malaria Cost Estimation Tool*** and then views and/or prints the automatically produced summary cost reports for the selected interventions. Since the tool is template-based, the user can continually re-use the ***Malaria Cost Estimation Tool***, to experiment with different sets of parameters creating a range of cost estimates—a powerful resource for evidence-based decision making, planning and forecasting.

The ***Malaria Cost Estimation Tool*** is designed to run with Microsoft Excel version 1997 or later versions. This user guide is divided into 2 principal sections: the first which provides a general overview of the tool and gives familiarity with it for basic use, and a series of appendices which provide more in-depth descriptions of individual sections of the tool, which should be referred to when questions arise during the use of the tool.

## 1.1 Background

The World Health Organization (WHO), its development partners and researchers worldwide, have developed proven interventions for the control of malaria. These proven interventions need to be scaled up to cover much larger proportions of the population in endemic countries to attain the desired impact on the morbidity and mortality associated with the disease. One way of facilitating this is by providing useful information regarding the resource requirements for scaling up of different interventions.

The ***Malaria Cost Estimation Tool***, developed by the Roll Back Malaria (RBM) Partnership Secretariat in conjunction with Evidence and Information for Policy (EIP) of WHO, is responding to this demand for information. The tool enables malaria control programme managers, decision and policy makers to determine the resource requirements of their prioritized interventions. The tool requires country or regional specific information to estimate the scaling up costs of selected interventions at specified coverage levels and targets. The tool facilitates the process of budgeting for intervention expenditures for both governments and donors. This costing approach helps in improving the accuracy of estimates of health budgets for malaria, in predicting the future stream of costs, and provides indications of resource gaps for policy dialogue and planning considerations.

Why cost a malaria scale-up plan?

It is broadly recognized that strategic planning requires credible information about how much is being spent, on what, and from what source, and how much funding will be needed in the future to reach programme objectives. For this reason, analysing the costing and financing of a malaria scale-up plan or strategy is a key step. There are various reasons for this. The costing can:

1. Strengthen national budgeting and planning for malaria and help answer the fundamental question of: how much will it cost to reach programme objectives?
2. Help decision making about programme improvements. For instance, you might be interested in introducing a new drug and would like to understand the cost implication of such a decision. Having a baseline costing of your programme is the basis for developing scenarios for programme improvements and understanding the incremental costs of these improvements.
3. To generate information that will help you advocate for and mobilize the needed resource for the malaria control programme. A solid understanding of the funding gaps can facilitate discussion with ministries and donors on how to mobilize the required resources.

Other uses of costing information are to help identify strategies for increasing efficiency of existing resources and where saving can be made.

Adequate local demographic, behavioural and epidemiological data as well as consultations with local experts (sharing local experiences) are important pre-requisites to the selection of appropriate coverage, target levels, activities, and assumptions used in the tool. Selected indicators, commodity costs, and assumptions need to be adapted to local situations. The costing tool is intended to provide cost estimates for strategically planned activities (especially commodities) and not for the development of a strategic plan. Strategic planning for RBM is separate but vital technical exercise to be used as a foundation for the overall RBM costing. Users are encouraged to change figures presented in the tool to explore different options and sensitivities, but the assumptions should preferably be evidence-based country assumptions (and agreed by MOH and partners) to make the overall exercise reasonable, acceptable, and useful.

Paragraph about the backbone and other tools here.

### 1.2 Description

In the Tool, the following preventive and curative interventions are covered: Insecticide-treated nets (ITN), Targeted indoor residual spraying (IRS), Source reduction, Intermittent preventive treatment (IPT), Anti-malarial case management, Community/Home-based Anti-malarial Treatment, Treatment of Complicated Malaria, and Care of Refugees and Internally Displaced Persons. The tool estimates the costs of various resources used by the selected interventions.

In addition, some of the other crucial malaria related interventions and issues interventions have been covered. These costs are:

- Operational research costs;
- Monitoring and evaluation costs;

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- Storage costs;
- Deployment/Transport costs;
- Strategic Communication costs;
- Advocacy costs;
- Programme Management costs;
- Human Resources and Facilities costs;
- Training costs; and
- Laboratory equipment costs.

The costs are calculated for selected level of health care – national, province and district. The costs are summed up accordingly to obtain the total cost of the intervention.

Calculation of costs of other malaria related interventions and issues must be done with care. Some of the activities listed are (or can be) implemented using a "health sector wide" approach; that is, they will cover more than one intervention and more than one disease. For example, Monitoring and Evaluation may be done simultaneously for a wide set of activities; e.g. survey, at a health centre. The intent of this tool is not to encourage "verticalization" of such activities but to provide an estimate of the costs to ensure malaria scale-up, either with or without coverage of similar elements from other health programs.

However, note that some of the costs listed in these sections are malaria specific. For example, testing for resistance to anti-malarial drugs, listed under operational research, is a malaria specific activity and should be considered as such (the laboratories used for the testing, however, will most likely have multiple functions).

### **What is the difference between a malaria specific input and a shared input?**

Malaria specific costs include the value of inputs and activities that are used specifically for malaria. In other words, their utilization is 100% for the Malaria Control Programme. Typically, malaria specific recurrent inputs include anti-malarial drugs, bednets, full time malaria control personnel, training activities, surveillance activities...

Shared costs include the value of inputs that are not specific to malaria and are used by different programmes or activities in the health sector – i.e. their utilization for malaria is less than 100%. For instance, a nurse working in a district health centre is likely to be providing malaria services as well as other curative and preventive services. Only a portion of that nurse's salary and time can be attributable to malaria. Likewise, a vehicle in a district health centre (ex: a four wheel drive) may be used by staff working for programmes other than malaria (Immunisations, TB...). Therefore, only a portion of the fuel and maintenance cost of these vehicles may be paid for by the malaria programme. This makes it difficult to separate out the portion of these inputs that can be attributed to malaria, and, given the difficulties of counting these costs accurately, could be excluded from the costing exercise. These are classified as shared costs. The use buildings (ex: health centres) are other typical shared inputs.

To summarize, the tool can be used for the following:

- Estimating the total and incremental ("scale up") costs of commodities specific to

anti-malarial interventions. For each of the preventative and curative interventions, results are presented separately for the total costs, by year, to reach the chosen coverage levels, the costs of maintaining current coverage, and the additional resources beyond the current coverage needed to reach the target coverage level.

- Estimate the additional costs of malaria related interventions and issues that are either not covered directly by the specific commodities of the interventions or can be used for several preventative and curative interventions. For example, mass media campaigns may be intended to raise awareness about anti-malarial activities in general, or the costs can be calculated in the tool independently from one specific intervention.
- Paragraph about backbone here.

The tool is not intended for the following uses:

- The tool as it stands now cannot be used to determine if new health care workers will need to be employed, or if new health care facilities will need to be built.
- Attribute only the share of financial costs of additional support to a malaria control programme when the support intervention also services other health programmes. As stated previously, all the inputs are counted and attributed to the malaria control programme.

## 2.0 Setting up the tool

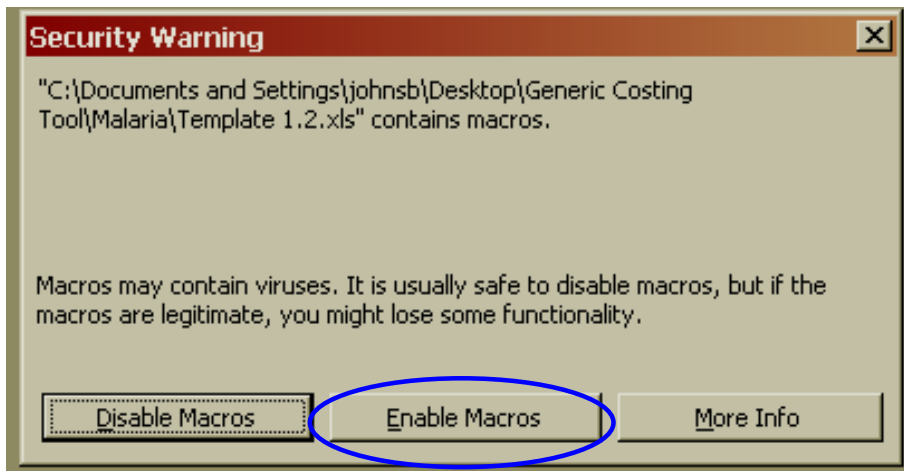
### 2.1 Starting the Malaria Cost Estimation Tool

A shortcut of the *Malaria Cost Estimation Tool* software can be created on the Windows desktop. Double clicking on the created tool icon on the desktop activates the tool application software. The tool is designed to run with Microsoft Excel version 97 or later. The computer needs to also have Visual Basic for Excel (which usually comes with Excel).

*Malaria Cost Estimation Tool* is a single Excel file (\*.xls). The Excel file is designed to be much like a "master" blank form used to reproduce copies for data entry. It is best to create copies of the *Malaria Cost Estimation Tool* before using it (either by creating copies on your computer desktop, or by opening the Excel file and saving it under a new name before you start using it). This way, you may enter different sets of data, save and name your template files individually, while keeping the original tool as a master file, intact for future use.

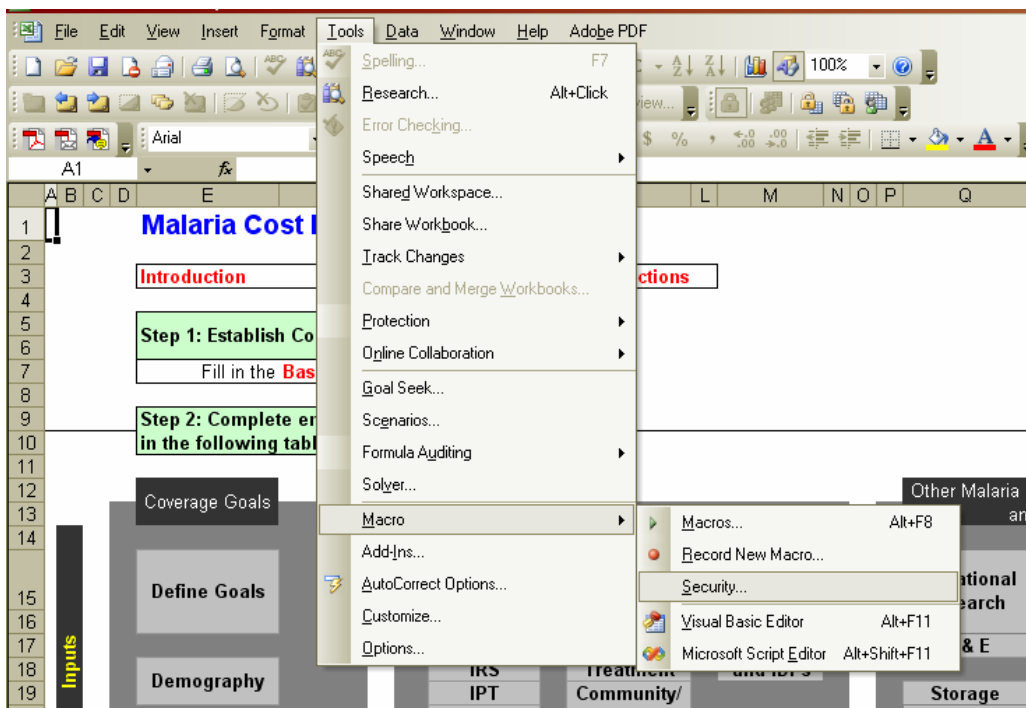
It is very important for the *Malaria Cost Estimation Tool* to run correctly that you allow "macros". The ability to run macros depends on the security settings of your computer. On many computers, the default security setting allows you to choose whether or not to allow macros every time you open the *Malaria Cost Estimation Tool*. **Box 1: Enabling Macros** shows an example of this; in order to operate the tool correctly, you must click on the box "Enable Macros" (Circled in blue in Box 1).

**Box 1: Enabling Macros**



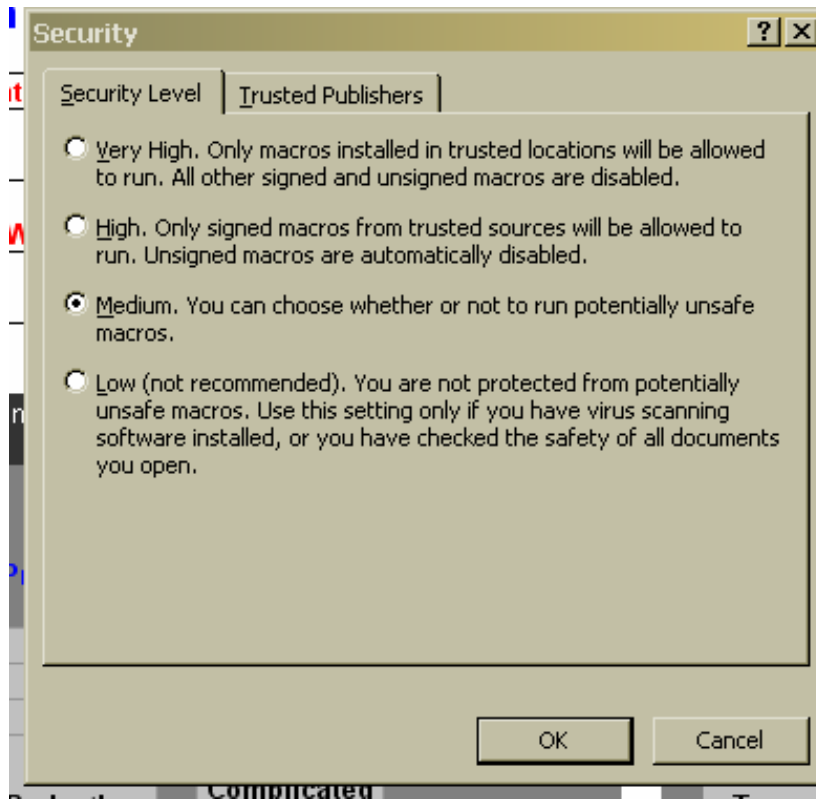
If you **do not see** this Security Warning when you open the tool, it means either that your security is set such that macros are automatically allowed OR that your security is set such that macros are automatically NOT allowed. In order to determine what your computer security setting is check the security options as shown in Boxes 2 and 3.

**Box 2: Accessing Your Security Settings**



To access your security settings, click on the **Tools** menu bar, go to **Macro**, and then click **Security**. This results in a dialogue box as shown in Box 3.

**Box 3: The Security Dialogue Box**



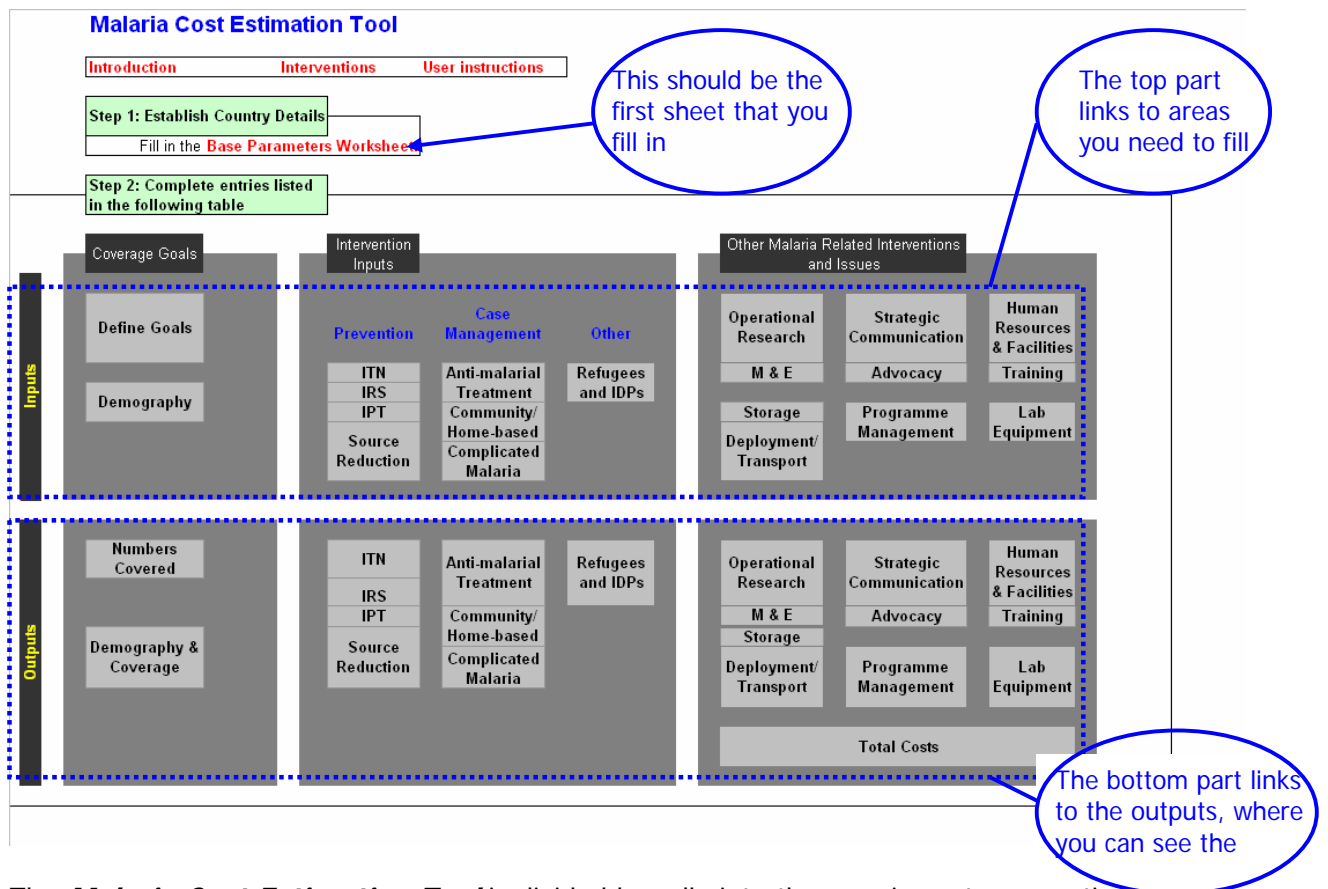
If the circle next to “High” or “Very High” is selected, then your computer will not allow macros to run. In order to change this, select “Medium” (as shown), click the “OK” box in the lower right of the dialogue box, then exit and restart the ***Malaria Cost Estimation Tool***. If “Low” is selected, then macros will run on your computer. (*Note: Older version of Excel may have slightly different options; the point is to allow macros to run on your computer*).

**2.2 Structure of the Tool**

The ***Malaria Cost Estimation Tool*** consists of a range of worksheets (i.e. 52) in a single Microsoft Excel™ file. Navigation between sheets is assisted by macros (buttons that link to the sheets).

The tool opens into a front page called the **Switchboard**, which provides links to all the worksheets in the tool (see Box 4).

**Box 4: The Switchboard**



The *Malaria Cost Estimation Tool* is divided broadly into three main parts - a section that provides an *Introduction* to the tool, a description of the *Interventions* covered and some useful *User instructions*. The next part is *Step 1: Establish Country Details*, which requires the user to input the base parameters of the country under consideration (see Box 6) and finally *Step 2: Complete entries listed in the following table*. This requires entering data inputs, with the outputs automatically produced. These are labelled on the **Switchboard** of the tool as "Inputs" and "Outputs". The "Outputs" are listed by selected interventions and then the total cost is also provided with scenarios, projected scale up figures and graphs.





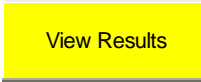



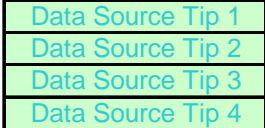
Step 2 is further divided into columns, with the first column providing links to sheets for entering the coverage and population figures. The second column provides links to the sheets intended to calculate costs for preventive and curative specific commodities. The final column links to the "systems costs" worksheets, and to the **Total Costs** sheet.

For easy navigation between worksheets, every input worksheet is equipped with a) "**Switchboard**" button located at the upper right hand corner of the sheet, and b) "**Switchboard**", "**Go to top**" and "**View Results**" buttons at the bottom of the sheet. Results worksheets are only provided with the "**Switchboard**" and "**Adjust Format**" buttons located at the top left hand corner of the sheet.

On each input sheet, there are cells shaded **yellow** in colour. These cells require inputs of country specific data on the selected interventions. There are other buttons (“Yes”/“No”) at the end of some questions as well as “Cost to include” buttons that need to be selected as appropriate.

Box 5 shows some of the commonly used buttons and their functions in the tool.

### Box 5: Switchboard, Help and Other Information buttons

|   |   |
|---|---|
|    | Click here to go to the switchboard                                   |
|    | Click here to see information about filling in data                   |
|    | Adjust the sheet to display data more clearly                         |
|   | For helping the user to move to the top of the worksheet              |
|  | For helping the user view the results of the intervention under study |
|  | For help and clarification on methodological issues                   |
|  | For help on copying the same inputted data                            |
|  | Important guiding notes for inputting data                            |
|  | Tips for data sources   |

This user manual is designed for use in conjunction with the instructions that are contained in these help and information boxes of the tool.

## 2.3 The Worksheets

Table 1 provides the file structure of the *Malaria Cost Estimation Tool*. The forty-eight worksheets making the tool are listed below showing their brief description, worksheet name and whether the sheets are editable.

**Table 1: File Structure**

| No.  | SECTION/DESCRIPTION  | WORKSHEET NAME    | Editable?             |
|--|--|-------------------|-----------------------|
| <b>I: COVERAGE GOALS</b>                                     |  |                   |                       |
| 1  | Switchboard (links all the worksheets)   | Switchboard       | NO                    |
| 2  | Base parameters (information on country, currency, interventions & health systems)                                 | Base parameter    | ENTRY ONLY            |
| 3  | Goals of the health sector & targets of the interventions  | Goals             | ENTRY ONLY            |
| 4  | General demography of selected country   | Demography        | PARTIALLY ENTRY SHEET |
| 5  | Graphical presentation of selected country general demography  | DemOut            | NO                    |
| 6  | Lists containing the projected number of fevers, fevers treated, and number of lab tests projected to be performed | Numbers           | NO                    |
| <b>II: INTERVENTION INPUTS</b>                               |  |                   |                       |
| 7  | Treatment of Complicated Malaria   | Complicated       | ENTRY ONLY            |
| 8  | Total cost of treatment of Complicated Malaria   | ComplicatedResult | NO                    |
| 9  | Refugees & Internally Displaced Persons  | RefIDP            | ENTRY ONLY            |
| 10   | Total cost of Refugees & Internally Displaced Persons  | RefIDPResult      | NO                    |
| 11   | Anti-malarial Case Management  | Treatment         | ENTRY ONLY            |
| 12   | Total cost of Anti-malarial Case Management  | TreatmentResult   | NO                    |
| 13   | Community/Home-based Anti-malarial treatment   | ComHome           | ENTRY ONLY            |
| 14   | Total cost of Community/Home-based Anti-malarial treatment   | ComHomeResult     | NO                    |
| 15   | Source Reduction (covers larviciding with insecticide, biocide and larvivorous fishes)                             | Source            | ENTRY ONLY            |
| 16   | Total cost of Source Reduction   | SourceResult      | NO                    |
| 17   | Indoor Residual Spraying   | IRS               | ENTRY ONLY            |
| 18   | Total cost of Indoor Residual Spraying   | IRSResult         | NO                    |
| 19   | Intermittent Preventive Treatment  | IPT               | ENTRY ONLY            |
| 20   | Total cost of Intermittent Preventive Treatment  | IPTResult         | NO                    |
| 21   | Insecticide Treated Materials  | ITM               | ENTRY ONLY            |
| 22   | Total cost of Insecticide Treated Materials  | ITMResult         | NO                    |
| <b>III: OTHER MALARIA RELATED INTERVENTIONS &amp; ISSUES</b> |  |                   |                       |
| 23   | Procurement and storage  | Store             | ENTRY ONLY            |
| 24   | Total cost of Procurement and storage  | StoreResult       | NO                    |
| 25   | Transportation/Deployment  | Trans             | ENTRY ONLY            |
| 26   | Total cost of Transportation/Deployment  | TransResult       | NO                    |
| 27   | Human Resources  | HR                | ENTRY ONLY            |
| 28   | Total cost of Human Resources  | HrResult          | NO                    |
| 29   | Training   | Training          | ENTRY ONLY            |
| 30   | Total cost of training   | TrainResult       | NO                    |
| 31   | Laboratory equipment   | Lab               | ENTRY ONLY            |
| 32   | Total cost of Laboratory equipment   | LabResult         | NO                    |
| 33   | Operational Research & Surveillance  | OpRsch            | ENTRY ONLY            |
| 34   | Total cost of Operational Research & Surveillance  | OpRschResult      | NO                    |
| 35   | Programme Management & Supervision   | ProgMgmt          | ENTRY ONLY            |

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| <b>No.</b>                                      | <b>SECTION/DESCRIPTION</b>   | <b>WORKSHEET NAME</b> | <b>Editable?</b>  |
|---|--|-----------------------|---|
| 36  | Total cost of Programme Management & Supervision   | ProgMgmtResult        | NO  |
| 37  | Monitoring & Evaluation/Quality Assurance  | M&E                   | ENTRY ONLY  |
| 38  | Total cost of Monitoring & Evaluation/Quality Assurance  | M&EResult             | NO  |
| 39  | Strategic Communication (including IEC, Mass Media & Social Outreach)  | IEC                   | ENTRY ONLY  |
| 40  | Total cost of Strategic Communication (including IEC, Mass Media & Social Outreach)                          | IECResult             | NO  |
| 41  | Advocacy   | Advoc                 | ENTRY ONLY  |
| 42  | Total cost of Advocacy   | AdvocResult           | NO  |
| 43  | Total cost (overview of all total costs of selected interventions)   | TotalCost             | NO  |
| <b>WORKSHEET LINKED TO TOTAL COST WORKSHEET</b> |  |                       |   |
| 44  | GlobalFund costs (resource estimates for 5 years scale-up presented with Global Fund Application formatting) | GlobalFund            | ENTRY & RESULTS   |
| 45  | Scenario (provide various scale-up scenario – graphical & total cost figures over a period)                  | ScenarioScaleUp       | NO (names and brief descriptions of scenarios can be added) |
| 46  | Total cost of interventions scenarios (provide various cost scenarios over a period)                         | Scenarios             | NO (names and brief descriptions of scenarios can be added) |
| 47  | Commodities unit cost for prevention and case management   | Unit Cost             | NO  |
| 48  | The number of commodities projected to be needed by type, for total and scale-up cases                       | Number                | NO  |
| 49  | Graphs (selected total costs of interventions, commodities (prevention & case management) & scale-up)        | Graph                 | NO  |

### 2.4 Step 1: Establish Country Details

Click the **"Base Parameters Worksheet"** in cell F7 on the **Switchboard**, which will take you to a sheet resembling that shown in Box 6. THIS SHEET SHOULD BE FILLED IN FIRST, BEFORE PROCEEDING WITH USING THE TOOL.

**TIP:** The yellow color indicates that you can and SHOULD replace the presented data with country specific data.

Box 6: Base Parameters

**Country**

Country Name: Ghana

**Costing**

Base Year 2006      Years to Project 10

Local currency is Cedi and the exchange rate to \$1US is 8736.74

Enter Data in     Local Currency  
 US Dollars

View results in     Local Currency  
 US Dollars

**Interventions**

*Check which interventions you wish to cost*

|  |   |   |
|--|---|---|
| <p style="text-align: center;"><u>Prevention</u></p> <input checked="" type="checkbox"/> ITN<br><br><input checked="" type="checkbox"/> IRS<br><input checked="" type="checkbox"/> IPT<br><input checked="" type="checkbox"/> Source Reduction | <p style="text-align: center;"><u>Case Management</u></p> <input checked="" type="checkbox"/> Anti-malarial Case Management<br><input checked="" type="checkbox"/> Community/Home-based Care<br><input checked="" type="checkbox"/> Complicated Malaria | <p style="text-align: center;"><u>Other</u></p> <input checked="" type="checkbox"/> Refugees and IDPs |
|--|---|---|

**Health System**

*Enter the number for each category*

| Administrative Levels  | <i>Number of Administrative Units Delivering Malarial</i> | <i>Include in costs?</i>            | Health Facilities      | <i>Number of Facilities Delivering Malarial Intervention</i> |
|------------------------|---|-------------------------------------|------------------------|--|
| National               | 1   | <input checked="" type="checkbox"/> | Hospitals              | <input checked="" type="checkbox"/>                          |
| Province               | 10  | <input checked="" type="checkbox"/> | Health Centres         | <input type="checkbox"/>                                     |
| District               | 122   | <input checked="" type="checkbox"/> | Health Posts           | <input type="checkbox"/>                                     |
| Other <please specify> |   | <input type="checkbox"/>            | Other <please specify> | <input type="checkbox"/>                                     |

Switchboard

?

This sheet requires the user to select the **Country** under study, the base year to start costing, number of years to project costs. For example, to project costs for the years 2007 to 2011, enter **2007** next to "Base Year" and **5** next to "Years to Project".

Next, enter local currency, local currency exchange rate to the US dollar, and the currencies to use for data entry and for viewing the results in the costing section. If you are more comfortable entering data in the currency of your country, for example, select **Local Currency** next to “Enter Data in”. If you then want to have results in US dollars to present to an international audience, you can select **US Dollars** next to “View Results in” and the tool will automatically convert all the figures using the exchange rate you have entered.

**Interventions** to be costed are selected and then they are made available on the Switchboard. Note that as you select (or check) or unselect (uncheck) an intervention, it will become available or disappear from the Switchboard. If you unselect an intervention, it will not be counted in the total costs section even if you have entered data onto the relevant sheets.

Some information on the **Health System** in terms of service delivery and health facilities at the national, province and district levels are entered. These service delivery level should reflect areas where malaria-specific programme staff (e.g., programme managers), as opposed to care givers (e.g., doctors or nurses who handle many diseases), operate in your country.

### 2.5 Step 2: Complete entries listed in the following table

This covers the main data entry for **Coverage Goals**, **Intervention Inputs** and **Malaria Support Interventions**. The various worksheets under each of the headings will be discussed.

#### 2.5.1 Coverage Goals

There are two main areas under coverage goals – **Define Goals** and **Demography**.

##### 2.5.1.1 Define Goals

Click on the “**Define Goals**” button on the switchboard, and you find these two steps as shown in Box 7 below:

**Box 7: Coverage Goals**

**Coverage Goals**

**Step 1: Determine Goals for which sectors/areas**

|   |   |
|---|---|
| Establish Goals for Public sector only:               | <input checked="" type="checkbox"/> Yes |
| Establish Goals separately for Private sector:        | <input type="checkbox"/> Yes            |
| Establish Goals separately for Urban and Rural Areas: | <input type="checkbox"/> Yes            |
|   | <input checked="" type="checkbox"/> No  |

---

**Step2: Determine Coverage Goals for Prevention**

Step 1 enables the user to determine the goals for separate sectors (e.g., public/private) and urban or rural areas. The default setting allows goals to be entered for the whole country (i.e., not separately for urban and rural areas) and considers only the public sector. The other options can be selected if there is enough data to support realistic assumptions about the differences in these areas, and/or these areas are of interest (for example, coverage in the private sector may or may not be important to planners in the Ministry of Health depending on the local context—e.g., if the MoH has little control or interaction with private practitioners, then calculating the cost for this sector may not be relevant for planning purposes).

Step 2 covers all the goals for prevention interventions, target coverage amongst children, pregnant women, households, breeding coverage areas and treatment populations. The coverage goal for the last year of costing as well as targets for individual years should be entered for each of the interventions according to the targets set in your setting. For more specific details on how to fill in the Goals worksheet, see [Appendix C: The Goals Worksheet](#).

**2.5.1.2 Demography**

Click on the “**Demography**” button on the switchboard, and an output or results sheet showing the Total population, Average household size, Total population Age Breakdown and Population at risk will be presented. This sheet is linked to the Base parameter sheet. However, changes can be made to **Total population** in **cell C8**, **Annual population growth rate** in **cell D9** and **Annual population growth rate, rural** in **cell C10** to set up the tool specifically for estimates at the provincial or district levels, if these parameters are known at that level. Further input parameters, such as **average household size**, population at risk of malaria (**endemic, epidemic**), and the **crude birth rate** and **maternal mortality** (for calculating the number of pregnant women) can also be adjusted in the **yellow** cells. Finally, the age specific breakdown listed in **cells C28 to C32** can be altered to fit your setting, provided they sum to the number listed in **cell C8**.

Note that if you did not differentiate between urban and rural areas on the **Define Goals** worksheet, you do not need to worry about updating the data presented here specific to urban and rural areas.

For further information on making changes to the data presented in the Demography worksheet, see [Appendix D: Use of the Demography Worksheet](#).

### 2.5.2 Intervention Inputs

This covers all the prevention, case management and other special malaria intervention situations.

#### 2.5.2.1 Insecticide Treated Nets

From the switchboard, click on the “ITN” button, a worksheet with four steps needs to be completed to cost this intervention. The user will be required to select some options or manually enter country specific data or information into the **yellow** cells following the questions. The steps are:

- Step 1: Determine which Cost to Include;
- Step 2: Determine Current Coverage;
- Step 3: Determine Re-treatment Rate; and
- Step 4: Determine Prices for Nets and Treatment.

In Step 1, you can include or exclude long-lasting ITNs from consideration. There is also an option that allows calculation based on a target number of nets per household (rather than per child).

In Step 2, you are asked the year of the last DHS survey (or the year of the data entered in rows 20 to 26). Below the box where you select the appropriate year may appear a series of **yellow** cells if the data is more than one year old. Each cell contains a formula that calculates the number of nets that would have been distributed if the coverage levels entered were maintained since the data was collected. You can enter the number of nets that were actually distributed if you have the needed data, in order to more accurately calculate current coverage.

In Step 4, the tool provides a price reduction options with a help button, which guides the user on its usage. As shown below, on selecting the “Yes” option, a series of cells are presented to the user for inputting of requisite data on price reduction percentages (see Box 8).

**Box 8: Part of Step 4 in ITN**

**Step 4: Determine Prices for Nets and Treatment**

Include Price Changes?  No  Yes ?

Commodity cost of ITN (US\$) 2.63

| Percentage price reductions per year for ITNs: | Reduction (%) | Price |
|--|---------------|-------|
| 2006   | 0%            | 2.63  |
| 2007   | 0%            | 2.63  |
| 2008   | 0%            | 2.63  |
| 2009   | 0%            | 2.63  |
| 2010   | 0%            | 2.63  |
| 2011   | 0%            | 2.63  |
| 2012   | 0%            | 2.63  |
| 2013   | 0%            | 2.63  |
| 2014   | 0%            | 2.63  |
| 2015   | 0%            | 2.63  |

---

Commodity cost of LLITN (US\$) 5.44

| Percentage price reductions per year for LLITNs: | Reduction (%) | Price |
|--|---------------|-------|
| 2006   | 0%            | 5.44  |
| 2007   | 0%            | 5.44  |
| 2008   | 0%            | 5.44  |
| 2009   | 0%            | 5.44  |
| 2010   | 0%            | 5.44  |
| 2011   | 0%            | 5.44  |
| 2012   | 0%            | 5.44  |
| 2013   | 0%            | 5.44  |
| 2014   | 0%            | 5.44  |
| 2015   | 0%            | 5.44  |

Average useful life of an ITN (years) 4

Average useful life of an LLITN (years) 4

Percentage damaged/lost in shipment 1%

Cost of Retreatment (US\$) for chemicals 0.40

Enter the expected price change by year: this could be a year-on-year reduction (e.g., 1% reduction in price every year) or a one-time reduction (e.g., a 20% reduction in price due to lifting of taxes).

The resulting price can be seen to the right.

For further information on making changes to the ITN worksheet, see [Appendix E: The ITN Worksheet](#).

**2.5.2.2 Indoor Residual Spraying**

On the switchboard, click on the “**IRS**” button, a worksheet with three steps needing to be completed to cost this intervention. The user will be required to select some options or manually enter country specific data or information into the yellow cells following the questions. The steps are;

- Step 1: Determine Current Coverage;
- Step 2: Determine Indoor Spraying Rate; and
- Step 3: Determine Insecticide needed and Prices.

In Step 3, the tool provides an option to select the number of various insecticides used in the country. If the user selects all the five insecticides, as shown below, a series of five optional insecticides are presented to the user for inputting of requisite data (see Box 9). Further details on how to use the IRS Worksheet can be found in [Appendix F: Use of the IRS Worksheet](#).

**Box 9: Part of Step 3 in IRS**

**Step 3: Determine Insecticide needed & prices**

Country Total

**a) Insecticide**

Number of different insecticides used:

1  2  3  4  5

|  |                       |           |
|--|-----------------------|-----------|
| <i>Insecticide 1</i>   | Cyfluthrin WP         |           |
| Proportion this insecticide constitutes of total insecticides used in country: | 50%                   |           |
| Percentage wasted  | 0%                    |           |
| Dosage (grams)   | 0.04                  | Per sq. m |
| Cost per gram of Cyfluthrin WP (US\$)  | 0.01                  |           |
| <i>Insecticide 2</i>   | Deltamethrin WP       |           |
| Proportion this insecticide constitutes of total insecticides used in country: | 10%                   |           |
| Percentage wasted  | 0%                    |           |
| Dosage (grams)   | 0.02                  | Per sq. m |
| Cost per gram of Deltamethrin WP (US\$)  | 0.01                  |           |
| <i>Insecticide 3</i>   | Lambda-cyhalothrin WP |           |
| Proportion this insecticide constitutes of total insecticides used in country: | 20%                   |           |
| Percentage wasted  | 0%                    |           |
| Dosage (grams)   | 0.03                  | Per sq. m |
| Cost per gram of Lambda-cyhalothrin WP (US\$)                                  | 0.07                  |           |
| <i>Insecticide 4</i>   | Bifenthrin WP         |           |
| Proportion this insecticide constitutes of total insecticides used in country: | 10%                   |           |
| Percentage wasted  | 0%                    |           |
| Dosage (grams)   | 0.04                  | Per sq. m |
| Cost per gram of Bifenthrin WP (US\$)  | 0.01                  |           |
| <i>Insecticide 5</i>   | Propoxur WP           |           |
| Proportion this insecticide constitutes of total insecticides used in country: | 10%                   |           |
| Percentage wasted  | 0%                    |           |
| Dosage (grams)   | 1.50                  | Per sq. m |
| Cost per gram of Propoxur WP (US\$)  | 0.02                  |           |

Name of the Insecticide

Allows you to account for waste of insecticide.

The Cost per dose—this number multiplied by the dosage will determine the overall costs.

As described, this should reflect the percentage that this insecticide is used over the total used; in this case, 50% of households use Cyfluthrin WP.

You can enter the amount used per square meter, or estimated usage per household.

**2.5.2.3 Intermittent Preventive Treatment**

Click on the "IPT" button on the switchboard, a worksheet with three steps needs to be completed to cost this intervention. The user will be required to select some options or manually enter country specific data or information into the yellow cells following the questions. The steps are detailed in [Appendix G: Use of the IPT Worksheet](#).

### 2.5.2.4 Source Reduction

Click on the “**Source Reduction**” button on the switchboard, a worksheet with four steps needing to be completed to cost this intervention. The user will be required to select some options or manually enter country specific data or information into the **yellow** cells following the questions. The steps are;

- Step 1: Determine Current Coverage;
- Step 2: Determine Type of Larviciding to be Used;
- Step 3: Determine Larviciding Rate; and
- Step 4: Determine Insecticide and Biological Control Agents needed and prices.

Data entry procedures are similar to those for IRS; please refer to section 2.5.2.2 above for more details, and [Appendix H: Use of the Source Reduction Worksheet](#) for terminology and techniques specific to source reduction.

### 2.5.2.5 Anti-malarial Case Management

Click on the “**Antimalarial Treatment**” button on the switchboard. The four steps required for completion to cost the intervention are presented. The user will be required to select some options of inclusion which automatically adjusts the worksheet for manually entering country specific data or information into the **yellow** cells following the questions. The options are shown in Box 10 below.

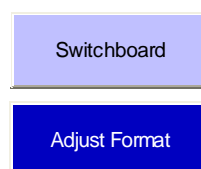
#### Box 10: Inclusion options for Antimalarial Case Management

##### Anti-Malarial Case Management

Please complete the 4 steps needed to cost this intervention.

**Include children under 5:**  
**Include people over 5:**

Yes  No  
 Yes  No



The steps, which requires manual enter country specific data or information in the yellow cells following the questions are;

- Step 1: Determine Current Health Seeking Behaviour;
- Step 2: Determine Number of Fevers;
- Step 3: Determine Treatment & Diagnostic Costs for Uncomplicated Malaria in Children Under 5; and
- Step 4: Determine Treatment & Diagnostic cost for Treatment Failure in People Over 5.

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Note that Steps 3 and 4 depend on what options you select in Step 1 (e.g., if you are not costing children under 5 because they are included in IMCI, then Step 4 will become Step 3).

An important feature of this tool is the ability to adjust the number of fevers that will be treated due to preventive activities, which is presented as an option in Step 2. The default values presented assume the following:

- A third (1/3) of fevers reported in DHS data will not be measurable fevers;
- Insecticide treated nets will reduce the incidence of *malaria* fevers (assumed to be 48% of all fevers) by 50% among the population with access to nets.

These assumptions are automatically linked to the coverage goals entered for ITNs.

In steps 3 and 4, the first line anti-malarials and fever reducing drugs have been built into the tool as “pop-up” windows for selection as appropriate to the country. Selected drugs also automatically produce dosing schedule, total number of tabs/syrup per case and unit price as default as shown in Box 11. Currently, the malaria prices shown are the median available price worldwide.

The first drug is one of two potential drugs used in the treatment of malaria (e.g., the ART in ART + AQ).

You should enter the drug regimens and prices according to the age groups listed at the top (the age groups match those entered in the 'Demography' worksheet).

**Box 11: Demonstration of Drug Regimens in the Tool**

|   | Children Less than 1:   | Children Ages 1 to 4:   |
|---|-------------------------|-------------------------|
| <b>First Drug</b> <input type="text" value="Arthm ether-lumefantrine"/> | Arthmether-lumefantrine | Arthmether-lumefantrine |
| Doses per treatment   | 1.00                    | 2.00                    |
| Antimalarial price per Dose (US\$)                                      | 3                       | 3                       |
| Total Cost per Treatment  | 3.00                    | 6.00                    |
| <b>Second Drug</b> <input type="text" value="None"/>                    | None                    | None                    |
| Doses per treatment   |                         | -                       |
| Antimalarial price per Dose (US\$)                                      | 0                       | 0                       |
| Total Cost per Treatment  | -                       | -                       |
| <b>Fever reducing drug</b> <input type="text" value="Paracetamol"/>     | Paracetamol             | Paracetamol             |
| Doses per treatment   | 15.00                   | 0.50                    |
| Price per Dose (US\$)   | 3                       | 3                       |
| Total Cost per Treatment  | 45.00                   | 1.50                    |

The number of doses given per treatment episode and the cost per dose are multiplied to produce the total cost for this drug per treatment episode.

The second drug is one of two potential drugs used in the treatment of malaria (e.g., the AQ in ART + AQ). If only one drug is given, then enter “None”.

If the cost of fever reducing drugs is born by the malaria programme or the malaria programme wants to ensure that fever reducing drugs are available, then the costs should be included here; otherwise, enter “none”.

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The cost of diagnostics in steps 3 and 4 follow the same format as that of the drugs (see Box 12).

### Box 12: Cost of diagnostics

The dotted lines separate the 3 types of diagnostic tests (microscopy, antigen, and antibody tests). The data for each type of diagnostic test should be entered separately.

You should enter the prices according to the age groups listed at the top even if it is the same price for all ages (the age groups match those entered in the 'Demography' worksheet).

Enter Unit cost for each test here.

Allows you to enter the cost for other supplies (lancets) used with antigen test AND account for wastage of those supplies.

|                                     | Children <1yr            | Children 1-4yrs    |                   |
|-------------------------------------|--------------------------|--------------------|-------------------|
| <b>Costs of diagnostics.</b>        |                          |                    |                   |
| Unit cost of microscopy (US\$)      | 0.36                     | 0.36               |                   |
| Antigen-detecting test              | PF & pan-specific (pLDH) | PF only (HRP2)     |                   |
| Antigen-detecting test cost (US\$)  | 0.61                     | 0.69               |                   |
| <i>RDT aids</i>                     |                          |                    |                   |
| Lancet                              |                          |                    |                   |
|                                     | Number/quantity          | Unit cost (US\$)   | Percentage Wasted |
| Antibody-detecting test             | -                        | 0.20               | 10%               |
| Antibody-detecting test cost (US\$) | PF only (Antibody)       | PF only (Antibody) |                   |
|                                     | -                        |                    |                   |

For further information on filling in the Anti-malarial case management sheet, see [Appendix I: of the Antimalarial Case Management Worksheet](#).

### 2.5.2.6 Community/Home-based Antimalarial Treatment

Click on the button labelled "**Community/Home-based**" on the switchboard page of the tool. The following steps need to be completed for the estimation. Country specific data or information is manually entered in the **yellow** cells following the questions.

- Step 1: Determine Current Health Seeking Behaviour
- Step 2: Determine Number of Fevers
- Step 3: Determine Home-based Management of Malaria (HMM) Cost for Under 5
- Step 4: Determine Home-based Management of Malaria (HMM) Cost for People over 5 and
- Step 5: Determine Need and Costs for Treatment of Complicated Malaria

Steps 1 to 4 are similar to those for Anti-malarial Treatment (see section 2.5.2.6 above), and steps 1 and 2 allow you to simply apply the data entered on that sheet to this sheet (note that you have to have first selected Anti-Malarial Case Management on the base parameters, and have entered final figures in the "Treatment" sheet for this function to work properly—for more information see [Appendix J: Use of the](#)

**Community/Home-based Care Worksheet**). Box 13 demonstrates the data requirements of Step 5.

**Box 13: Step 5 of Community/Home-based Antimalarial Treatment**

**Step 5: Determine Need and Costs for Treatment of Complicated Malaria**

|  | Children Less than 1: | Children Ages 1 to 4: |
|--|-----------------------|-----------------------|
| <b>Percentage of Fevers that are complicated:</b>                      |                       |                       |
| Current:   | 1%                    | 1%                    |
| Projected:   | 1.3%                  | 1.3%                  |
| <b>Percentage of Cases Needing Rectal Artesunate:</b>                  |                       |                       |
| Percentage of Complicated Cases Requiring Rectal Artesunate:           | 50%                   | 50%                   |
| Percentage of All Fever Cases Requiring Rectal Artesunate (projected): | 0.7%                  | 0.6%                  |
| Cost of Rectal Artesunate (US\$)                                       | 5.00                  | 5.00                  |

Enter the percentage of FEVERS (not malaria cases) that manifest as complicated malaria. The first row is the current situation; the projected rate allows you to adjust for (a) increased case finding and/or (b) effects of changing drug regimes. Enter by age, even in they are the same or disaggregated data are not available.

In this row, enter the percentage OF COMPLICATED CASES that require rectal artesunate, by age group.

The tool automatically calculates the projected rate that FEVER cases will need rectal artesunate.

Enter the unit cost for one treatment session with Rectal Artesunate, by age.

**2.5.2.7 Treatment of Complicated Malaria**

Click on the button labelled **“Complicated Malaria”** on the switchboard page of the tool. This sheet incorporates 2 possible needs: treatment for first line failure that does not require hospitalization (Step 3), and treatment of malarial cases that do require hospitalization (Step 4). This worksheet requires four steps. However, step 1 and 2 two may be set equal to the data in the anti-malarial treatment sheet (in the same way that community/home-based care worksheet can—see Appendix J). Step 3 is entered in the same way that drugs for first line treatment are entered (see Boxes 11 and 12). Part of step 4 is also similar to the community/home-based care worksheet and details are provided in [Appendix K: Determining Complicated Malaria Rates](#); entering costs for treatment is shown in Box 14 below.

**Box 14: Complicated Malaria**

Enter the drug cost the same as in the other sheets (number of doses per treatment case, cost per does) and the model will automatically calculate the cost per treatment episode in the third row of each section (in grey).

Enter data for the different age groups listed; this allows, e.g., different prices for different dose size or quantities needed.

*Cost for Complicated Malaria*

|   | Children<br>Less than<br>1: | Children<br>Ages 1 to<br>4: | People<br>Ages 5 to<br>14: | People<br>Ages 15 +: |
|---|-----------------------------|-----------------------------|----------------------------|----------------------|
|   | Q(7d)                       | Q(7d)                       | Q(7d)                      | Q(7d)                |
| <b>First Drug</b>                               |                             |                             |                            |                      |
| Doses per treatment                             | 180.00                      | 360.00                      | 840.00                     | 1,440.00             |
| Antimalarial price per Dose (US\$)              | 7                           | 7                           | 7                          | 7                    |
| Total Cost per Treatment                        | 1,260.00                    | 2,520.00                    | 5,880.00                   | 10,080.00            |
| <b>Second Drug</b>                              |                             |                             |                            |                      |
| Doses per treatment                             | -                           | -                           | -                          | -                    |
| Antimalarial price per Dose (US\$)              | 0                           | 0                           | 0                          | 0                    |
| Total Cost per Treatment                        | -                           | -                           | -                          | -                    |
| <b>Fever reducing drug</b>                      |                             |                             |                            |                      |
| Doses per treatment                             | -                           | -                           | -                          | -                    |
| Price per Dose (US\$)                           | -                           | 0                           | 0                          | 0                    |
| Total Cost per Treatment                        | -                           | -                           | -                          | -                    |
| <b>Blood Transfusions</b>                       |                             |                             |                            |                      |
| Liters of blood given to patient (average):     | -                           | -                           | -                          | -                    |
| Cost for 1 litre of blood (US\$)                | -                           | -                           | -                          | -                    |
| <b>IV Fluids</b>                                |                             |                             |                            |                      |
| Liters of IV Fluids given to patient (average): | -                           | -                           | -                          | -                    |
| Cost for 1 litre IV Fluid (US\$)                | -                           | -                           | -                          | -                    |
| <b>Other Costs</b>                              |                             |                             |                            |                      |
| Total Costs for Other Drugs (US\$)              | -                           | -                           | -                          | -                    |
| <b>Lab tests</b>                                |                             |                             |                            |                      |
| Total Costs for Lab Tests (US\$)                | -                           | -                           | -                          | -                    |
| <b>Total Cost of Treatment:</b>                 | 1260.00                     | 2520.00                     | 5880.00                    | 10080.00             |

Enter these costs only if they are not routinely supplied—e.g., if blood transfusions are normally charged to the blood unit it may not be applicable to include costs here. However, you should ensure also that the budget will cover the necessary supplies.

The total cost PER TREATMENT EPISODE is automatically calculated based on the data entered above; alternatively, you can enter the TOTAL COST PER EPISODE directly into the cells with black borders.

**2.5.2.8 Care of Refugees and Internally Displaced Persons**

Click on the tab marked “Refugees and IDPs” on the switchboard. This has the highest number of steps (11), because it combines prevention, IPT and case management. On this sheet, country specific data or information is manually entered in the yellow cells following the questions. The steps are:

- Step 1: Determine coverage and refugees at risk;
- Step 2: Determine number of fevers;
- Step 3: Determine of first line antimalarial treatment and diagnostic costs;
- Step 4: Determine IPT Cost;
- Step 5: Determine which Preventive Activities to Include;
- Step 6: Determine Current Coverage of ITNs;
- Step 7: Determine Re-treatment Rate;
- Step 8: Determine Prices for Nets and Treatment;
- Step 9: Determine Target Coverage & Type of Larviciding to be Used;
- Step 10: Determine Larviciding Rate; and
- Step 11: Determine Insecticide & Biological control agents needed and prices.

The data is entered in this sheet identically to how data is entered in each individual intervention sheet, and you should refer to instructions for each of these worksheets on how to enter data in this worksheet. However, areas of differences are discussed in [Appendix L: Determining Complicated Malaria Rates](#).

### 2.5.3 Other Malaria Related Interventions and Issues

These cover some of critical support activities that are sometimes neglected or not explicitly costed. Since many of them are shared costs, they are difficult to apportion to various interventions. However, some of the activities, such as monitoring for drug resistance, strategic information for malaria control, and certain kinds of training, may more easily be designated specifically as Roll Back Malaria costs.

#### 2.5.3.1 Human resource and facilities

Click the tab marked “**Human resource & facilities**” on the switchboard. On this sheet, three general choices are offered to the user. The first two, “Intervention Specific Costs for preventive activities outside health facilities” and “Intervention Specific Costs for activities within health facilities” enables the user to cost human resource needs by intervention (see Box 15). This choice presents the user with the following 2 steps:

- Step 1: Preventive interventions and
- Step 2: Treatment

**CAUTION:** Note that these two steps present the costing of human resources in a “vertical” manner, which is generally appropriate for economic costing but very problematic for financial or budgetary considerations. If there is doubt about their inclusion, it is advised to not include them in the costing, especially for activities taking place within health facilities.

The third group of steps, for programme-level costs that cut across the interventions selected, as shown in Box 16, provides the user the opportunity to cost the malaria programme staff at all the levels – national, province and district. There are also 2 steps here, namely:

- Malaria Programme Staff (with Methods Note and Important Notes 1 and 2 pop-up windows) and
- Trainers.

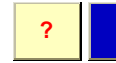
**Box 15: Selected Activities for Costing of Human Resources and Facilities**

**Human Resources**

Please complete the 1 steps needed to cost this activity.

Costs to include:

- Intervention Specific Costs for preventive activities outside health facilities
- Intervention Specific Costs for activities in health facilities
- National Staff
- Province Staff
- District Staff
- Other <please specify> Staff
- Trainers



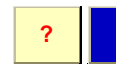
**Box 16: Selected Activities for Programme-level Costing of Human Resources and Facilities**

**Human Resources**

Please complete the 2 steps needed to cost this activity.

Costs to include:

- Intervention Specific Costs for preventive activities outside health facilities
- Intervention Specific Costs for activities in health facilities
- National Staff
- Province Staff
- District Staff
- Other <please specify> Staff
- Trainers



For details on how to complete this worksheet, see [Appendix M: The Human resources and Facilities Worksheet](#).

**2.5.3.2 Training**

On the switchboard, click the tab marked “**Training**”. This worksheet presents training costing by activities (see Box 17). Activities selected are presented in up to 5 steps for costing, namely;

- Development of Training Programmes;
- Training for Preventive Activities;
- Training for Treatment Activities;
- Training for Refugees/IDPs and;
- Training for Support Services.

## Box 17: Selected Activities for Costing of Training

### Training

Please complete the 5 steps needed to cost this activity.



#### Costs to include:

- Development of training programme(s) and materials
- Preventive Activities
- Treatment Activities
- Refugee/IDP situations
- Support Activities

Under each of these activities, there are other checkboxes that should be used to include/exclude relevant training activities. For details on how to complete this worksheet, see [Appendix N: The Training Worksheet](#).

### 2.5.3.3 Other Malaria Support Interventions

For the remainder of the activities included under "Malaria related interventions and issues", click on the appropriate tab marked with the activity name on the switchboard. This worksheets for "**Laboratory Equipment**", "**Advocacy**", "**Strategic Communications**", and "**Operational Research**" present the user with an opportunity to select the required activities to be costed (see Boxes 18, 19, 20, and 21 respectively for a list of potential activities). Within these steps, there are other options that need to be selected depending on the nature and organization of the activities in a particular setting. For details on how to complete this worksheet, see [Appendix O: The Laboratory, Advocacy, Strategic Communication, and Operational Research Worksheets](#).

## Box 18: Selected Activities for Costing of Laboratory Equipment

### Laboratory Equipment

Please complete the 5 steps needed to cost this activity.

*Note that laboratory equipment for drug surveillance is included in "operational research".*

*Note that laboratory equipment for quality assurance is included in "storage".*



#### Costs to include:

- Situational Assessment
- Microscopes
- Other <please specify>
- Other <please specify>
- Other <please specify>

### Box 19: Selected Activities for Costing of Advocacy

#### Advocacy

Please complete the 3 steps needed to cost this activity.

|                   |                                     |                               |                                   |
|-------------------|-------------------------------------|-------------------------------|-----------------------------------|
|                   |                                     | Switchboard                   |                                   |
| Costs to include: | <input checked="" type="checkbox"/> | Planning an Advocacy Strategy | (Click on Cell)<br>Important Note |
|                   | <input checked="" type="checkbox"/> | Advocacy Activities           |                                   |
|                   | <input checked="" type="checkbox"/> | Advocacy Materials            |                                   |

### Box 20: Selected Activities for Costing of Strategic Communication

#### Strategic Communication (including IEC, Mass Media, and Social Outreach)

Please complete the 4 steps needed to cost this activity.

|                   |                                     |                            |             |
|-------------------|-------------------------------------|----------------------------|-------------|
|                   |                                     | ?                          | Switchboard |
| Costs to include: | <input checked="" type="checkbox"/> | Mass Media                 |             |
|                   | <input checked="" type="checkbox"/> | Printed Materials          |             |
|                   | <input checked="" type="checkbox"/> | Social Outreach Activities |             |

### Box 21: Selected Activities for Costing of Operational Research

#### Operational Research and Surveillance

Please complete the 5 steps needed to cost this activity.

|                   |                                     |   |
|-------------------|-------------------------------------|---|
|                   |                                     | Switchboard                               |
| Costs to include: | <input checked="" type="checkbox"/> | Developing strategies/research agenda     |
|                   | <input checked="" type="checkbox"/> | Design of surveillance or research        |
|                   | <input checked="" type="checkbox"/> | Carrying out surveillance and/or research |
|                   | <input checked="" type="checkbox"/> | Analysis and reporting                    |
|                   | <input checked="" type="checkbox"/> | Dissemination of findings                 |

The worksheets for “**Programme Management**”, “**Deployment/Transport**”, “**Storage**” (Procurement and Storage), and “**M&E**” (Monitoring and Evaluation/Quality Assurance) are set up similarly, but the first selection choice is “percentage costing”, which enables the user to use percentage estimation rather than selecting the relevant activities for costing. This then estimate the activity cost as a percentage of the other costs in the tool. Alternatively, users select activities to be costed under the activity, which are presented in multiple steps (see Boxes 22, 23, 24, and 25, respectively). For details on how to complete these worksheets, see [Appendix P: The Programme Management, Deployment/Transport, Storage, and Monitoring and Evaluation Worksheets](#).

## Box 22: Selected activities for Costing of Programme Management

### Programme Management and Supervision

Please complete the 6 steps needed to cost this activity.

Switchboard

- Costs to include:
- Cost programme management as a percentage of other costs
  - Design of RBM country strategy
  - Design related annual work plan
  - Develop human resource policy
  - Programme coordination/integration
  - Policy & regulations on commodities
  - Supervision of health staff, community workers, etc.

## Box 23: Selected Activities for Costing of Transportation/Deployment

### Transportation/Deployment

Please complete the 5 steps needed to cost this activity.

Switchboard

- Costs to include:
- Enter transportation/deployment as a percentage of commodity costs
  - Situational Assessment
  - Vehicle operation and maintenance
  - New Vehicle Purchase
  - Other <please specify>
  - Other <please specify>

## Box 24: Selected Activities for Costing of Procurement and Storage

### Procurement and Storage

Please complete the 7 steps needed to cost this activity.

Switchboard

- Costs to include:
- Include storage as a percentage of commodity costs
  - Situational Assessment
  - Issuing tenders and procurements
  - Quality assurance of shipments received
  - Construction of new storage areas
  - Storage area upgrades
  - Other <please specify>
  - Other <please specify>

## Box 25: Selected Activities for Costing of M&E

### Monitoring and Evaluation/Quality Assurance

Please complete the 9 steps needed to cost this activity.

Switchboard

- Costs to include:
- Cost M&E as a percentage of other costs
  - Design of M&E frameworks and systems
  - Design of quality control and assurance
  - Design of data management systems
  - Data collection
  - Data analysis
  - Quality control/quality assurance
  - Epidemiological mapping
  - Review and feedback

### 3.0 Tool Outputs

The main output of this tool is the total costs of all selected interventions shown on the switchboard in Box 4. The total cost of each included intervention can be viewed by clicking on the “**View Results**” tab in the various intervention worksheets. However a summarized total cost tab on the switchboard gives the user an overview of the costs of the selected interventions.

The following costs tables are presented upon clicking the “**Total Cost**” button on the switchboard;

For Total costs:

- Commodities costs by interventions and over selected periods
- System costs by interventions over selected periods
- Cost per capita by interventions over selected periods (commodities)
- Cost per capita by interventions over selected periods (system)
- Percentage of total cost by interventions over selected periods (commodities)
- Percentage of total cost by interventions over selected periods (system)

For Scale-Up costs:

- Commodities costs by interventions over selected periods
- System costs by interventions over selected periods
- Cost per capita by interventions over selected periods (commodities)
- Cost per capita by interventions over selected periods (system)
- Percentage of total cost by interventions over selected periods (commodities)
- Percentage of total cost by interventions and over selected periods (system)

The layout of the “**Total Cost**” output sheet is as shown in Box 26 below.

Box 26: Section of Total Cost Sheet with other built-in aids

|                    |                             | Total Costs in US\$ |                   |                   |                   |                   |                   |                   |                   |
|--------------------|-----------------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                    |                             | 2006                | 2007              | 2008              | 2009              | 2010              | 2011              | 2012              | 2013              |
| <b>Total Costs</b> |                             | 95,065,210          | 99,016,681        | 103,829,677       | 108,342,935       | 118,635,381       | 116,423,709       | 117,699,311       | 118,894,423       |
| <b>Commodities</b> |                             | 95,065,210          | 99,016,681        | 103,829,677       | 108,342,935       | 118,635,381       | 116,423,709       | 117,699,311       | 118,894,423       |
| Total by Category: |                             |                     |                   |                   |                   |                   |                   |                   |                   |
| Prevention         | ITN                         | 18,560,269          | 17,190,554        | 15,598,644        | 13,693,966        | 16,801,209        | 15,366,455        | 15,268,949        | 15,112,613        |
|                    | IRS                         | 5,652,172           | 5,538,740         | 6,016,011         | 6,503,256         | 7,710,571         | 7,088,037         | 7,167,087         | 7,244,827         |
|                    | IPT                         | 72,474              | 152,016           | 238,782           | 332,923           | 437,343           | 542,999           | 649,859           | 757,898           |
|                    | Source Reduction            | 130                 | 101               | 164               | 135               | 197               | 191               | 214               | 191               |
|                    | <b>Subtotal, Prevention</b> | <b>24,285,045</b>   | <b>22,881,411</b> | <b>21,853,601</b> | <b>20,530,279</b> | <b>24,949,321</b> | <b>22,997,682</b> | <b>23,086,110</b> | <b>23,115,528</b> |
| Treatment          | ti-malarial Case Management | 67,268,312          | 73,129,016        | 78,990,951        | 84,847,618        | 90,690,375        | 91,937,377        | 93,161,270        | 94,364,602        |
|                    | Community/Home-based Care   | 1,412,238           | 1,371,767         | 1,333,508         | 1,296,404         | 1,258,881         | 1,219,331         | 1,179,623         | 1,138,456         |
|                    | Complicated Malaria         | 196,812             | 213,897           | 230,980           | 248,043           | 265,064           | 268,719           | 272,308           | 275,837           |
|                    | <b>Subtotal, Treatment</b>  | <b>68,877,361</b>   | <b>74,714,679</b> | <b>80,555,439</b> | <b>86,392,065</b> | <b>92,214,319</b> | <b>93,426,028</b> | <b>94,613,201</b> | <b>95,778,894</b> |
| Refugees and IDPs  |                             | 1,902,804           | 1,420,591         | 1,420,637         | 1,420,591         | 1,471,740         | -                 | -                 | -                 |

The **Total Cost** sheet also has some built in buttons for easy access to other sheets such as **Graphs**, **Scale-up costs**, **Unit costs**, **Number of Units Purchased** and **Scenarios** as shown in Box 26. Note that a special feature is an output using the Global Fund format which makes it easy to incorporate these into proposals. These results are displayed when these tabs are clicked. For details on how to complete these worksheets, see [Appendix Q: The Global Fund Worksheet](#) and [Appendix R: Saving Scenarios](#).

#### 4.0 Conclusions

The *Malaria Cost Estimation Tool* presents a practical approach to costing malaria interventions by calculating costs based on estimated needs of the intervention, including the support activities. It is hoped that this will help to enhance the planning and budgeting of interventions, by guiding the user through the various levels and its related components. While every effort has been made to ensure that the calculations and information in the tool are correct at the time of development, there will always be opportunities for improvement. Please report any suggested model enhancements or problems to Dr. James Banda, WHO/RBM (bandaj@who.int) or Tessa Tan Torres (tantorrest@who.int).

## 5.0 References

1. WHO (2000) The use of antimalarial drugs. Report of a WHO Informal Consultations. WHO/CDS/RBM/2001.33.
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7. CDC (2004) WHO's Recommended Interventions for Malaria Prevention and Control during Pregnancy (in Areas of Stable Transmissions). <http://www.cdc.gov/malaria>
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11. Al-Wahabi S et al. Malaria Eradication in Oman – An analysis of Processes, cost and impact (Draft report)
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## Appendix A: List of potential sources of cost data

- UN Population Division Statistics
- Demographic Health Surveys and MICs databases
- Country- specific malaria programmes
- Cochrane reviews

## Appendix B: Cost parameters and assumptions used

### Costing parameters and assumptions by category:

#### Population:

UN Population Division statistics used for all population figures, including: Total population, population age breakdowns, crude birth rates, maternal mortality (to estimate number of pregnant women), and annual population growth rates.

#### Goals:

Achieving 60% coverage for all the interventions listed below by the end of 2005. Linear scale-up to 80% coverage by 2010 is considered for all interventions, and then constant (80%) coverage to 2015.

These target goals were assumed for all countries.

#### Interventions:

##### **Prevention:**

*ITNs: Provision of ITNs to pregnant women and children under 5.*

##### a) Parameters used:

###### i) Service delivery

- Target populations;
- Household possession to usage ratio (i.e., Percentage of nets in household used by Under 5s);
- Current & operational coverage per year;
- Household estimates e.g. average size, number, number with ITM, average number of ITM per household, ITM available, ITM procurement over a period;
- Commodity cost (i.e. range of ITM costs – public & private).

###### ii) Retreatment

- Current & operational coverage per year;
- Number of ITNs for retreatment;
- Commodity cost (i.e. retreatment costs for 2 rounds annually – public & private).

b) Resource requirement estimates: Current coverage derived from DHS or MICs databases. Where country-specific data is missing, an average of countries with similar profile was used to estimate current coverage. ITNs were assumed to need 2 retreatment doses per year (whether administered in a single re-treatment session, or in two); no re-treatment for LLITNs. Useful life of a net estimated at 4 years. ITNs and LLITNs were evaluated separately in the scenarios described under 'Malaria Treatment.'

## User Manual: Malaria Cost Estimation Tool

c) Cost estimates: Unit cost of ITNs is estimated at \$2.63; LLITNs at \$5.44. Retreatment costs were estimated at \$0.40 per dose ("*Sources and Prices of Selected Products for the Prevention, Diagnosis and Treatment of Malaria*"). One (1) percent of nets were assumed lost or damaged in shipment.

### *IRS: Spraying of surface areas of houses*

a) Parameters used:

- Target populations;
- Current & operational coverage per year;
- Commodity cost (i.e. Insecticide for repeated spraying annually (2 rounds), spraying equipment & spare parts).

b) Resource requirement estimates: Spraying equipment (i.e. hand-operated compression sprayer) spare parts are assumed to be a percentage of the annual total cost, e.g. 10%.

c) Cost estimates: The cost per gram of the following spraying insecticides were used – Bendoicarb WP \$0.05, Deltamethrin WP \$0.01, Lambda-cyhalothrin WP \$0.07, Bifenthrin WP \$0.01 and Propoxur WP \$0.02

### *IPT: Provision of SP to pregnant women.*

a) Parameters used:

- Target populations;
- Crude birth rate;
- Current & operational coverage per year;
- Commodity cost (i.e. SP for pregnant women).

b) Resource requirement estimates: 3 tablets of SP given to pregnant women twice during pregnancy. For HIV positive women, 3 tablets are given monthly, averaging 3.5 times per pregnancy. In countries where HIV prevalence rates among pregnant women is greater than 10%, all women receive 3.5 SP sessions.

c) Cost estimates: \$0.02 cents per tablet.

### *Larviciding*

a) Parameters used:

- Target breeding sites;
- Current & operational coverage per year;
- Commodity cost (i.e. Insecticide, vehicle (supervision) & spraying equipment, biological control – fish *saphanius dispar/telapia* & bacteria – *Bti* & *Bsph*).

b) Resource requirement estimates: Spraying equipment (i.e. hand-operated compression sprayer) spare parts are assumed to be a percentage of the annual total cost e.g. 10%. Wastage rate for all the insecticide is estimated to be between 10 - 15% and for biocides 1%.

c) Cost estimates: The cost per gram of the following spraying insecticides were used – Chlorpyrifos EC \$0.01, Fuel oil +SAS \$0.01, Fenthion EC \$0.01 and Pirimphos-methyl EC \$0.01. The cost per gram of biocides are Bacillus sphaerius (Bsph) \$0.002, Temephos \$0.002 and VECTOBAC (Bti) \$0.002. It is also assumed that the unit cost of fish collecting items is \$50.

### **Case management:**

*Malarial Treatments: Treatment of malaria at health facilities.*

#### a) Parameters used:

i) Antimalarial treatment (under 5 years with sub-categories of under 1 year & 1-4 years. For new drugs<sup>1</sup> <1 year, 1-6 years)

- Target populations;
- Current & operational coverage per year;
- Pattern of health seeking behaviour for malaria (i.e. utilization rate);
- Current coverage rates;
- Commodity cost (i.e. diagnostic (microscopy & RDT) & medicine cost, diagnostic quality control cost).

ii) Antimalarial treatment (5-14 year & 15 years and over. For new drugs 7-13 years, 14 plus)

- Target populations;
- Pattern of health seeking behaviour for malaria (i.e. utilization rate);
- Current & operational coverage rates per year;
- Commodity cost (i.e. diagnostic (microscopy & RDT) & medicine cost, diagnostic quality control cost).

b) Resource requirement estimates: Fevers estimates for sub-Saharan Africa (excluding South Africa) and Papua New Guinea based on DHS or MICs data (likely to be an underestimate since most household surveys occur in dry season) and extrapolated based on previous studies to non-child populations (*R Snow and J Miller*). These data present perceived fevers; an estimate of 30% of perceived fevers will not be measurable fevers (*R. Snow*). Assumed 48% of fevers were due to malaria and ITNs will reduce malarial fevers by 50% for children covered (*R. Snow and Cochrane Review*). For other areas, reported cases of malaria were used to estimate number of malarial fevers (likely to be an underestimate due to reporting/diagnostic failure) (*RBM website*).

Fevers in epidemic (unstable) areas are estimated to be the fevers in endemic (stable) areas divided by 4.5 (epidemics occurring every 4 to 5 years). Thus, cost of controlling epidemics will be "smoothed" across the years. (Although the incidence is higher in epidemics than in stable situations, not all epidemics occur as often as every 4 to 5 years).

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<sup>1</sup> These are combination therapies such as ART plus AQ, ART plus SP, etc.

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Fevers in countries where data was missing were imputed using Global Burden of Disease estimates of mortality due to malaria.

Baseline of 20% of fevers will receive a diagnostic test, through microscopy (80% of diagnoses) or antigen tests (20% of diagnoses). In countries where all cases are currently diagnosed, 100% of fevers receive diagnostic tests. No reduction in treatment is assumed.

Treatment failure is assumed for 6% of all fever cases for countries administering ACT as a first line drug treatment; 0.78% of fevers (1.3% of malaria cases) will become complicated malarial cases. For countries without ACT, 24% of fevers will require additional treatment, and 1.92% of fevers (3.2% of malaria cases) are assumed to become complicated (*expert opinion*).

Drug regimens are assessed in two scenarios. Scenario one considers the current recommended drug regimens as specified by country, including updates reported to WHO for changes to occur before the end of the year 2004. This scenario includes ITNs. The second scenario considers all countries using ACT (except *P. Vivax* only countries). This scenario considers LLITNs.

c) Cost estimates: All costs are based on "*Sources and Prices of Selected Products for the Prevention, Diagnosis and Treatment of Malaria*" and "*The Use of Antimalarial Drugs: Report of a WHO Informal Consultation*" except for microscopy tests and non-drug costs for treatment of complex malaria. Microscopy tests were estimated at \$0.36 for materials and reagents.

### Appendix C: The Goals Worksheet

To fill in the Goals Worksheet, you should consider the yellow cells. Box C1 shows a simple example of this: the target coverage for IPT given to pregnant women is 80%. In 2007, the target coverage is 43% of pregnant women. Coverage is shown to increase by roughly 9.5% every year until 2011, when the target coverage (80%) is reached. All interventions work on this principle; for **ITNs**, coverage is estimated separately for children under 5 and pregnant women, while for **Source Reduction** the target is not a percentage of the population at risk, but rather the total hectares of mosquito breeding areas that will be covered (since it is often difficult to know the total area of mosquito breeding sites in the country, this requires strategic knowledge of areas to be covered).

#### Box27: The Basics of Entering Coverage

|      |  | Intermittent Preventive Treatment (IPT) |                |
|------|--|---|----------------|
|      |  | Do Not Use                              | Pregnant Women |
| Year |  |   |                |
| 2007 |  |   | 43%            |
| 2008 |  |   | 52%            |
| 2009 |  |   | 62%            |
| 2010 |  |   | 71%            |
| 2011 |  |   | 80%            |

| IPT: Percentage of Pregnant Women and children at risk who utilize IPT |  |
|--|--|
| Target Coverage  | Percentage of target population using IPT 2011 |
| Pregnant Women   | 80%  |

However, for two interventions (ITNs and IRS), further detail on the target population is required, as shown in Box C2.

The default entry for ITNs is the TOTAL POPULATION (not just children under 5 and pregnant women) living in BOTH endemic and epidemic parts of the country. However, this assumption might not match the strategic objectives of your country, and the number for the target population (circled in Blue in Box C2) should be changed to match the TOTAL population **currently** in need of bednets in your country.

The default entry for IRS is the TOTAL POPULATION (not number of households, etc.) living in endemic parts of the country ONLY. However, this assumption might not match the strategic objectives of your country, and the number for the target population (circled in Blue in Box C2) should be changed to match the TOTAL population **currently** in need of IRS in your country.

The number entered here for current population in need (the target population) will be adjusted automatically for factors such as population growth based on the data you enter in the Demographics worksheet (see Section 2.5.1.2).

**Box 28: Entering Target Populations in the Goals Worksheet**

**Insecticide Treated Nets (ITNs)**

**ITN:** Percentage of Children under 5 ["<5"] and Pregnant Women at risk who utilize ITNs

**Annual Operational Targets (coverage goal by year):**

|  |            |
|--|------------|
| <b>Target Population:</b>                                      | 26,600,000 |
| <b>TOTAL Percentage of target populaton using nets by 2011</b> |            |
| Children   | 80%        |
| Pregnant Women   | 80%        |

| Year | Children | Pregnant Women |
|------|----------|----------------|
| 2007 | 60%      | 60%            |
| 2008 | 65%      | 65%            |
| 2009 | 70%      | 70%            |
| 2010 | 75%      | 75%            |
| 2011 | 80%      | 80%            |

---

**Indoor Residual Spraying**

**IRS** Percentage of households in endemic areas being offered indoor residual spraying

**Annual Operational Targets (incremental proportion of total coverage goal met per year):**

|  |            |
|--|------------|
| <b>Target Population:</b>  | 25,200,000 |
| <b>Percentage of households in endemic areas receiving by IRS 2011</b> |            |
| Total Households   | 20%        |

| Year | Total Households |
|------|------------------|
| 2007 | 16%              |
| 2008 | 17%              |
| 2009 | 18%              |
| 2010 | 19%              |
| 2011 | 20%              |

(Click on Cell)

If you selected yes to “Establish Goals separately for Urban and Rural Areas” in Step 1, then this section will be expanded to cover these two areas, as shown in Box C3. Essentially, this entails treating Urban and Rural areas as two separate populations: you establish targets separately for each areas, and scale up targets for each year separately—the two sets of targets do not interact with each other in this model.

**Box 29: Entering Goals Separately for Urban and Rural Areas**

**Anti-Malarial Treatment:** Percentage of target population who receive anti-malarial treatment at modern facilities.

**Anti-Malarial Treatment Annual Operational Targets (incremental proportion of total coverage goal met per year):**

| Year | Treatment Population, Urban | Treatment Population, Rural |
|------|-----------------------------|-----------------------------|
| 2007 | 60%                         | 60%                         |
| 2008 | 65%                         | 65%                         |
| 2009 | 70%                         | 70%                         |
| 2010 | 75%                         | 75%                         |
| 2011 | 80%                         | 80%                         |

**Percentage of target population accessing anti-malarial treatment in 2011**

| Target Coverage             | Percentage |
|-----------------------------|------------|
| Treatment Population, Urban | 80%        |
| Treatment Population, Rural | 80%        |

The goals for each area can be entered separately

The targets for each year can be entered separately—they do not have to match as in this example

If you selected yes to “Establish Goals separately for Private sector” in Step 1, then this section will be expanded to cover these two areas, as shown in Box C4. Essentially, this entails establishing an overall goal, and then what percentage of that overall goal will be met by the three different sectors (Public, Private, NGO) allowed in this model. Note that some interventions (IRS, Source Reduction) do not allow for this option.

**Box 30: Entering Goals Separately for Private Sector**

**Anti-Malarial Treatment:** Percentage of target population who receive anti-malarial treatment at modern facilities.

**Anti-Malarial Treatment Annual Operational Targets (incremental proportion of total coverage goal met per year):**

| Year | Treatment Population | Percent of need from public sector | Percent of need from private sector | Percent of need from private non-profit sector |
|------|----------------------|------------------------------------|-------------------------------------|--|
| 2007 | 60%                  | 70%                                | 20%                                 | 10%  |
| 2008 | 65%                  | 70%                                | 20%                                 | 10%  |
| 2009 | 70%                  | 70%                                | 20%                                 | 10%  |
| 2010 | 75%                  | 70%                                | 20%                                 | 10%  |
| 2011 | 80%                  | 70%                                | 20%                                 | 10%  |

**Percentage of target population accessing anti-malarial treatment in 2011**

| Target Coverage      | Percentage |
|----------------------|------------|
| Treatment Population | 80%        |

First, establish the coverage goals for each year in the left column.

Each row below should total 100%

Then, establish the percentage of services that will be provided by each sector...this should add up to 100%. For example, in this Box, the target coverage for 2007 is 60%, with the public sector providing care to 70% (of the target coverage of 60%), private sector 20%, and NGOs 10% (70% + 20% + 10% = 100%; thus, all of the covered population can be attributed to one of the three sectors).

## Appendix D: Use of the Demographics Worksheet

Projecting demographics is often a difficult business. This tool uses the UN Population Division projections from the year 2002 as the default values in the model. However, there may be better or different data available in your country from your own government or census projections that you would prefer to use. However, it should be cautioned against 'making these numbers up'—real data should be used. The **Demographics** worksheet allows, to some extent, for these changes and uses standard terminology, so that you can match data from other areas to where it belongs on this sheet.

Further, the drug dosage requirements in your country may not match the default age groups that are used in the tool. You can change the age categories used, but note that **if you change the age categories, then you must change their corresponding populations.**

Box D1 gives details about the various input fields used in the **Demographics** worksheet to help guide you as you make changes to the sheet.

**Box 31: Changing the Demographics Worksheet**

| General Demography                          |   | Year        |            |            |            |            |            |
|---|---|-------------|------------|------------|------------|------------|------------|
|   |   | Current     | 2007       | 2008       | 2009       | 2010       | 2011       |
| <b>Total population</b>                     | 1 | 28,000,000  | 28,952,000 | 29,936,368 | 30,954,205 | 32,006,647 | 33,094,873 |
| <i>Annual Population Growth Rate</i>        |   |             | 2          | 3.4%       | 3.4%       | 3.4%       | 3.4%       |
| <i>Annual Population Growth Rate, Rural</i> |   | 2.7%        | 2.7%       | 2.7%       | 2.7%       | 2.8%       | 2.8%       |
| <b>Average Household Size, Country</b>      |   | 5.4         | 5.4        | 5.4        | 5.4        | 5.4        | 5.4        |
| <i>Average Household Size, rural areas</i>  | 3 | 5.6         | 5.6        | 5.6        | 5.6        | 5.6        | 5.6        |
| <i>Average Household Size, urban areas</i>  |   | 4.5         | 4.5        | 4.5        | 4.5        | 4.5        | 4.5        |
| Total Population Living In:                 |   | Method Note |            |            |            |            |            |
| <i>Endemic areas</i>                        | 4 | 90%         | 90%        | 90%        | 90%        | 90%        | 90%        |
| <i>Epidemic areas</i>                       |   | 5%          | 5%         | 5%         | 5%         | 5%         | 5%         |
| Urban Population Living In:                 |   | 14%         | 14%        | 15%        | 15%        | 16%        | 16%        |
| <i>Endemic areas</i>                        |   | 90%         | 90%        | 90%        | 90%        | 90%        | 90%        |
| <i>Epidemic areas</i>                       |   | 5%          | 5%         | 5%         | 5%         | 5%         | 5%         |
| Rural Population Living In:                 |   | 86%         | 86%        | 85%        | 85%        | 84%        | 84%        |
| <i>Endemic areas</i>                        |   | 90%         | 90%        | 90%        | 90%        | 90%        | 90%        |
| <i>Epidemic areas</i>                       |   | 5%          | 5%         | 5%         | 5%         | 5%         | 5%         |
| <b>Total Population Age Breakdown:</b>      |   |             |            |            |            |            |            |
| <i>Crude Birth Rate (per 1,000 people)</i>  | 5 | 50.7        | 50.7       | 50.7       | 50.7       | 51.0       | 51.0       |
| <i>Maternal Mortality</i>                   |   | 2.4%        | 2.4%       | 2.4%       | 2.4%       | 2.4%       | 2.4%       |
| Estimated number of pregnant women          |   | 1,455,153   | 1,504,628  | 1,555,785  | 1,608,682  | 1,673,220  | 1,730,109  |
| Less than 1                                 |   | 1,285,605   | 1,329,316  | 1,374,512  | 1,421,246  | 1,469,568  | 1,519,533  |
| Ages 1 to 4                                 | 6 | 4,693,566   | 4,693,281  | 4,852,852  | 5,017,849  | 5,188,456  | 5,364,863  |
| Ages 5 to 6                                 |   | 1,002,251   | 1,036,327  | 1,071,562  | 1,107,996  | 1,145,667  | 1,184,620  |
| Ages 5 to 14                                |   | 7,266,570   | 7,513,633  | 7,769,097  | 8,033,246  | 8,306,376  | 8,588,793  |
| Ages 15 +                                   |   | 13,906,615  | 14,379,440 | 14,868,341 | 15,373,865 | 15,896,576 | 16,437,060 |
| <b>Population at risk Age Breakdown:</b>    |   |             |            |            |            |            |            |
| <i>Endemic</i>                              |   |             |            |            |            |            |            |
| Estimated number of pregnant women          | 8 | 1,309,638   | 1,354,165  | 1,400,207  | 1,447,814  | 1,505,898  | 1,557,098  |
| Less than 1                                 |   | 1,157,045   | 1,196,384  | 1,237,061  | 1,279,121  | 1,322,611  | 1,367,580  |
| Ages 1 to 4                                 |   | 4,085,060   | 4,223,952  | 4,367,567  | 4,516,064  | 4,669,610  | 4,828,377  |
| Ages 5 to 6                                 |   | 902,026     | 932,695    | 964,406    | 997,196    | 1,031,101  | 1,066,158  |
| Ages 5 to 14                                |   | 6,539,913   | 6,762,270  | 6,992,187  | 7,229,921  | 7,475,739  | 7,729,914  |
| Ages 15 +                                   |   | 12,515,954  | 12,941,496 | 13,381,507 | 13,836,478 | 14,306,919 | 14,793,354 |
| <i>Epidemic</i>                             |   |             |            |            |            |            |            |
| Estimated number of pregnant women          |   | 72,758      | 75,231     | 77,789     | 80,434     | 83,661     | 86,505     |
| Less than 1                                 |   | 64,280      | 66,466     | 68,726     | 71,062     | 73,478     | 75,977     |
| Ages 1 to 4                                 |   | 226,948     | 234,664    | 242,643    | 250,892    | 259,423    | 268,243    |
| Ages 5 to 6                                 |   | 50,113      | 51,816     | 53,578     | 55,400     | 57,283     | 59,231     |
| Ages 5 to 14                                |   | 363,328     | 375,682    | 388,455    | 401,662    | 415,319    | 429,440    |
| Ages 15 +                                   |   | 695,331     | 718,972    | 743,417    | 768,693    | 794,829    | 821,853    |

**1. Total Population:** This is the total population of the country for the CURRENT YEAR—that is, for the year before you want to start costing. This figure is used only to establish the baseline; years after the current years can only be changed by changing the population growth rate.

**2. Population Growth Rate:** This reflects the rate of population change. The first row reflects changes for the country as a whole; the second row reflects change for rural

areas. Thus, for example, increasing urbanization can be reflected by having different growth rates in each of these rows (in the example given, the total population is growing at a faster rate than in rural areas only—that is, the population in urban areas is growing faster than in rural areas).

**3. Household size:** This reflects the number of people living in one house. This data is used only for the calculation of IRS; thus the data should reflect the areas to be covered by IRS to the extent possible. This data cannot be changed over time (since projections of household size are very difficult).

**4. Population living in Endemic and Epidemic areas:** This data shows the percentage of the population living in areas with endemic (yearly) exposure to malaria and epidemic (periodic) exposure to malaria. This can be changed over time, e.g., to reflect greater urbanization. Further, it allows breakdowns of urban and rural risk exposures. Thus, if you separate the values for urban and rural areas, and show increase urbanization over time (see #2), the overall risk exposure will change. However, this type of data is usually not available; the defaults reflect the current average for the country as reflected in WHO databases.

**5. Crude Birth Rate and Maternal Mortality:** These data are used to calculate the number of pregnant women for the ITN and IPT interventions. The crude birth rate is used as a base estimate of the number of births; this is adjusted upward with the Maternal Mortality rate to estimate the number of woman in need of these interventions. Projected crude birth rates can be entered by year; maternal mortality is assumed constant.

**6. Age Groups:** The model allows for consideration of 5 age groups. These can be changed if there is a need, e.g., to match dosage recommendations, at the country level. However, if these ages are changed, the population figures (see #7) for each age group will NOT automatically be altered to reflect these changes. You will have to enter them by hand. **NOTE** that the age groups HAVE TO cover the entire age spectrum. **ALSO NOTE** that for the ITN intervention, it counts ONLY the population listed in the first TWO age groups for its coverage estimates of “Children Under 5”. Thus, you may have to, e.g., save two different versions of the tool if you cannot align these assumptions with your needs for the age groups.

**7. Population by Age Groups:** The model allows you to enter the age breakdown for the current year. It then uses the percentage breakdown by age to project the population by age groups into the future, based on the total population. Thus, when changing these figures, the total of the five age groups should equal the total population (see #1).

**8. Population at Risk by Age Groups:** The model automatically calculates the population by age group living in epidemic and endemic areas, which serves as the target population for the various interventions. This section cannot be changed, but can be used to validate the data entered above.

## Appendix E: Use of the ITN Worksheet

The first step on the ITN worksheet asks you to consider whether to cost long-lasting ITNs (LLITNs) or only consider regular ITNs. Since more countries are adopting a policy of advocating LLITNs, chances are that you will want to select “yes” for this option.

Further, in this option you can select an alternative method for determining the number of nets needed. The default setting determines the number of nets needed based on the number of children and the number of pregnant women, which is the target population common in many countries. However, some countries set targets based on households—that is, the goal is to have a certain number of nets *in every household* regardless of whether or not there are children or pregnant women in the household. When deciding which option to select, you should consider the method of implementation in your setting. If, for example, net distribution is piggy-backed on the immunisation programme, then targeting children will be most appropriate, and you should leave the box unchecked. Box E1 gives more details on how to use this option.

Step 2 is where you enter the data needed to determine current coverage. Generally, this will be derived from recent survey data on ITN usage, such as DHS data. While this data is often incomplete or contains some errors, it is also generally the best available evidence about current coverage. However, in the case that the survey data is some years old, you can update the coverage levels by entering the number of nets that have been distributed since the survey was taken (if such data is available). The tool will automatically calculate the current coverage levels, assuming that the nets that were distributed are used in the same pattern as presented in the survey data.

Box E2 gives more details about how to enter data on current coverage.

### Box 32: Changing the Calculation Method for Determining the Number of Nets Needed

| Step 1: Determine which Costs to Include           |   |
|--|---|
| ITNs include Long Lasting Insecticide Treated Nets | <input type="radio"/> Yes<br><input type="radio"/> No                                   |
| Calculate nets needed per household:               | <input checked="" type="checkbox"/> <span style="font-size: 2em; color: blue;">1</span> |

**Step 2: Determine Current Coverage**

|  | Country Total |
|--|---------------|
| Average household size   | 5.4           |
| Estimated number of households   | 5,185,185     |
| <b>Current coverage</b>  |               |
| Households with mosquito nets  | 0.4%          |
| Households with ITNs   | 0.4%          |
| Under-5s using mosquito nets   | 0.2%          |
| Under-5s using ITNs  | 0.2%          |
| Pregnant women using mosquito nets   | 0.2%          |
| Pregnant women using ITN   | 0.2%          |
| Number of Nets Distributed per Household: <span style="border: 1px solid blue; border-radius: 50%; padding: 2px;">2</span> | 2             |
| Number of Nets Distributed per Pregnant Woman:   | 2             |

**1. Selecting the Number of Nets based on the Number of Households:** By clicking the check box, you are changing the demographic basis used for calculating the number of nets needed. If left unselected, the programme runs based on the number of children under 5 and the number of pregnant women, as entered in the Demography worksheet. However, if you select the check box, as shown, then the basis will be the number of households.

**2. Entering the number of Nets Needed per Household:** If the box in step 1 is NOT selected, then this line in Step 2 will read “Number of Nets Distributed per Child”, as discussed in Box E2. However, if you select the box, it will read “Number of Nets Distributed per Household” and you should enter the target number of nets to be IN USE in every household.

**Box 33: Current Coverage on the ITN Worksheet**

| <b>Step 2: Determine Current Coverage</b>  |   |
|--|---|
|  | Country Total   |
| Average household size <span style="float: right;">①</span>                              | 5.4   |
| Estimated number of households   | 5,185,185   |
| <b>Current coverage</b>  |   |
| Households with mosquito nets <span style="float: right;">②</span>                       | 0.4%  |
| Households with ITNs   | 0.4%  |
| Under-5s using mosquito nets <span style="float: right;">③</span>                        | 0.2%  |
| Under-5s using ITNs  | 0.2%  |
| Pregnant women using mosquito nets <span style="float: right;">④</span>                  | 0.2%  |
| Pregnant women using ITN   | 0.2%  |
| <i>Number of Nets Distributed per Child:</i> <span style="float: right;">⑤</span>        | 2   |
| <i>Number of Nets Distributed per Pregnant Woman:</i>                                    | 2   |
| <b>Year of Last Survey</b>   | <div style="border: 1px solid black; padding: 2px;">                     2002<br/>                     2003<br/>                     2004<br/>                     2005<br/>                     2006                 </div> <span style="float: right;">⑥</span> |
| <div style="border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">?</div> |   |
| <b>Nets distributed since survey was taken, by year</b>                                  |   |
| 2006 <span style="float: right;">⑦</span>  | 6378  |
| 2005   | 6378  |
| 2004   | 6378  |
| 2003   | 6378  |
| <b>Number of ITNs currently available</b>  |   |
| Number of Bednets procured but not distributed <span style="float: right;">⑧</span>      | -   |

**1. Average Household Size & Estimated Number of Households:** This data is taken from the Demography worksheet. It is used in conjunction with the data below to estimate how many children are currently sleeping under bednets.

**2. Households With Mosquito Nets & Households with ITNs:** Enter data from surveys on the percentage of households using mosquito nets and households using ITNs. This model assumes that the coverage goal is for ITNs; thus coverage with Mosquito nets only is not considered in the calculation of current coverage—these households are considered to still be in need.

**3. U5s using Mosquito Nets & U5s using ITNs:** This is used to reflect ACTUAL coverage of the target populations. Thus, if a household uses an ITN, but a child U5 does not, this model assumes that additional ITNs are needed in this household in order to reach the target population. This data is also often routinely collected in survey data.

**4. Pregnant women using Mosquito Nets & Pregnant women using ITNs:** As per number 3, this data is used to determine ACTUAL coverage of the target population vis-à-vis household usage.

**5. Number of nets distributed per child and pregnant women:** The tool automatically calculated this figure based on the answers to 1 through 4; however, you can change these figures to match the particular strategy adopted in your setting. TO understand these figures, think of them as the number of nets given to a child or a pregnant woman. In the example above, 2 nets are given to each child and pregnant woman in order to ensure that the child or woman will be able to use the net—i.e., if only one net were given to a child it may be used by another household member. **NOTE** that this model assumes that pregnant women will either share a bed with or pass the ITN to their child after it is born—and, thus, no further nets will be needed to be given to a household that is initially covered during pregnancy. Thus, the number entered here should reflect these considerations.

**6. Year of Last Survey:** Click on the year of the data entered in numbers 1-5. For example, if you are using data from a DHS survey conducted in 2002, then you should click on 2002. You will not need to use this section if the data entered in numbers 1-5 is current; in this case, you should select the most recent year available in the box (in the picture above, 2006).

**7. Nets distributed since last survey:** Since coverage may have drastically changed since the last survey (due to scale-up efforts, etc.), you can enter the number of nets distributed since the survey in order to more accurately estimate current coverage. Data on this may not be fully available—for example, only data from the public sector may be available. Efforts should be made to collect data from larger NGOs or other actors involved in bednet distribution in order to ensure accuracy; however, if data is unavailable, then best guesses are better than using coverage data that is several years old.

**8. Nets procured but not distributed:** The model assumes that these nets are paid for and available for distribution and will **not** count the costs for these nets.

Step 3 is used to calculate the scope of need for re-treatment of ITNs, and is described in more detail in Box E2.

**Box 34: Re-treatment Rates on the ITN Worksheet**

| Step 3: Determine Re-Treatment Rate                            |   |
|--|---|
| <b>ITNs</b>  |   |
| <b>Annual retreatment needs:</b> ①                             | Nets needs treatment <input type="text" value="2.0"/> times per year. |
| <b>Net re-treatment rate:</b>                                  | <input type="text" value="100%"/> of nets need retreatment.           |
| <hr/>  |   |
| <b>Long Lasting Insecticide Treated Nets (LLITNs)</b> ②        |   |
| Percentage of nets in use currently that are LLITNs:           | <input type="text" value="0%"/>                                       |
| Projected percentage of nets to be bought that will be LLITNs: | <input type="text" value="0%"/>                                       |
| <b>LLITNs Annual retreatment needs:</b>                        | Nets needs treatment <input type="text" value="0"/> times per year.   |
| <b>Net re-treatment rate:</b> ③                                | <input type="text" value="0%"/> of nets need retreatment.             |

(Click on Cell)  
 Methods Note

**1. Re-treatment rates for ITNs:** This section allows you to enter the frequency that ITNs need chemical re-treatment with insecticide (number of times per year) and the percentage of ITNs that will be re-treated according to this need (e.g., although 100% of nets may need re-treatment, implementation experience may show that only 90% of available nets actually get re-treated; in this case, 90% should be entered).

**2. Usage of LLITNs:** This allows you to determine LLITN usage rates, by entering the percentage of nets currently in use that are LLITNs, and by entering the percentage of nets purchased in the future that will be LLITNs.

**3. LLITN re-treatment rate:** Although, by definition, LLITNs don't need re-treatment, often people are not sure what type ITN they are using. Thus, if there are re-treatment campaigns, some LLITNs may get re-treated even if they do not need it. This section allows you to enter or estimate this tendency and account for it in the costing in the same way as described in #1.

In Step 4 enter the prices for the nets. The average price for nets should be used (since programmes often purchase nets of various sizes and prices, the average price from years past should be used). The useful life allows for replacement of nets for children U5, so that they have access to useable nets for the entire period. In addition, price changes can be entered, as described in Box 8.

## Appendix F: Use of the IRS Worksheet

The IRS worksheet is used to calculate the costs needed for chemical insecticides and hand operated compression sprayers ONLY. The costs for other activities associated with IRS, such as transportation or paying spray teams<sup>2</sup>, can be found in the health systems section (in these case, Deployment/Transport and Human Resources & Facilities). The Human Resource & Facilities sheet directly uses the data entered in this sheet in its calculations (see **Appendix M**), so the output of your costing exercise will maintain consistency between these elements. Box F1 details how to enter data to estimate current coverage, Box F2 details how to enter the frequency and duration of spraying activities, and Box F3 gives details on how to enter data to estimate the costs for equipment used for spraying.

### Box 35: Entering the Current Coverage of IRS

| Step 1: Determine Current Coverage  |               |
|---|---------------|
|   | Country Total |
| Current Coverage (percentage of households in <b>endemic</b> areas receiving IRS) | 15%           |
| Total Number of Households currently receiving residual spraying                  | 700,000       |
| Average surface area of houses (sq. m)  | 200           |
| Number of hand-operated compression sprayers (current)                            | 8,974         |

**1. Current Coverage of Households in Need:** This unit is measured in households; that is, you should enter the percentage of households for the target population that currently receive spraying. Note that the default assumption is that spraying is done in endemic areas; however this will represent the percentage of households for the TARGET POPULATION entered in the Goals worksheet that receive IRS (See Appendix C for more details on how to change the target population). The next row automatically estimates the number of households that currently receive IRS based on the data entered above, on the Goals worksheet, and the Demography worksheet.

**2. Surface Area:** This represents the average area of a house needing to be sprayed. This data should be available from programme records, or field officers may be able to give an estimate based on experience.

**3. Number of Sprayers:** This represents the number of hand-operated compression sprayers that are currently used to achieve the coverage listed. There is a pre-loaded formula to estimate the number used, but actual numbers from programme staff, if available, should be used. The preloaded formula assesses the number as follows:

<sup>2</sup> This includes special clothing for spray teams, etc.

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$$\text{Number of Sprayers} = ((\text{THS} / \text{DPW}) / \text{WPY}) * \text{SPH}$$

Where

THS = Total number of Houses Sprayed

DPW = working Days Per Week [assumed = 6]

WPY = number of Weeks spraying took Place in a Year [assumed = 26]

SPH = number of Sprayers used Per House [assumed = 2]

### Box 36: Entering the Spraying Rate

| Step 2: Determine Indoor Spraying Rate            |               |
|---|---------------|
|   | Country Total |
| <b>Annual spraying required:</b>                  |               |
| Annual frequency of spraying <b>1</b>             | 1             |
| Current length of spraying period (days) <b>2</b> | 6             |

**1. Annual Frequency of Spraying:** Enter the number of times an average house will receive IRS in the course of one year.

**2. Current Length of Spraying Period:** Enter the number of days spraying teams currently administer IRS in one year.

### Box 37: Entering Data to Determine Need for Spraying Equipment

| b) Spraying equipment   |               |
|---|---------------|
|   | Country Total |
| Square meters covered with one hand-operated compression sprayer <b>1</b> | 15,601        |
| Unit cost of hand-operated compression sprayer                            | 111           |
| Useful life   | 4             |
| Spare parts as percentage of cost (annual)                                | 10%           |
| Scale up length of spraying period (days): <b>2</b>                       | 12            |

**1. Square Meters Covered with 1 Sprayer & Cost of Sprayers:** Enter the average number of square meters one hand operated compression sprayer will cover in ONE year. The currently observed rate is automatically calculated in the sheet, but you can replace this with data from programme implementation if you wish. The formula used to calculate the number of square meters one sprayer covers is:

$$\text{Square Meters/Year} = (\text{TH} * \text{ASA}) / \text{NHS}$$

Where:

TH = Total number of Households currently being sprayed

ASA = Average Surface Area of a household

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NHS = Number of Handheld Sprayers used in the current year.

The unit cost of a sprayer, how long a sprayer lasts on average (useful life) and the annual amount spent on spare parts for 1 sprayer, as a percentage of purchase price, should also be entered here.

**2. Length of Spraying Period:** Enter here the number of days spraying teams WILL administer IRS in one year. This may change from current number of days if larger areas will be covered, requiring more time, or if employing teams for longer periods of time is feasible and saves on training costs.

**Appendix G: Use of the IPT Worksheet**

IPT is a relatively straight forward intervention to cost, and Box G1 gives details and definitions for use when entering data on the IPT Worksheet.

**Box 38: Entering Data in the IPT Worksheet**

**Pregnant women**

**Step 2: Determine Current Coverage of Pregnant Women**

|   | Country Total |
|---|---------------|
| Number of Pregnant Women at Risk (2006)                                     | 1,382,395     |
| Current Coverage with IPT: 2 Doses (%) <span style="color: blue;">1.</span> | 34%           |
| Current Coverage with IPT: 1 Dose (%) <span style="color: blue;">2.</span>  | 76%           |
| Current Coverage with IPT: 1 Dose ONLY (%)                                  | 42%           |
| Number of Women Receiving 2 Doses of IPT (2006 estimate):                   | 470,014       |
| Percentage HIV positive <span style="color: blue;">3.</span>                | 7%            |

4. Include HIV prevalence trends?  Yes  No

| 2007 |  |
|------|--|
| 2008 |  |
| 2009 |  |
| 2010 |  |
| 2011 |  |

(Click on Cell)

Methodology Note

**Step 3: Determine IPT cost**

|   | Country Average |
|---|-----------------|
| Number of IPT doses required (SP) <span style="color: blue;">5.</span>  | 2               |
| Cost per IPT Dose (USD)   | 0.0600          |
| IPT Costs per pregnant woman recipient (USD)  | 0.12            |
| <b>For HIV Positive Women</b>   |                 |
| Number of IPT doses required (SP) <span style="color: blue;">6.</span>  | 3               |
| IPT Costs per pregnant woman recipient (USD)  | 0.18            |
| Include Price Changes Over Time? <input type="radio"/> Yes <input checked="" type="radio"/> No <span style="color: blue;">7.</span> |                 |
| Price   |                 |
| 2007  | 0.06            |

**1. Current Coverage of IPT2:** Enter here the percentage of women *living in areas at risk of malaria* in your country that receive the full course (2 doses) of IPT.

**2. Current Coverage of IPT1:** Enter here the percentage of women *living in areas at risk of malaria* in your country that receive **at least** one dose of IPT (this includes

women that receive 2 doses!). The sheet uses #1 and #2 to automatically calculate the percentage of women that **only** receive 1 does of IPT.

**3. HIV Positive Women:** Enter the percentage of women presenting at ANC visits who test positive for HIV. Note that this should be the operational percentage—the percentage of women that will agree to be tested and then do test positive—and NOT the overall prevalence rate of HIV positive pregnant women. In other words, you should not cost to treat HIV positive women with extra doses of IPT if there are no means currently in place to detect all of the HIV positive women (e.g., routine testing is not offered during ANC in all areas of the country).

**4. Trends in HIV Prevalence:** This section allows you to change the HIV prevalence as used in the calculations. This may reflect:

- Real changes in population HIV Prevalence rates due to, e.g., preventive activities;
- Changes in the testing rate at ANC visits;
- Start of the programme (for example, if your country does not currently differentiate IPT for HIV+ and HIV- women, but has plans to start this programme 2 years from now, you could enter “0” for the first two years, and then enter a prevalence rate thereafter).

However, all of these options (excepting possibly the third) are highly uncertain; if you wish, you may select “no”, which then will use the current detection rate (entered in #3) for all years.

**5. IPT Dosage & Costs:** Enter the number of doses per pregnancy according to your national guidelines, and the cost per dose.

**6. IPT Dosage for HIV+ Women:** Enter the number of doses per pregnancy for HIV+ women according to your national guidelines; the cost per dose is assumed to be the same as for other women.

**7. Price Changes Over Time:** You can enter changes in prices over time. The clearest case for this is if a change in drug regimen is planned; you can also project trends in drug prices. However, this is a highly uncertain endeavour, and should only be used for sensitivity analysis.

## Appendix H: Use of the Source Reduction Worksheet

Source reduction is entered in ways that mirror IRS. For information on how to enter the costs for insecticides or biocides, refer to **Box 9**. Box H1 gives details on how to enter data for current coverage, the types of larvicides that will be used, and the frequency of larvicide application. Box H2 gives details on how to calculate the costs for thermocol boxes, and Box H3 provides details on how to enter the cost of breeding larvivorous fish.

### Box 39: Entering Data in the Source Reduction Worksheet

| Step 1: Determine Current Coverage                             |               |
|--|---------------|
|  | Country Total |
| Current coverage (Hectares of mosquito breeding sites covered) | ① 200         |

| Step 2: Determine Type of Larviciding to be Used                      |               |
|---|---------------|
|   | Country Total |
| Percentage of surface area to be covered with insecticide application | ② 50%         |
| Percentage of surface area to be covered with biocides                | 20%           |

| Step 3: Determine Larviciding Rate      |               |
|---|---------------|
|   | Country Total |
| <b>Annual larviciding required:</b>     |               |
| a) Insecticide application              | 2             |
| b) Biocide                              | ③ 20          |
| c) Larvivorous fish                     | 5             |
| Frequency of breeding site checks/visit | ④ 26          |

**1. Current Coverage of Source Reduction Activities:** Enter the number of hectares of mosquito breeding sites that are currently treated with source reduction measures.

**2. Coverage Goals by Type of Source Reduction:** Enter the percentage of mosquito breeding areas that WILL be treated with the different kinds of source reduction. **Note**

that this does not necessarily have to add up to 100%--some mosquito breeding areas could be subject to larval-eating fish.

**3. Number of Times Source Reduction Techniques Need to be Applied:** These represent the number of times a mosquito breeding site needs to be treated by the various source reduction techniques in a one year period. For larvivorous fish, this represents the number of times per year the fish need to be stocked.

**4. Breeding Site Visits:** Enter the number of time mosquito breeding areas need to be visited in one year. **Note** that the costs for these trips are considered on the worksheet for Programme Management and Supervision (see **Appendix P**).

**Box 40: Thermocol Boxes**

| <i>d) Other biological control implements</i> |               |
|---|---------------|
|   | Country Total |
| Number of thermocol box                       | 1             |
| Useful life of thermocol box                  | 2             |
| Unit cost of thermocol box (US\$)             | 23.00         |

**1. Estimating the cost of thermocol boxes:** For the *Number of thermocol box*, enter the number of boxes needed to breed 1 kilogram of biocide. Then enter how long, on average, a thermocol box is used (*useful life*) and the cost of **one** thermocol box.

**Box 41: Costing Fish**

| <i>e) Fish</i>   |               |
|--|---------------|
| <i>Include Fish:</i> <input checked="" type="radio"/> Yes <input type="radio"/> No |               |
|  | Country Total |
| Number of Hatcheries (current):  | 0             |
| Annual Cost of Maintaining one hatchery:   | 0             |
| Number of fish collecting items per hatchery:                                      | 3             |
| Unit cost of fish collecting items (US\$)  | 50.00         |
| Cost of building one new hatchery:   | 2000          |
| Number of New Hatcheries to be built, by year:                                     |               |
| 2007   |               |
| 2008   |               |
| 2009   |               |
| 2010   |               |
| 2011   |               |

**1. Current Number & Costs of Hatcheries:** Enter the current number of hatcheries for larvivorous fish that are in operation, followed by the annual operating costs for those hatcheries. **Note** that you have to enter the annual operating costs for hatcheries even if there currently are none in your country if you plan to build hatcheries in the coming years. This cost can be estimated from operations in other countries, or the

costs of comparable hatcheries within your own country. **Note also** that this annual operation cost should exclude the costs for Human resources IF you enter the cost for human resources on the Human Resource & Facilities sheet (see **Appendix M**). It should also exclude the cost of fish collecting items, which are entered as described in #2 below.

**2. Fish Collecting Items:** Enter the number of fish catching items used for one hatchery, and the price for ONE fish catching item.

**3. Costs for New Hatcheries:** Enter the cost of building one new hatchery. This can be estimated from past records, obtained from other countries' operations, or from data on the cost of building similar hatcheries within your country. Then enter the number of hatcheries projected to be built in future years (i.e., if you plan to build 2 hatcheries in 2008, then next to the year 2008, you should enter a "2").

## Appendix I: Use of the Antimalarial Case Management Worksheet

The antimalarial case management worksheet reflects the costs of treating patients AT A HEALTH FACILITY. It is important to keep this factor in mind when setting coverage goals; further scale-up at the community level may be more realistic unless scale-up of malaria case management is accompanied by concurrent efforts to change the factors that affect patients' demand for services at health centres (although increasing the availability of drugs and diagnosis at health facilities may in and of itself increase demand, and the extent that drug stock-outs prevent correct treatment of malarial cases can be addressed in this sheet).

The worksheet is set up in the following way:

1. Assessing the current health seeking behaviour of people with fevers (see Box I1).
2. Determining the extent to which people NEED treatment for fevers by determining the average number of fevers people will have in a one year period (see Box I2).
3. Assessing the costs for materials and supplies needed for the management of malaria cases (data entry for this component is described in Section 2.5.2.5 and Box I3 below)

### Box 42: Entering Health Seeking Behaviour for Fevers

| Step 1: Determine Current Health Seeking Behavior  |  |
|--|--|
|  | Country Total  |
| <i>Health seeking behavior for children under 5</i>  |  |
|  | <i>Percent</i>   |
| Home-base care with drugs <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1.</span>     | 51.1%  |
| Home-based care with herbs   | 11.3%  |
| Traditional healer/herbalist, etc.   | 9.1%   |
| Modern at government facility <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">2.</span> | 20.4%  |
| Modern private facility  | 2.0%   |
| Modern Private non-profit facility   | 2.6%   |
| No treatment   | 2.8%   |
| <b>Total</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3.</span>                  | 99%  |
| <i>Total Using Drugs (all sources)</i>   | <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">4.</span> 76% |

#### 1. Current Coverage of Fever Case Management in the Home/Community:

Enter data from the latest household survey or similar source. The objective is to estimate the percentage of fevers that do not seek care at a health facility, but do seek care. Likely, these will be reached by community health workers or others (e.g., private pharmacies); it is important to consider these behaviours when filling in the number of fevers (see Box I2), and when determining the coverage goals (see **Appendix C**). The first row (home based care with drugs) is considered as current coverage of community/home based care in this model. In addition, the percentage that seek care

via modern medicine and those that use traditional means like herbs, and traditional healers can be entered separately.

**2. Current Coverage of Fever Case Management in Health Facilities:** Enter the percentage of the age group that seek care for fevers at health facilities. Three types of facilities (public, NGO, and private) are considered. In addition, people who experienced fevers but sought no treatment should also be entered. IF people attend health facilities but do not receive drugs (e.g., due to stock outs) and data on this are available, then it should be considered when entering this coverage (that is, people who did not receive drugs should be considered as those who did not seek treatment).

**3. Total Coverage of Data:** This row sums up the health seeking behaviour from all the different methods listed above. Note that this can total more than 100% if survey data indicate that people with fevers seek care at more than one type of service provider. This is automatically calculated.

**4. Total Coverage of Fever Cases Using Modern Drugs for Management:** This row is also automatically calculated, and represents the sum of home based care with drugs, and those that seek care at health facilities. This constitutes current coverage of treatment of fevers in this model.

**Box 43: Entering the Number of Fevers**

| Step 2: Determine Number of Fevers                                  |      |   |                                   |
|---|------|---|-----------------------------------|
| Include reduction in fever incidence due to preventive activities   |      | <input checked="" type="radio"/> Yes <b>1</b> | <input type="radio"/> No <b>?</b> |
| Calculate fever incidence separately for endemic and epidemic areas |      | <input checked="" type="radio"/> Yes <b>2</b> | <input type="radio"/> No <b>?</b> |
| <b>Endemic</b>  |      |   |                                   |
| <i>Estimated annual number of fevers per person per year:</i>       |      | Country Total                                 |                                   |
| <b>Children Less than 1:</b>  |      | <i>Number</i>                                 |                                   |
| Current Fever Pattern   |      | 11.557  | <b>3</b>                          |
|   | 1    | <i>Number</i>                                 | <i>Percent</i>                    |
|   | 2007 | 6.08  | 47% <b>4</b>                      |
|   | 2008 | 6.01  | 1%                                |
|   | 2009 | 5.94  | 1%                                |
|   | 2010 | 5.87  | 1%                                |
|   | 2011 | 5.80  | 1%                                |

**1. Projecting fever rates into the future:** If you select “Yes” for this option, you can enter changing fever rates into the future. For example, if you are considering scaling-up the use of ITNs, it can be expected that their use will lower the rate of fevers. This fever reduction rate should be entered separately for each age group (see #4 below). If you select “No”, then the model assumes that the current fever rate will apply for all the years of the cost projection.

**2. Entering data separately for endemic and epidemic areas:** Similarly, you can enter the number of fevers separately for endemic and epidemic areas. Fevers requiring malarial drugs are inherently unpredictable in epidemic areas. This can be addressed by averaging over time (e.g., if an epidemic occurs roughly every 5 years, divide the number of fevers in an epidemic year by 5, or by selecting “yes” to #1 above and entering the number of fevers every 5<sup>th</sup> year and “0” for the other years).

**3. Current number of fevers per year:** This reflects the number of fever, as per the treatment seeking patterns listed in step 1 on this sheet (see Box I1). However, you should consider only those fevers that will receive anti-malarial treatment. For example, if doctors routinely treat ALL fever as malarial, then the total fevers could be entered. On the other hand, there are occasions that a fever is clearly not malarial, even without diagnostic aids; in this case, you should consider a reduction in the current number of fevers.

**4. Projected number of fevers:** As discussed in #1 above, you should enter either: (a.) the number of fevers (in the left column) or (b.) the percentage reduction in the number of fevers (in the right column, which will automatically update the number of

fevers in the left column **if** you have not typed in the left column). NOTE: the model works off of the left column; this column has to be correct for the model to work correctly. The default formula considers the following:

$$\%RF = \%IC * PFM * RMC$$

Where:

%RF = Percentage reduction in the number of fevers

%IC = Percentage increase in the coverage of ITNs in the year under consideration

PFM = Number of fevers that are malarial (default value of 50%)

RMC = Reduction in number of malaria cases among people using ITNs (default value of 48%)

In addition, the first row in each age category considers that 33% of fevers presenting at health facilities would be considered non-malarial even without the aid of diagnostic aids.

**Box 44: Entering Use of Diagnostics**

| Diagnostics   |                              |                              |                      |
|---|------------------------------|------------------------------|----------------------|
| <i>Current type of diagnostics used:</i>  |                              |                              |                      |
| <i>Include target goals for diagnostic use:</i> <input type="radio"/> Yes <input checked="" type="radio"/> No <b>1.</b> |                              |                              |                      |
|   | <i>Children Less than 1:</i> | <i>Children Ages 1 to 4:</i> |                      |
| Proportion of children using microscopy:  | 16%                          | 16%                          | <b>2.</b>            |
| Proportion of children using antigen test   | 4%                           | 4%                           |                      |
| Proportion of children using antibody test  | 0%                           | 0%                           |                      |
|   | <i>Microscopy</i>            | <i>Antigen Test</i>          | <i>Antibody Test</i> |
| Reduction in treatment due to diagnostic tests:   | 0%                           | 0%                           | 0%                   |
|   | <b>3.</b>                    |                              |                      |

**1. Option to include scale-up of the use of diagnostics:** If you select “Yes” for this option, you can enter coverage goals for the use of diagnostics in the future. These goals are entered in the same way that coverage goals are entered in the “Goals” worksheet. This diagnostic use should be entered separately for each type of diagnostic aid. If you select “No”, then the model assumes that the current proportion of cases using diagnostics will apply for all the years of the cost projection.

**2. Diagnostic use patterns:** Enter the proportion of patients (by age group) presenting at health facilities that are diagnosed with the help of a diagnostic test. This section allows for three different kinds of tests: microscopy, antigen rapid tests, and antibody tests.

**3. The impact of diagnostics on treatment rates:** Enter in this row the percentage of cases that receive a diagnostic test, are shown to not have a malarial fever, and thus are not given anti-malarial drugs.

## Appendix J: Use of the Community/Home-based Care Worksheet

The community/home-based care worksheet reflects the costs of treating patients IN THE COMMUNITY—that is, not at a health facility. It is important to keep this factor in mind when setting coverage goals; further scale-up at the community level may be more realistic unless scale-up of malaria case management is accompanied by concurrent efforts to change the factors that affect patients’ demand for services at health centres. However, patients that currently seek care at health facilities are not likely to switch to or accept treatment from, e.g., community health workers, and task shifting from health facilities to community based treatment also needs to be considered carefully before being incorporated into scale-up coverage goals.

This worksheet is entered in the same manner as the “anti-malarial treatment” worksheet, as described above. The one major difference, which allows you not to enter the same data twice, is described in Box J1.

### Box 45: Model Consistency for Care Seeking Behaviour and Treatment Need

**Step 1: Determine Current Health Seeking Behavior**

Use health seeking behavior as calculated in Anti-malarial Treatment:       Yes     No

---

1.

**1. Using data in the Anti-malarial Treatment sheet:** Much of the data at the beginning of this sheet repeats data from the Anti-Malarial Treatment sheet. If you ARE NOT calculating the costs of anti-malarial case management at health facilities, then you will **need** to enter the data here; in this situation click “No”. However, if you ARE the costs of anti-malarial case management at health facilities, then you do not need to enter the data a second time for the model to work. In fact, it is better, for consistency sake, to have the same data in both sheets. In order for this function to work, **FIRST** complete Steps 1 and 2 on the Anti-malarial treatment sheet. **THEN**, come to this sheet, click “No”, and **THEN** click “Yes”. This will tell the model to update the data for the calculation of this sheet. **NOTE** that if you make any changes to Steps 1 and 2 in the Anti-malarial treatment worksheet, then you have to come to this sheet and repeat the process of clicking “No” and then “Yes” in order to ensure the data in this sheet is fully updated.

## Appendix K: Determining Complicated Malaria Rates

The complicated malaria sheet uses many of the techniques and wording that should be familiar to you from previous sheets. Further explanations of selected areas of the worksheet are shown in Box K1 and K2 below.

### Box 46: Entering Treatment Failure Rates

The first part of step 3 requires you to assess the extent to which first line treatments fail, and the costs for the management of treatment failure (data entry follows the same pattern as described in Section 2.5.2.5 and Box I3, with additional considerations detailed here).

|   | Children Less than 1: | Children Ages 1 to 4: |
|---|-----------------------|-----------------------|
| First line treatment failure rate (projected, with drug selected) | 24%                   | 24%                   |

**1. Failure rates of first line treatment:** Enter the percentage of people that, after taking first line drugs, still are presenting a malarial fever, but do not warrant hospitalization (which is covered in Step 4). Note that you should enter the anticipated failure rate for the drug you will be using; e.g., if you are switching from a drug with high rates of resistance to a new drug, the treatment failure rate can be expected to drop substantially (to 5% or less).

### Box 47: Determining the Number of Complicated Fevers

|   | Children Less than 1: | Children Ages 1 to 4: | People Ages 5 to 14: | People Ages 15 +: |
|---|-----------------------|-----------------------|----------------------|-------------------|
| <b>Percentage of Cases hospitalized:</b>                            |                       |                       |                      |                   |
| Current:  | 1%                    | 1%                    | 1%                   | 1%                |
| Projected in epidemic areas:  | 1.3%                  | 1.3%                  | 1.3%                 | 1.3%              |
| Projected in endemic areas:   | 1.3%                  | 1.3%                  | 1.3%                 | 1.3%              |
| <b>Percentage of Cases Needing Rectal Artesunate:</b>               |                       |                       |                      |                   |
| Percentage of <b>Complicated</b> Cases Requiring Rectal Artesunate: | 5%                    | 5%                    | 5%                   | 5%                |
| Cost of Rectal Artesunate (US\$)                                    | 0.41                  | 0.41                  | 0.41                 | 0.41              |
| <b>Average Length of Stay (days):</b>                               | 5                     | 5                     | 5                    | 5                 |

**1. Hospitalization Rates:** Enter the percentage of **FEVERS** that progress into complicated malaria, by age group here. The three rows represent: the current percentage of fevers in the population living in endemic areas that progress to complicated malaria, the second row represents the projected percentage of fevers that

progress to complicated malaria, which allows you to adjust for (a) increased case finding and/or (b) effects of changing drug regimes, and the third row is the same except for here you should enter the percentage in epidemics.

**2. Diagnostic use patterns:** Enter the percentage of complicated cases presenting at hospitals that require rectal artesunate, and the cost of rectal artesunate per treatment episode for those requiring treatment.

**3. The impact of diagnostics on treatment rates:** Enter the average length of stay (in-patient days). Note that this does not directly figure into the costs presented in this sheet since it counts as a 'health system' costs and not as commodities. You can include the costs for inpatient days in the "Human Resources & Facilities" worksheet.

### **Appendix L: Special Considerations for the Refugee & IDP Worksheet**

The Refugee and IDP worksheet requires separate entry of demography and fever rates. The population and age structure of refugees and IDPs must be determined separately since it is a special population. Similarly, the living conditions of these populations often mean that they have a unique epidemiological profile, which must be accounted for when calculating the costs for this population. Entry of population figures is detailed in Box L1, while entry of fever rates is detailed in Box L2.

Also consider that interventions cannot be 'unselected' from this worksheet. If an intervention is present on the worksheet but will not be implemented, ensure that all the price data is entered as "0" so that no costs will be recorded for that intervention. Check this by going to the Refugee/IDP results worksheet and ascertaining that the row next to the intervention you do not want to cost does not have any costs.

The remainder of the sheet is simplified when compared with the worksheets for the individual interventions; this is both a reflection of the uncertainty of refugee and IDP situations (making detailed costing projections difficult) and the, generally, small populations (making detailed costing a large effort for an overall small change in the cost projections). However, if more detailed estimates are desired, then the user should save a separate copy of the Malaria Cost Estimation tool under a different name, enter the refugee/IDP population in the demography worksheet and proceed to cost each intervention separately.

Finally note that this model does not allow for the costing of health infrastructure, such as human resources or clinics, needed for the refugees/IDPs. The model assumes that some sort of medical response has already taken place and the basic health infrastructure needed to deliver the interventions is already available; it simply costs the commodities that are needed for a comprehensive anti-malaria programme.

**Box 48: Entering the Population in Refugee/IDP situations**

| Step 1: Determine coverage & refugees at risk |                             |             |
|---|-----------------------------|-------------|
| Coverage:                                     | <i>Numbers/<br/>figures</i> | <i>Year</i> |
| Total refugee population                      | 1. 108,000                  | 2004        |
| Population Less than 1                        | 5%                          | 2004        |
| Population Ages 1 to 4                        | 2. 16%                      | 2004        |
| Population Ages 5 to 6                        | 4%                          | 2004        |
| Population Ages 5 to 14                       | 26%                         | 2004        |
| Population Ages 15 +                          | 50%                         | 2004        |
| Proportion of population women                | 3. 65%                      | 2004        |
| Proportion of population men                  | 35%                         | 2004        |
| Population Less than 1                        | 4,959                       | 2004        |
| Population Ages 1 to 4                        | 17,507                      | 2004        |
| Population Ages 5 to 6                        | 4. 3,866                    | 2004        |
| Population Ages 5 to 14                       | 28,028                      | 2004        |
| Population Ages 15 +                          | 53,640                      | 2004        |
| Women population                              | 70,200                      | 2004        |
| Men population                                | 37,800                      | 2004        |
| Annual Rate of Population Growth:             | 5. 0%                       |             |
| Crude Birth Rate (per 1,000 people):          | 50.7                        |             |
| Maternal Mortality:                           | 2.4%                        |             |
| Years to Project Costs:                       | 6. 5                        |             |

**1. Total Population:** Enter the total population of the refugees/IDPs under consideration. To the extent possible, these should be people *additional* to the population listed in the “Demography” worksheet. Enter the year the data represents; although this is not used in the costing model it is a useful note to yourself if you want to update the cost estimates at a future date.

**2. Population Profile:** Enter the percentage of the population that falls into each age category. The age categories reflect those entered in the “Demography” worksheet.

**3. Sex:** Enter the percentage of the refugee/IDP population that is male and female. This is used in determining the number of pregnant women.

**4. Population Profile Results:** Below the data entry area is a section which shows the results, in terms of raw numbers, of the data you have entered above. It can be used to validate the data entered above.

**5. Demographic Variables:** Enter the population growth rate (based either on past trends or assumptions from other, previous experience with refugee populations), the

crude birth rate (if unknown, use the crude birth rate for the country as a whole), and the maternal mortality rate.

**6. Years to Project Costs:** This sheet only allows costs to be projected UP TO 5 YEARS since refugee/IDP situations are generally unstable and subject to very rapid and considerable change.

**Box 49: Entering the Number of Fevers in Refugee/IDP Situations**

| Step 2: Determine Number of Fevers                                  |                             |                                      |
|---|-----------------------------|--------------------------------------|
| <i>Estimated annual number of fevers per refugee per year:</i>      | <b>Numbers/<br/>figures</b> |                                      |
| Proportion of population Less than 1                                | 2                           |                                      |
| Proportion of population Ages 1 to 4                                | 2                           |                                      |
| Proportion of population Ages 5 to 6                                | 2                           |                                      |
| Proportion of population Ages 5 to 14                               | 1                           |                                      |
| Proportion of population Ages 15 +                                  | 1                           |                                      |
|   |                             |                                      |
| Decline in Fevers in Year 2 and after due to Preventive activities: | 24%                         |                                      |
| Operation Coverage:   | 100%                        |                                      |
| <i>Estimated annual number of fevers:</i>                           | <b>Year 1</b>               | <b>Year 2 &amp; Subsequent years</b> |
| Proportion of population Less than 1                                | 9,918                       | 7,537                                |
| Proportion of population Ages 1 to 4                                | 35,015                      | 26,611                               |
| Proportion of population Ages 5 to 6                                | 7,732                       | 5,876                                |
| Proportion of population Ages 5 to 14                               | 28,028                      | 21,301                               |
| Proportion of population Ages 15 +                                  | 53,640                      | 40,766                               |

**1. Number of Fevers Requiring Anti-Malarial Treatment:** Enter the number of fevers experienced by refugee/IDP populations per year, by age category. If unknown, use data from populations living in areas around where the refugees/IDPs are living.

**2. Effect of Preventive Activities:** Enter the percentage decline due to preventive activities. The default formula assumes currently there is no coverage of insecticide treated materials, and that in the second year, 100% coverage will be achieved. This assumption should be modified to suit the particular situation for which you are costing. Note that this sheet only allows a one time drop in the fever rate (during the second year of the cost projection), and does not allow for time trends.

**3. Coverage:** Enter the expected percentage of fevers that need anti-malarial treatment that you expect WILL receive treatment.

**4. Results:** Below the data entry area is a section which shows the results, in terms of raw numbers, of the data you have entered above. It can be used to validate the data entered above, and list the number of fevers expected in the first year of activities, and for the subsequent years.

## Appendix M: The Human Resources and Facilities Worksheet

Human resources are, for purposes of this tool, are divided into 4 categories:

1. Staff delivering preventive interventions outside of health facilities;
2. Staff delivering preventive or curative interventions within health facilities;
3. Programme staff responsible for overseeing the operation of the roll-back malaria programme [further divided into staff at various levels of government]; and
4. Trainers.

Each category is further described below. Obviously, there is some ambiguity and overlap in these categories. In particular, often programme staff will be responsible for training, or staff in health facilities will also be responsible for preventive measures. In other cases, but especially for staff in health facilities, a health-sector wide assessment of the overall human resources and need will be more appropriate than a malaria-specific assessment. Therefore, the best judgement of **where additional resources are most likely to be needed and used by the malaria control programme** should guide users to either include or exclude the different categories of staff.

Staff delivering preventive interventions outside of health facilities: This category reflects activities associated with distribution or re-treatment of ITNs, IRS, and Larviciding. IPT is also included in this category as a preventive intervention, although it occurs [usually] in health facilities. Again, the important issue to consider, especially for ITNs and IPT, is to what degree additional staffing is actually needed. If, for example, ITN delivery is to be piggy-backed on vaccination campaigns, delivered during antenatal care visits, etc. then very little staff will be needed to *deliver* (as opposed to manage) the programme, and no costs would be included here. Boxes M1, M2, M3, and M4 give further details on how to enter costs for this category.

Staff delivering curative interventions within health facilities: If you choose, you can enter the costs for health facility visits. In most cases, this will be inappropriate. Boxes M5 and M6 give more details.

*Additionally, it should be noted that the costs for developing and maintaining a cadre of trained and motivated community health workers, such as may be used for community/home based management of malaria is not included in this tool.*

Programme staff responsible for overseeing the operation of the roll-back malaria programme: Most countries where malaria is a serious health problem have programme staff that help to manage, supervise, etc the programme from various levels of government (depending on the size of the country). As a programme is scaled-up it is likely that the number and capacity of these staff will need to grow to efficiently and effectively manage the programme. This tool allows you to enter the staff/consultants needed, as well as cost the supplies, equipment, etc. needed to support the staff. Boxes M7, M8, and M9 provide details on how to do this.

Trainers: In addition to programme staff, significant levels of training are usually necessary to scale-up programmes. The cost of trainers' salaries and supplies can be included here (the cost of their travel is included on the **Training** Worksheet) if it has not been included above.

**Box 50: Human resources for Bednet distribution and Re-treatment**

**(A.) Insecticide Treated Nets**

---

**Net Distribution & Retreatment**

Retreatment is supervised or done by a:  (Click on Cell)

1. A Community Health Worker can treat:  Nets per **day** (country average).

2. A Community Health Worker works, on average:  days per **year** (country average).

3. A Community Health Worker distributes nets, on average:  days per **year** (country average).

---

**Contracts**

A Community Health Worker earns (contracts/honorariums), on average:  per year (country average).

A Community Health Worker travels, on average:  days per year (country average). 4.

The average per diem for travel of a Community Health Worker is:  per day (country average).

---

**Current Availability**

The current number of Community Health Workers trained for ITN retreatment is:  for the whole country. 5.

Include cost for at least one Community Health Worker in every district:

**1. Re-treatment worker and work rate:** Enter the class of worker that is responsible for re-treatment and distribution of nets in the top box; this will automatically be reflected in the lines below. Next, enter the number of nets that a worker will re-treat per day, on average (if net re-treatment is to be done).

**2. Working days per year:** Enter the number of days that a worker participates in ITN related activities in one year (related to the average entered in step #1).

**3. Distribution days per year:** These are days that are spent distributing nets that are ADDITIONAL to the days listed under re-treatment (step #2). If workers do both activities on the same days, then the average number of nets distributed per day (entered in step #1) should reflect their need to do both activities.

**4. Payment of workers:** Enter the monetary equivalent to the remuneration a worker receives in a year, on average. Next, enter the number days that a worker travels (e.g., for net distribution) *for which the worker will receive per diems*, and finally enter the per diem rate for the workers (average).

**5. Number of workers needed:** The model will calculate, based on the information provided above, how many workers are needed. This section allows you to enter the number of workers that are currently working so that the incremental need can be calculated. Additionally, if you want to have at least one worker in every district, no matter the work load, select “yes” after “include cost for at least one worker in every district:”. If you want the number to be determined solely on the need calculation, then enter “no”. Note that the number of districts corresponds to what has been entered in the **Base Parameters** worksheet.

### Box 51: Human resources for IRS

| (B.) Indoor Residual Spraying       |  |
|-------------------------------------|--|
| <b>Spraying</b>                     |  |
| 1.                                  | A spraying team consists of: <input type="text" value="5"/> people.  |
|                                     | A spray team can spray: <input type="text" value="26"/> houses per day (country average).  |
|                                     | Spraying is done <input type="text" value="12"/> days per year (country average).  |
|                                     | Each Spray team has: <input type="text" value="3.3"/> spray pumps.   |
| <hr/>                               |  |
| <b>Contracts and other expenses</b> |  |
| 2.                                  | A sprayer is paid (including travel per diems and Contract Amount): <input type="text"/> per day (country average).  |
|                                     | The cost of protective clothing is: <input type="text"/> per sprayer (country average).  |
|                                     | The useful life of protective clothing is: <input type="text"/> years (average).   |
|                                     | One supervisor is needed for every: <input type="text"/> spray teams.<br>Supervisors earn (including contracts and per diems): <input type="text"/> per day. |
| <hr/>                               |  |
| <b>Current Availability</b>         |  |
| 3.                                  | Sprayers need training every year: <input type="text" value="Yes"/>  |
|                                     | Supervisors need training every year: <input type="text" value="Yes"/>   |
| 4.                                  | Include cost for at least one spray team in every district: <input type="text" value="Yes"/>   |

**1. Spraying team:** Enter the number of people in a spraying team that get paid. Then enter the average number of houses that are sprayed by one spray team in one day. The following information is imported from the **IRS** worksheet for your inspection. If you do not think this information is correct, you should return to the **IRS** worksheet and adjust your inputs there; this will allow the costing model to maintain consistency throughout its estimation.

**2. Cost of spraying team:** These boxes allow you to enter how much a spray person is paid per day (all inclusive of travel, etc.), the cost of protective clothing and how often it is replaced (if new clothing is bought every year, e.g., then enter "1" after "The useful life of protective clothing is:"). Finally, enter the number of spray teams one supervisor can oversee, and a supervisors pay (all inclusive as well).

**3. Training of spraying team:** Enter whether training will have to occur on a yearly basis ("yes") or an irregular basis ("no").

**4. Inclusion of fixed costs:** If you want to have at least one spray team in every district, no matter the work load, select "yes" after "include cost for at least one spray team in every district:". If you want the number to be determined solely on the need calculation, then enter "no". Note that the number of districts corresponds to what has been entered in the **Base Parameters** worksheet.

**Box 52: Human resources for IPT**

|  |                                   |
|--|-----------------------------------|
| (C.) IPT   |                                   |
| Cost for Pre-Natal Consultations   |                                   |
| Average Cost of Pre-Natal Consultation:<br>Average length of Pre-Natal Consultation (minutes):<br>Average Number of Pre-Natal Visits per Pregnancy:<br>Proportion of Pre-Natal Consultation attributable to IPT: |                                   |
|  | (Click on Cell)<br>Important Note |

**1. Cost and length of visit:** Enter the average cost or estimated average cost for one ante-natal visit in your country in the first line of this box. This should NOT include the costs for drugs—it should reflect usage of items within a health centre (e.g., staff time and room usage). In the second line, enter the length of one visit (this is not essential for this model to calculate the costs, but is necessary for interaction with the backbone). Finally, enter the average number of ANC visits that include IPT during ONE pregnancy (e.g., enter “2”).

**2. Attributable proportion of visit:** In the first line, you entered the full cost of one ANC visit. In this line, you should enter the proportion of one ANC visit that would be devoted to IPT. For example, if an average ANC visit is 45 minutes and about 5 minutes is spent administering and explaining IPT, then you could enter here 1/9 as an approximation of the proportion of costs attributable to IPT.

**Box 53: Human resources for Larviciding**

|   |  |
|---|--|
| <b>(D.) Larviciding</b>   |  |
| <b>Insecticide Application</b>  |  |
| 1.  | A insecticide application team consists of: <input type="text" value="3"/> people.<br>A team can cover: <input type="text"/> hectares per day (country average).<br>Insecticide application is done <input type="text"/> days per year (country average).<br>Insecticide applicators need protective clothing: <input type="text" value="No"/> |
| <b>Biocide Application</b>  |  |
| 2.  | A biocide application team consists of: <input type="text" value="3"/> people.<br>A team can cover: <input type="text"/> hectares per day (country average).<br>Insecticide application is done <input type="text"/> days per year (country average).  |
| <b>contracts and other expenses</b>   |  |
| 3.  | An applicator is paid (including travel per diems and Contract Amount): <input type="text"/> per day (country average).<br>One supervisor is needed for every: <input type="text"/> application teams. <input type="text" value="4"/> <b>4.</b><br>Supervisors earn (including contracts and per diems): <input type="text"/> per day.         |
| <b>Current Availability</b>   |  |
| 5.  | Applicators need training every year: <input type="text" value="Yes"/>   |
| 6.  | Applicators need training every year: <input type="text" value="Yes"/>   |
| <b>Fish Hatcheries</b>  |  |
| <i>Staff Needed per Hatchery</i>  |  |
| Hatchery Manager<br>Workers<br>Other <please specify><br>Other <please specify> | Number Needed<br><input type="text"/><br><b>7.</b>   |
| <b>Important Note</b><br>(Click on Cell)  |  |
| <i>Staff Contract Amount</i>  |  |
| Hatchery Manager<br>Workers<br>Other <please specify><br>Other <please specify> | Annual Contract Amount<br><input type="text"/><br><b>8.</b>  |

**1. Insecticide Application Teams:** Enter the number of people in a spraying team that get paid. Then enter the average number of hectares that are sprayed by one spray team in one day. Then enter the number of days that a spray team is paid in one year, and indicate if protective clothing needs to be purchased for the spray team.

**2. Biocide Application Teams:** Enter the number of people in an application team that get paid. Then enter the average number of hectares that biocide is applied to by one spray team in one day. Then enter the number of days that a spray team is paid in one year.

**3. Payments:** Enter the amount that a sprayer or biocide applicator is paid for one day's work (all inclusive). This model cannot distinguish salaries for the different types of workers; if they are different, the average of the 2 salaries should be used.

**4. Supervisors:** Enter the number of spray teams one supervisor can oversee, and a supervisors pay (all inclusive as well).

**5. Training of Teams:** Enter whether training will have to occur on a yearly basis ("yes") or an irregular basis ("no").

**6. Training of Supervisors:** Enter whether training of supervisors will have to occur on a yearly basis ("yes") or an irregular basis ("no").

**7. Number of Workers at Hatcheries:** Next to each type of staff, enter the number of workers in a fish hatchery.

**8. Payment to Staff at Hatcheries:** Enter the amount that the different categories of staff are paid for one year's work (all inclusive).

**Box 54: Human resources for Case Management in a Facility**

|   |                                |
|---|--------------------------------|
| <b>(A.) Treatment of Uncomplicated Malaria at Health Facilities</b> |                                |
| <i>Cost for Consultations</i>                                       |                                |
| Average Cost of Initial Consultation:                               | <input type="text" value="5"/> |
| Average Length Initial Consultation (minutes):                      | <input type="text" value="1"/> |
| Average Number of Initial Visits:                                   | <input type="text" value="1"/> |
| Total Cost for Uncomplicated Malaria per patient:                   | <input type="text" value=""/>  |

**1. Cost and length of visit:** Enter the average cost or estimated average cost for one health centre visit in your country in the first line. This should NOT include the costs for drugs or lab tests—it should reflect usage of items within a health centre (e.g., staff time and room usage). In the second line, enter the length of one visit (this is not essential for this model to calculate the costs, but is necessary for interaction with the backbone). Finally, enter the average number of visits per malarial case (e.g., enter "1").

**2. Total Cost of Visits per Malarial Case:** The bottom box shows how much will be costed PER CASE of malaria that is managed in health facilities. If this does not look correct, then adjust the number above.

**Box 55: Human resources for Case Management of Complicated Malaria in a Hospital**

| <b>(C.) Treatment of Complicated Malaria</b> |   |               |                 |               |            |
|--|---|---------------|-----------------|---------------|------------|
| <b>Percentage of Cases hospitalized:</b>     |   | Children <1yr | Children 1-4yrs | Children 5-14 | People >15 |
|  | ① | Current:      | 1%              | 1%            | 1%         |
|  |   | Projected:    | 1.3%            | 1.3%          | 1.3%       |
| <hr/>  |   |               |                 |               |            |
| <i>Cost for Complicated Malaria</i>          |   |               |                 |               |            |
| <b>Hospital Costs</b>                        |   | Children <1yr | Children 1-4yrs | Children 5-14 | People >15 |
| Number of bed days (average):                | ② | 5             | 5               | 5             | 5          |
| Cost per bed day (US\$)                      |   |               |                 |               |            |
| <b>Total Cost of Treatment:</b>              |   | ③             | 0.00            | 0.00          | 0.00       |

**1. Percentage of Cases Hospitalized:** The data in this section are imported from the Complex Malaria worksheet and are provided only for validation reasons. If this data is not correct, please go to the Complex Malaria worksheet (see **Appendix K**) and adjust.

**2. Number of Bed-days and Cost per Bed-Day:** This displays the number of bed-days as entered on the Complicated Malaria Spreadsheet. Bed-day should be defined as the most commonly used billing period in your setting. After entering the number of bed-days, enter the base cost per bed-day—that is, do NOT include the costs of drugs, labs, etc. that are included in the Complex Malaria worksheet, but include ONLY the overhead hospital (“hotel”) bed-day costs and the cost for human resources associated with a bed-day.

**3. Total Costs for Hospitalization:** The last row automatically calculates the hospital costs *per episode* of complex malaria for validation.

**Box 56: Human resources for Malaria Programme Activities**

Establish Current Staff Needs

|  | Number<br>Employed | Yearly<br>Contract<br>Amount | Requires<br>Office<br>Supplies? | Requires<br>Capital<br>Items? |
|--|--------------------|------------------------------|---------------------------------|-------------------------------|
| <b>Programme Management</b>            |                    |                              |                                 |                               |
| 1 Consultant(s)                        | 2 1                | 3 1000                       | Yes                             | Yes                           |
| 1 Manager                              | 2                  |                              | Yes                             | Yes                           |
| 1 Administration Officer               | 2                  |                              | Yes                             | Yes                           |
| Clerical Officer/Administrative Asst.  |                    | 3                            | Yes                             | Yes                           |
| Personnel Secretary/Asst./Receptionist |                    |                              | Yes                             | Yes                           |
| Accountant                             |                    |                              | Yes                             | Yes                           |
| I.T./Computing Officer                 |                    |                              | Yes                             | Yes                           |
| Cleaner                                |                    |                              | No                              | No                            |
| Medical Officer                        |                    |                              | Yes                             | Yes                           |
| Public Health Specialist               |                    |                              |                                 |                               |
| Other <please specify>                 |                    |                              | 4                               | 5                             |
| Other <please specify>                 |                    |                              |                                 |                               |
| Other <please specify>                 |                    |                              |                                 |                               |
| Other <please specify>                 |                    |                              |                                 |                               |

**1. Type of Staff:** The left hand column in this table lists many types of staff. These are sorted into various categories (e.g., Programme Management, Strategic Communication, etc.) by the primary function of the staff. Then, individual titles for the staff are listed. Additionally, you can add more staff titles as appropriate for your setting in areas marked "Other <please specify>". These names are for reference purposes only and will not influence the cost outcomes.

**2. Number of Staff:** Enter in the second column the number of staff for which you want to include the cost of salaries for, etc. **Note** this reflects need in the first year of the costing exercise; however, you may want to exclude current staff numbers since these refer to existing (and NOT incremental) costs.

**3. Salary or Payments to Staff:** Enter the average salary for the type of staff for the level of government under consideration.

**4. Office Supplies:** Enter "yes" if this type of staff typically consumes office supplies (e.g., paper, pens, notepads, etc.); otherwise enter "no".

**5. Office equipment:** Enter "yes" if this type of staff typically uses office equipment (e.g., computer, printer, desk, etc.); otherwise enter "no".

**Box 57: Supplies and equipment for Human Resources**

Annual Cost of Office Supplies (per staff member): 372.74  
 Total Cost of Office Supplies (per year): 372.74 **1.**

**Capital Items**  
*Office Space*  
 Office Space (square meters per staff):  
 Monthly Rental Cost for Office Space (per square meter):  
 Maintenance and Utilities (percentage of annual cost): **2.**

New Office Space will be built: Yes  
 Amount of office space built (square meters):  
 Construction cost (per square meter):  
 Useful life of office buildings (years):  
 Year office space will be built:  
 Maintenance and Utilities (percentage of construction cost): **3.**

| Office Equipment         | Number per Staff | Cost    | Useful Life | Maintenance (% of cost) |
|--------------------------|------------------|---------|-------------|-------------------------|
| Computer:                | 1                | 1581.26 | 5           | 5%                      |
| UPS:                     | 1                | 5000    | 5           | 0%                      |
| Desk:                    | 1                |         | 5           | 1%                      |
| Printer:                 | 1                | 312.85  | 5           | 5%                      |
| E-mail charges (yearly): | 1                |         |             |                         |
| Telephone:               | 1                | 42.92   | 5           | 0%                      |
| Voltage stabilizers:     | 1                | 322.93  | 5           | 5%                      |
| Chair:                   | 2                |         | 5           | 0%                      |
| Shelving:                | 1                |         | 5           | 1%                      |
| Other <please specify>:  |                  |         | <b>7.</b>   | <b>8.</b>               |
| Other <please specify>:  |                  |         |             |                         |
| Other <please specify>:  |                  |         |             |                         |

**4.** **5.** **6.**

**1. Annual cost of office Supplies:** Rather than presenting a detailed list of stationary items, it is generally more correct to look at past budgets to determine an average amount spent per staff on office supplies. Note the number of staff that receive supplies when you are calculating this average should match those that you select “yes” to in column 4 above (Box M7).

**2. Rented Office Space:** If office space is to be costed on a rental basis, fill in this box; otherwise leave it blank. On the three rows, enter the average amount of space used by one staff (note to include things like hallways, stairwells, and other common areas when calculating the average), the rental cost per square meter, and the maintenance and utilities costs as a percentage of the rental costs (if it is not included in the rent, otherwise leave the last line blank).

**3. Building New Office Space:** If new office space will be built to accommodate the new staff. On the first row enter “yes”. On the next five rows, enter the amount of space that will be built (note to include things like hallways, stairwells, and other common areas when calculating the average), the construction (including land) cost per square meter, the useful life of a building, When construction will be paid for (year), and the maintenance and utilities costs as a percentage of the construction costs.

**4. Office Equipment:** The left hand column in this table lists many types of office equipment. Additionally, you can add more staff titles as appropriate for your setting in areas marked “Other <please specify>”. These names are for reference purposes only and will not influence the cost outcomes.

**5. Amount of Equipment:** Enter in the second column the number of equipment PER STAFF for which you want to include the cost.

**6. Cost of Equipment:** Enter in the third column the unit price (that is, cost for 1 item) of the equipment type.

**7. How Long Equipment is Used:** Enter the average number of years that a particular type of equipment is used for.

**8. Maintenance Costs for Equipment:** Enter the yearly maintenance cost of equipment as a percentage of the unit price entered in the third column. Note, for items like computers, this will include software and anti-virus upgrades, etc. This can be based on expenditures in past budgets.

**Box 58: Human resources in the Future**

**Malaria Specific Project Staff (Non-Civil Service)**

|  | 2007 | 2008 | 2009 | 2010 | 2011 |
|--|------|------|------|------|------|
| <b>Programme Management</b>            |      |      |      |      |      |
| Consultant(s)                          |      |      |      |      |      |
| Manager                                |      |      |      |      |      |
| Administration Officer                 | 1    |      |      |      |      |
| Clerical Officer/Administrative Asst.  |      |      |      |      |      |
| Personnel Secretary/Asst./Receptionist |      |      |      |      |      |
| Accountant                             |      |      |      |      |      |
| I.T./Computing Officer                 |      |      |      |      |      |
| Cleaner                                |      |      |      |      |      |
| Medical Officer                        |      |      |      |      |      |
| Public Health Specialist               |      |      |      |      |      |
| Other <please specify>                 |      |      |      |      |      |
| Other <please specify>                 |      |      |      |      |      |
| Other <please specify>                 |      |      |      |      |      |
| Other <please specify>                 |      |      |      |      |      |

**1. Number of Staff Needed:** This section allows you to plan for and cost human resources needed in future years (for example, to coincide with major policy changes). Simply enter the number of staff needed next to the type of staff in the year listed across the top of the table. The tool will automatically cost stationary and office supplies based on the entries in the previous section (see Box M8). You can enter staff for a shorter number of years than the total. For example, you could enter “1” consultant in year 2007, and “-1” in 2009, in which case the consultant would be costed for years 2007 and 2008. **Note**, however, that if you enter a negative number you **must** ensure that there is a positive number previously, or the model will count the costs as negative, which would indeed be a strange result. **Also note** that the cost of equipment maintenance will still be included, and that equipment replacement will still be considered, since it is assumed other staff will continue to use the equipment.

**Box 59: Determining Need for Human resources for Training**

| (A.) Estimate number of trainers needed |                    |  |   |
|---|--------------------|--|---|
| Estimated Number of Classroom days for: |                    |  |   |
|   | <i>First Year:</i> |  |   |
| Preventive Activities:                  |                    |  | 0   |
| Treatment Activities:                   |                    |  | 0   |
| Refugees/IDPs:                          | ①                  |  | 0   |
| Support Activities:                     |                    |  | 0   |
| Trainer Availability:                   |                    |  |   |
|   |                    | <i>Number of days worked per year (average):</i>       | <i>Estimated Number of Trainers Needed:</i> |
|   |                    | <i>Proportion of time spent teaching or traveling:</i> |   |
| Preventive Activities:                  | ②                  | 50%  | 250   |
| Treatment Activities:                   |                    | 50%  | 250   |
| Refugees/IDPs:                          | ③                  | 50%  | 250   |
| Support Activities:                     |                    | 50%  | 250   |
|   |                    | ④  | ⑤   |

**1. Number of Training Days Needed:** This data is summarized from the Training Worksheet (see **Appendix N**) and shows the number of days spent training staff *in the first year of the projected budget*. Thus, in order to calculate the need for trainers, you have to complete the Training Worksheet first. As you make changes to the training worksheet, however, the results from this page will automatically update.

**2. Training Type:** The training programmes are divided into the 4 broad classifications used in the Training Worksheet. If the same trainers cover all the different training areas, then the data entered for in columns 1 and 2 should be identical.

**3. Proportion of Time Trainers Spend Training:** Enter the proportion of time spent in actual training. For example, if trainers, on average, spend 50% of their time in training, with the remainder of their time spent in office preparing for training, then you would enter 50% here.

**4. Working Days per Year:** Enter the average number of days a trainer works, per year.

**5. Number of Trainers Needed:** The number of trainers needed is automatically calculated based on the numbers you entered above, and the number of training days. However, you may wish to adjust this automatic calculation if, for example, there are already trainers on staff and a lower number of trainers will need to be hired that the calculation indicates. The total number of trainers assumed by this model to be hired is the sum of the four rows.

**Box 60: Costing trainers**

| <b>(B.) Estimate cost for trainers</b> |                                       |  |  |
|--|---------------------------------------|--|--|
|  | <i>Yearly<br/>Contract<br/>Amount</i> | <i>Requires<br/>Office<br/>Supplies?</i> | <i>Requires<br/>Capital<br/>Items?</i> |
| Trainer:                               | ①                                     | ②  | ③                                      |

- 1. Salary or Payment to Trainers:** Enter the average salary for trainers, all inclusive.
- 2. Office Supplies for Trainers:** Enter “yes” if trainers typically consumes office supplies (e.g., paper, pens, notepads, etc.); otherwise enter “no”.
- 3. Office Equipment for Trainers:** Enter “yes” if this type of staff typically uses office equipment (e.g., computer, printer, desk, etc.); otherwise enter “no”.

**Note** that the remainder of this section should be filled in as detailed in boxes M8 and M9.

## Appendix N: The Training Worksheet

Training is, for purposes of this tool, are divided into 5 categories:

1. The development of training materials and programmes;
2. Training for preventive activities;
3. Training for treatment activities;
4. Training in refugee/IDP situations; and
5. Training for activities that support the scale-up of malaria control programmes.

Training is almost always a critical aspect of scaling up. While the classifications used above may not match exactly how training is done in your country, further options under each classification should allow you to make use of the sheet. For example, if you perform integrated training of health workers that covers both preventive and curative activities, you can select Classification 3, and then enter the costs for and “integrated training package”. In the end, the name may not be precisely correct, but the costs will correspond to the cost you expect to incur—that is, the training of health workers in health facilities.

Each of the above classifications has several further classifications underneath; it is possible to cost over 20 separate training programmes in this model (or, on the other extreme, to cost only 1 integrated package). Again, while the names in the model may not always match up with the type of training you plan to do, this model should be able to be used to cost a wide range of training activities associated with your malaria control programme.

The development of training materials and programmes is usually required during scale-up since activities are usually either introduced new, or policy changes (such as a new drug regimen) are implemented. Reaching consensus on new protocols, the development of curricula, writing and producing new training materials (which in budgetary terms are translated into the form of meetings, etc.) are included in this section. Boxes N1, N2, N3, and N4 give more details on how to fill in this category of costs.

The remaining four sections all allow you to select the type of training courses you want to include the costs for. The actual costing of a training are all laid out in the same fashion, which is detailed in Box N5.

**Box 61: Determining the Number of Training Programmes Developed, by year**

Enter Number of Trainings Programmes Developed by Year:

|      |   |
|------|---|
| 2007 | 1 |
| 2008 |   |
| 2009 | 1 |
| 2010 |   |
| 2011 |   |
| 2012 |   |
| 2013 |   |
| 2014 |   |
| 2015 |   |
| 2016 |   |

**1. Projecting the Number of Training Programmes Developed:** Rather than costing the development of every single training programme separately, this model asks you to enter the average or typical cost of developing a training programme. It then includes those average costs in every year that you plan to develop or review and redevelop a training programme. This section allows you to enter those planned developments or reviews and redevelopment by entering the number of training programmes you plan to develop next to the year.

**Box 62: Determining the Average Cost of a Preparatory Meeting**

**(A.) Preparatory Meeting:** Formulation and review of training strategy (Include only applicable costs)

|  |                                 |   |
|--|---------------------------------|---|
| Number of Preparatory Meetings:                        | <input type="text" value="10"/> | 1 |
| Length of Strategic Meetings (average number of days): | <input type="text" value="10"/> |   |
| Number of local experts in attendance:                 | <input type="text"/>            | 2 |
| Per Diems:   | <input type="text"/>            |   |
| Travel Costs:  | <input type="text"/>            |   |
| Number of extra-national experts in attendance:        | <input type="text"/>            | 3 |
| Per Diems:   | <input type="text"/>            |   |
| Travel Costs:  | <input type="text"/>            |   |
| Cost of Meeting Room Rental (per day):                 | <input type="text"/>            | 4 |
| Cost of other support services (per day):              | <input type="text"/>            | 5 |
| Total Cost of a strategic meeting (average):           | <input type="text" value="0"/>  | 6 |

**1. Number and Length of Preparatory Meetings:** On the first row, indicate how many meetings are needed to reach consensus on the need for a new or reviewed training strategy, and to formulate a work plan. On the second line, indicate the average length, in days, that these meetings are held for.

**2. Payments to ‘Local Experts’:** Entering meeting costs throughout this model allows for entering costs for 2 types of staff, which are labelled ‘local experts’ and ‘extra-national experts’. The names, however, are less important than to consider if there are

in fact 2 kinds of costs (e.g., costs for national level experts, and costs for local, or district, level participants). This section allows you to enter the number, per-diem, and travel payments for one kind of staff that attend the meetings.

**3. Payments to 'Extra-nationals':** As described in point two above, this section allows you to enter the number, per-diem, and travel payments for a second kind of staff that attend the meetings.

**4. Meeting Room Rental:** If meetings are usually held in an area where you have to pay for the meeting room then you should enter the daily rental rate here (for example, some hotels charge for the use of meeting rooms, while others will include a meeting room if a certain number of hotel rooms are booked. In the first case, costs will be included; in the second, they will not).

**5. Support Services:** Include here ALL other costs (average per meeting) for holding meetings (e.g., stationary, food, secretarial support) that are normally paid for in your setting but are not covered in the above categories.

**6. Total Costs PER Meeting:** The bottom box shows the total, average cost for ONE meeting. If this cost is already known, you can skip steps 2 through 5, and simply enter that number here.

**Box 63: Determining the Average Costs of Reviewing Training Materials**

| <b>(B.) Development or Review of training materials (Include only applicable costs)</b> |                      |   |  |                                  |                              |
|---|----------------------|---|--|----------------------------------|------------------------------|
| <i>Establish prices:</i>  |                      |   |  |                                  |                              |
| Local Expert Per Diems:   | <input type="text"/> |   |  |                                  |                              |
| Local Expert Travel Costs:  | <input type="text"/> |   |  |                                  |                              |
| Per Diems for extra-nationals:  | <input type="text"/> |   |  | <b>1.</b>                        |                              |
| Travel Costs for extra-nationals:   | <input type="text"/> |   |  |                                  |                              |
| Cost of Meeting Room Rental (per day):  | <input type="text"/> |   |  |                                  |                              |
| Cost of other support services (per day):   | <input type="text"/> |   |  |                                  |                              |
| Consultancy Daily Honorarium:   | <input type="text"/> |   |  | <b>2.</b>                        |                              |
| Consultancy Travel Expenses:  | <input type="text"/> |   |  |                                  |                              |
|   |                      | <i>Number of Local Experts Attending Meetings</i> | <i>Number of Extra-National Experts Attending Meetings</i> | <i>Number of Consultant Days</i> | <i>Cost of Packet Layout</i> |
| <i>Establish costs for training material development:</i>                               | <input type="text"/> | <input type="text"/>                              | <input type="text"/>                                       | <input type="text"/>             | <input type="text"/>         |
| <i>Average need for development of a training module:</i>                               | <input type="text"/> | <input type="text"/>                              | <input type="text"/>                                       | <input type="text"/>             | <input type="text"/>         |

**1. Establishing Base-line Prices:** The first three boxes establish the average costs to be used throughout the costing of Reviewing Training Materials. For more information see point 2,3,4, and 5 in Box N2. Travel costs should reflect the total travel costs for all of the meetings that are usually held (e.g., if normally two meetings are held, this number should reflect the travel costs for both meetings).

**2. Costing Consultants:** Often, consultants or other professionals from outside the government are hired to review evidence, write training packets, etc. Enter here the daily rate normally charged by such consultants, and also the cost paid to them for travel (to attend meetings, present their findings, etc.). The travel cost entered should be the average travel cost PER DAY that a consultant is hired.

**3. Number of Days of Meetings:** The total number of days that meetings are usually held (even if there is more than one meeting, the total days from the separate meetings should be added together). Also enter the number of 'experts' that are paid (through per diem or honorarium) to attend the meetings.

**4. Number of Consultant Days:** Enter the number of consultant-days usually employed for this process (e.g., if 2 consultants are normally hired for 10 days each, you should enter 20 [=2\*10] days here).

**5. Packet Design and Layout:** Enter the costs for designing/laying out the materials to be used for training.

**Box 64: Including Other Activities**

**(F.) Other Activities:** Enter Total Costs for Other Activities Associated with the Development of Training Materials

Other Activities 1 <Please Specify>:  **1**  
Other Activities 2 <Please Specify>:

**1. Entering the Total Cost for Other Activities:** Every country has a different process of developing training materials. While the above steps try to capture many of the common activities involved, most countries will also have additional or different activities associated with the development of training materials. This space allows you to consider these costs; however, they do not allow detailed budgeting. Thus, you should estimate the total costs of these activities, and enter them here.

**Box 65: Determining the Cost for a Specific Training**

**Integrated Training Package for Prevention:**

Number of health facilities (HC) in your country:  this equals  of facilities  
 Number of health facilities (HC) at which training has been implemented:   
 Average number of workers trained per facility:   
 Total Number of Health workers needing training:  this equals  of workers  
 Number of workers trained:   
 Number of workers still needing training:   
 Target year in which training will be completed:   
 Staff receive Refresher training after  years

|   | Number of Days per Training Class | Size of Class                  | Per Diem Rate (Students):      | Average Travel Costs:          | Cost of Training Packet (per student): | Classroom costs, per day       |
|---|-----------------------------------|--------------------------------|--------------------------------|--------------------------------|--|--------------------------------|
| <i>Establish student costs for initial training sessions:</i>   | <input type="text" value="0"/>    | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/>         | <input type="text" value="0"/> |
| <i>Establish student costs for REFRESHER training sessions:</i> | <input type="text" value="0"/>    | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/>         | <input type="text" value="0"/> |

|   | Per Diem Rate                  | Hotel rate                     | Travel Costs (Total for All Staff) | Number needed per Training Session: |
|---|--------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| <i>Establish trainer costs for training sessions:</i> | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>      |
| Trainers  | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>      |
| Resource Staff  | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>      |
| Drivers   | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>      |

|   | Average number of training sessions per day | Lecturer rate per session      |
|---|---|--------------------------------|
| <i>Establish costs for outside lecturers:</i> | <input type="text" value="0"/>              | <input type="text" value="0"/> |
| Outside Lecturers                             | <input type="text" value="0"/>              | <input type="text" value="0"/> |

|  | Average number of trainees per follow-up visit | Average number of days per Follow-up Session | Per diem                       | Travel Costs (Total for All Staff) | Average number per Follow-up Session |
|--|--|--|--------------------------------|------------------------------------|--------------------------------------|
| <i>Establish costs for follow-up sessions:</i> | <input type="text" value="0"/>                 | <input type="text" value="0"/>               | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>       |
| Trainers                                       | <input type="text" value="0"/>                 | <input type="text" value="0"/>               | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>       |
| Drivers  | <input type="text" value="0"/>                 | <input type="text" value="0"/>               | <input type="text" value="0"/> | <input type="text" value="0"/>     | <input type="text" value="0"/>       |

**1. Determining Total Need for Training:** The first three rows for calculating the costs for each training module are optional; they are meant to guide the process of determining the numbers of staff that need training. If the number is already known, these three rows can be left blank.

The first row asks how many health facilities there are in your country. You should put in here the number of health facilities THAT ARE RELEVANT for this training module. For example, you may only include health centres for ITN distribution, while for complicated malaria, you may only include hospitals.

The second row asks the number of health facilities at which training has already been done. If training has not started yet, enter "0".

The third row asks you to enter the number of staff to be trained at each facility. This should be the total number (that is, for example, doctors + nurses). Note that any type of staff can be entered; you may enter something like 10 if you are considering the average number of community health workers per health centre, etc.

**2. Assessing Current Level of Training:** The next three rows have pre-loaded formulas to calculate the numbers of staff that need training; however, you can type in the numbers needed directly here if they are already known.

The first row is for the TOTAL number of health workers that need this type of training, whether they have already been trained or not. (The pre-loaded formula is: the number of health facilities that need training \* the average number of staff that needs training at each facility).

The second row is for the number of health workers that HAVE ALREADY RECEIVED this type of training. (The pre-loaded formula is: the number of health facilities where training has been done \* the average number of staff that needs training at each facility).

The third row is for the number of health workers that STILL NEED this type of training. (The pre-loaded formula is: TOTAL number of health workers that need this type of training - the number of health workers that HAVE ALREADY RECEIVED this type of training).

**3. Checking Results:** Two boxes to the right provide data to help verify the accuracy of the data you have entered; neither is used for further calculation in the model.

The top box shows the percentage of health facilities have already received training. The second box shows the percentage of health workers have already received training

**4. Time-cycle of Training:** The final row in this box allows you to set the target year to complete training. If you anticipate that all training will be accomplished in two years, for example, you should enter the second year of the cost projections.

**5. Scheduling Refresher Training:** This tool separates two activities: this box refers to refresher training that occurs some years after the initial training, and is intended to remind health workers of the content of the original training. Step 10 details what this model calls follow-up to training, which is defined as having trainers visit the health facilities where health workers are stationed soon after (that is, within a few months) receiving initial training in order to assess their understanding of the training.

In this box enter the planned occurrence of refresher training. For example, if staff should receive training every 3 years to keep the ideas of the training fresh in their minds (and to receive updates), then enter "3" here.

**6. Costing a Training Class:** The costs in this box reflect the usual cost centres for training courses directly related to the students, as follows:

*Number of days per training class:* Enter the length of one training class, in days.

*Size of class:* Enter the average number of students that attend one class.

*Per Diem rate (students):* Enter the average per diem allotted to the students to attend the class.

*Average travel costs:* Enter the average payment to students to cover their travel costs.

*Cost of training packet (per student):* Enter the cost of producing one training packet for one student (you may mark up slightly, e.g., 5%, for waste).

*Classroom costs (per day):* Enter the costs of renting the facilities to hold the training, on average, per day.

**7. Separate Costs for Initial and Refresher Training:** The two rows in this box allow you to enter data separately for initial training (top row) and for refresher training (bottom row). See step 5 above for a definition of refresher training as used in this tool.

**8. Costing the Human Resources for Training:** The costs in this box reflect the usual cost centres for training courses to pay for the trainers and organizing the training, as follows:

*Per Diem rate:* The per diem rate paid to the type of staff listed on the left (on average) while engaging in training activities.

*Hotel Rate:* The rate paid to staff to cover hotel costs (if it is not included in the per diem rate).

*Travel Costs (total for all staff):* The amount of costs for ALL staff of ONE type (listed at left) to cover travel expenses. If it is one sum for ALL staff of EVERY type, then enter the total under one staff type only (that is, include the total travel costs for trainers but do not enter for drivers and support staff).

*Number needed per training session:* Enter the number of staff that typically attends one training session, by type.

**9. Optional Costs for Guest Lecturers:** In some settings, in addition to trainers, guest lecturers (e.g., from local universities) are paid to teach parts of the training class.

*Average number of training sessions per day:* Enter the average number of sessions that a guest lecturer will be invited to speak at per day of training.

*Lecturer rate per training session:* Enter the amount reimbursed to guest lecturers for speaking at one session.

**10. Human Resources for Follow-up to Training:** As defined in step 5, some countries send people to health facilities to observe trainees at work as a follow-up and reinforcement to initial training. The costing follows the definitions used in step 8, except as follows:

*Average number of trainees per follow-up session:* Specifies how many trainees will be visited in ONE follow-up session. This may often be equal to the number of workers trained per health facility defined in step 1.

*Average number of days per follow-up session:* The length of a typical or average follow-up session, in days.

## Appendix O: The Laboratory, Advocacy, Strategic Communication, and Operational Research Worksheets

These 4 worksheets represent costs that usually operate in an independent fashion, and should be fully costed based on a plan of action.

The Lab Equipment sheet allows for doing assessments of the current state of laboratories, and the purchase of microscopes. Other activities are also allowed (for example, upgrading hospital laboratories) but are not fully detailed in the worksheet. It is up to the user to calculate the total costs for these types of activities and enter them in the worksheet. For more information on this sheet, see Box O1. While microscopes may not be a malaria-specific cost (that is, microscopes are used for many kinds of laboratory tests), they are included here to allow the malaria control programme to ensure that the necessary microscopes are in place.

The advocacy worksheet covers typical activities meant to influence decision makers (rather than targeting a general or specific community). For more information on this sheet, see Box O2.

The strategic communication worksheet includes activities intended to reach a large or population wide audience. In addition to the media items themselves, it includes the cost for developing and reviewing a strategic communications plan, and potentially includes the following steps:

- A. *Development of the strategic communication plan*: This activity includes the cost of meetings to gather stakeholders and experts to develop the overall strategic communication plan.
- B. *Development of the strategic marketing plan*: This step includes the costs for developing a specific media campaign. You should include which costs are relevant for your country; among the potential costs that can be included are:
  - i. Writing, producing and distributing a communication plan;
  - ii. Conducting formative research to determine, e.g., current knowledge and attitudes, including any of the following: surveys, focus groups, structured observations, structured interviews, consultant costs, and other costs;
  - iii. Production of materials for pre-testing; and
  - iv. Pre-testing of materials (similar to formative research above).

In some countries, these types of costs are included when a media package venue is purchased; in which case these costs can be omitted by leaving them blank.

- C. *Review of strategic communication plan*: Similar to step A above, except with the intention of costing regular reviews of the strategic communication plan rather than its initial formulation.
- D. *Production and distribution of strategic communication plan*: Includes the cost of testing and launching a strategic communication plan, similar to Step B above, but more general.

## User Manual: Malaria Cost Estimation Tool

At the top of this section, you can select which of the above 4 activities you want to include. For example, if your country already has a strategic communication plan for malaria, you can select “yes” in the first click box, and activity A listed above will no longer be applicable.

After completing the first section you have the choice of costing different kinds of strategic communication activities:

*Mass media:* Involves activities that require buying advertising space from existing media outlets (for example, radio, TV, newspapers).

*Printed materials:* for distribution, for example, leaflets, t-shirts, and the like.

*Social outreach activities:* Involve activities where staff or trained/hired staff interact directly with the community (including community meetings, theatre, school based events, and the like). This activity includes a long list of potential activities and also allows for you to enter the total costs for activities that are not included on the list.

For more information on this sheet, see Box O3.

Finally, there is the worksheet for costing operation research. These activities are entered in a very generic way, and the cost items are used throughout the model, so no further definitions are noted here. However, it should be noted that most of the activities allow you to enter the total costs for activities that are not included on the list (e.g., hiring a local university to conduct research).

**Box 66: Determining the Number of Microscopes Needed**

**(A.) Establish Current Availability and Availability Goals**

Number of health facilities:  1.

Number of microscopes required:

Average number of microscopes:  2.

Maintain current microscope availability:

Change microscope availability:  3.

| Projected Number of Health Facilities having microscopes | Number |
|--|--------|
| 2007   | 0      |
| 2008   | 0      |
| 2009   | 0      |
| 2010   | 0      |
| 2011   | 0      |
| 2012   | 0      |
| 2013   | 0      |
| 2014   | 0      |
| 2015   | 0      |
| 2016   | 0      |

**(B.) Establish Cost of Microscopes**

Unit Price of a Microscope:  4.

Operational and maintenance cost per year:

Useful life of Microscope:

Unit price of a workbench:  5.

Useful life of a workbench:

Other capital costs:  6.

Useful life of other capital items (average):

**1. Number of Health Facilities and Total Number of Microscopes:** Enter the number of health facilities that need microscopes and the TOTAL number of microscopes needed. The total can also be derived by multiplying the average number of microscopes per facility by the number of health facilities.

**2. Average Number of Microscopes:** This represents line 2 divided by line 1 in step 1 above.

**3. Changing the Number of Microscopes Needed:** This section allows you to change the TOTAL number of microscopes that are available for use in your setting, by year. If you do not wish to change the total number (meaning that current numbers are sufficient), then select “no”. If you select yes, a list of years will appear, and you should enter the TOTAL number for EVERY year.

**4. Costing Microscopes:** Enter the unit price for a microscope [of sufficient quality] in the first line. In the second line, enter the amount of expenditure per year required to keep the microscope in good working order (**note**, this excludes costs for reagents and other materials for lab tests that are included in the case management worksheet—see Appendix I and Box I3).

**5. Costing Workbenches:** If workbenches need to be purchased in addition to microscopes, then enter the cost and useful life here. If, for example, only an estimated third of health facilities need a workbench, then enter the unit price \* 1/3.

**6. Other Items:** If other items need to be purchased in addition to microscopes, then enter the cost and useful life here. If, for example, only an estimated third of health facilities need other items, then enter the cumulative unit price \* 1/3.

**Box 67: Costing Materials for Advocacy**

**(A.) Production costs**

| <i>Item</i>            | <i>Cost per item</i> |
|------------------------|----------------------|
| Brochures/Leaflets     | 1                    |
| Pens                   |                      |
| Information Kits       |                      |
| Video/Documentary      |                      |
| Other <please specify> |                      |
| Other <please specify> |                      |
| Other <please specify> |                      |

**(B.) Quantity of items:**

| <i>Items produced, per year:</i> | <i>Number in first year</i> | <i>Number in Subsequent years</i> |
|----------------------------------|-----------------------------|-----------------------------------|
| Brochures/Leaflets               |                             | 2                                 |
| Pens                             |                             |                                   |
| Information Kits                 |                             |                                   |
| Video/Documentary                |                             |                                   |
| Other <please specify>           |                             |                                   |
| Other <please specify>           |                             |                                   |
| Other <please specify>           |                             |                                   |

**1. Cost per Item:** Enter the average cost per one advocacy item.

**2. Number of Items:** Enter the number of items that are used per year. Note, you can enter a different number in the first year (e.g., for initial sensitization) and a different number for subsequent years (e.g., which may serve more as refresher information). Alternatively, the same number of items may be used every year, depending on the particular strategy you adopt.

**Box 68: Costing Media Campaigns**

**(B.) Airing/Printing costs**  
*Mass Media Item*

|                             | Cost per item |
|-----------------------------|---------------|
| Radio spots/advertisements: | 1             |
| Radio programmes:           |               |
| TV spots/advertisements:    |               |
| TV programmes:              |               |
| Newspaper Advertisement:    |               |
| Other <please specify>      |               |
| Other <please specify>      |               |
| Other <please specify>      |               |
| Other <please specify>      |               |
| Other <please specify>      |               |

**(C.) Quantity of Mass Media items:**

**For all interventions**

The mass media campaign will be employed: every 2 years with 1 campaign(s) per year.

*Mass Media Item, per campaign:*

|                             | Number in first year | Number in Subsequent years |
|-----------------------------|----------------------|----------------------------|
| Radio spots/advertisements: | 3                    |                            |
| Radio programmes:           |                      |                            |
| TV spots/advertisements:    |                      |                            |
| TV programmes:              |                      |                            |
| Newspaper Advertisement:    |                      |                            |
| Other <please specify>      |                      |                            |
| Other <please specify>      |                      |                            |
| Other <please specify>      |                      |                            |
| Other <please specify>      |                      |                            |
| Other <please specify>      |                      |                            |

**1. Cost per Item:** Enter the average cost per one advertisement spot. These should reflect the time of airing or placement of ads in newspapers. If the unit costs do not include the production of the advertisement (which is often included in buying a package of airtime, e.g.) then this should be reflected in the choices at the start of this section and the production costs entered separately.

**2. Determining Frequency:** A ‘campaign’ is here defined as a package of advertisements. You could, for example, do a one-month long campaign every six months. In which case, you would enter “2” campaigns per year, and, in step 3 below, enter the number of advertisements run in the one-month campaign. In the first line here, you should indicate if these campaigns will be run annually or less frequently.

**3. Number of Items:** Enter the number of advertisements that are bundled in one comprehensive ‘campaign’. Note, you can enter a different number in the first year (e.g., for initial sensitization) and a different number for subsequent years (e.g., which may serve more as refresher information). Alternatively, the same number of advertisements may be used every year, depending on the particular strategy you adopt.

## **Appendix P: The Programme Management, Deployment/Transport, Storage, and Monitoring and Evaluation Worksheets**

Some costs are tied into the activities of other parts of the programme. For example, the cost of transportation may be linked to the number of health centres served, or the frequency with which drugs need to be supplied to health centres. In some cases, these costs can be approximated by taking a percentage of the total costs they are tied together with. While this is not an exact method, and users are encouraged to develop well-thought through plans of action which can then be costs more exactly, time and other constraints may not always make the development of these plans possible. Thus, for the Programme Management, Deployment/Transport, Storage, and M&E worksheets, this model allows you to estimate costs based on a percentage of previously calculated costs. See Box P1 for more information about how to do this.

The programme management worksheet allows for costing of activities related to overall coordination and management of a malaria control programme, including supervision. Most of the sheet follows the generic data entry format, also allowing for the entry of cost items not directly listed on the sheet. See Box P2 for more information about costing supervision.

The deployment/transport sheet allows entry for costs related to vehicles operation and upkeep. In some cases, vehicles may be devoted to malaria programmes (such as a designated vehicle(s) for national staff) and the costs should be considered, especially if there is a need for more vehicles. In other cases, vehicles used by the malaria programme may come out of a vehicle pool; in this case the costs probably should not be included unless the vehicle pool specifically bills the control malaria programme for the use of vehicles. See Box P3, Box P4, Box P5, and Box P6 for more information about costing supervision.

The Storage worksheet covers storage and warehousing, as well as procurement and assessment of goods. As with deployment/transport, you should only include these costs if they are normally born by the malaria control programme. See Box P7 for more information about costing supervision.

The Monitoring and Evaluation worksheet encompasses activities normally associated with this process. See Box P8 for more information about costing supervision.

**Box 69: Entering Costs as a Percentage**

|  |    |
|--|----|
| <b>Enter Percentage</b>  |    |
| Transport represents what percentage of the cost for drugs?        | 3% |
| Transport represents what percentage of the cost for insecticides? | 5% |
| Transport represents what percentage of the cost for bednets?      | 5% |

①

**1. Entering Costs as a Percentage of Costs Calculated Elsewhere in the Model:**

Entering this data is fairly straightforward; simply enter the percentage of the costs described at the left in the box at the right. For Transport and storage, the percentages are broken into the type of good (drugs, insecticides, and bednets), while for programme management and M&E, the percentage refers to the total costs of the programme.

**Box 70: Costing Supervision**

|   |  |
|---|--|
| <b>Step 5: Supervision of health staff, community workers, etc.</b> |  |
| Enter the cost for supervision                                      | <input checked="" type="checkbox"/> separately for each intervention<br><input type="checkbox"/> for all interventions together  |
| Include the following activities in costs:                          | <input checked="" type="checkbox"/> Coordination Meetings<br><input checked="" type="checkbox"/> Supervision Visits<br><input type="checkbox"/> Other <please specify> |

①

②

**1. Selecting the Supervision Method:** If supervision takes place separately for each intervention—as is likely if, for example, different people are implementing distribution of bednets vs. case management—then here you should select ‘separately for each intervention’. You should also select this option if you want to have more than one kind of supervision trip (e.g. to hospitals, health centres, CHWs). If, generally, all supervision trips are similar, or supervision is integrated, then you should select ‘for all interventions together’.

**2. Included Activities:** Select which activities to include: coordination meetings among various programmes for planning supervision, the cost of the supervision visits themselves (which are divided by level: national to local and local to field sites/etc.), and a generic ‘other costs’ category which asks you to fill in the total costs for activities not included in this list.

**Box 71: Establishing Current Costs for Vehicle Operation**

**(A.) Establish Current Vehicle Maintenance Costs**

Annual % increase in price of petrol: 2% (Recommended value is 2%) **1.**  
 Vehicle maintenance as a % of fuel costs: 15% (Recommended value is 15%)

*Average Prices and Utilization of Vehicles for Malaria Control (include only relevant costs)*  
**National Level:**

| Type of Vehicles          | Avg Kms per Year | Fuel consumption (Kms/Liter) | % time used for malaria |
|---------------------------|------------------|------------------------------|-------------------------|
| 4WD vehicle               |                  |                              |                         |
| Cars                      |                  |                              |                         |
| Motorcycle                |                  |                              |                         |
| Boats (Motor)             |                  |                              |                         |
| Bicycle                   |                  |                              |                         |
| Trucks (for Insecticides) |                  |                              |                         |
| Other <please specify>    |                  |                              |                         |

**1. Reflecting Fuel Prices in the Future and Maintenance Costs:** For fuel prices you can adjust future spending based on past trends. If you do not wish to change the price of fuel in the future, enter "0%". Next, enter vehicle maintenance costs as a percentage of FUEL costs (and not the price of the vehicle).

**2. Usage of Vehicles:** This section repeats for the various levels of government. In this table you will first need to enter information on the types (or categories) of vehicles used by the malaria programme - whether these vehicles are full time or part-time. The vehicle categories listed are examples only. You can replace the existing categories with the relevant ones for your country setting. There is also room to include more categories of vehicles. You should enter the average number of kilometres a vehicle travels per year, and the usage of fuel. This can change by administrative level. Finally, you need to enter data on the utilization of vehicles for malaria. If the vehicles are exclusively purchased for malaria, you simply need to enter 100%. For other vehicles, the % time spent on malaria can be difficult to estimate. Expert opinion or responses from a small sample survey of facilities may provide the necessary data to estimate these.

**Box 72: Pricing Vehicles**

**(A.) Establish Current Vehicle Costs**

Annual % increase in prices of vehicles:  (Recommended value is 2%) **1.**

| Type of Vehicles          | Average Price | Average Useful Life (National Level) | Average Useful Life (Sub-National Level) |
|---------------------------|---------------|--------------------------------------|--|
| 4WD vehicle               |               |                                      |  |
| Cars                      |               |                                      |  |
| Motorcycle                |               |                                      |  |
| Boats (Motor)             |               | <b>2.</b>                            |  |
| Bicycle                   |               |                                      |  |
| Trucks (for Insecticides) |               |                                      |  |
| Other <please specify>    |               |                                      |  |

**1. Projecting Vehicle Prices into the Future:** For vehicle prices you can adjust future spending based on past trends. If you do not wish to change the price of vehicles in the future, enter "0%".

**2. Costing Vehicles:** Enter the full price of the vehicle (including taxes) for each type. Next enter how long each type of vehicle is normally in service. You have to specify this for the national level and sub-national level.

**Box 73: Entering Vehicle Use**

**(B.) Establish Current Vehicle Use: Total Number of Existing Vehicles used for Malaria Control in the past 5 years**

National Level:

| Type of Vehicles          | 2002 No. | 2003 No. | 2004 No.  | 2005 No. | 2006 No. |
|---------------------------|----------|----------|-----------|----------|----------|
| 4WD vehicle               |          |          |           |          |          |
| Cars                      |          |          |           |          |          |
| Motorcycle                |          |          | <b>1.</b> |          |          |
| Boats (Motor)             |          |          |           |          |          |
| Bicycle                   |          |          |           |          |          |
| Trucks (for Insecticides) |          |          |           |          |          |
| Other <please specify>    |          |          |           |          |          |

Using an Average No. of Vehicles per sub-administrative Level ?  **2.** (Enter Yes if the average number of vehicles per administrative level is entered in the table. Otherwise, enter No if entering the total number of vehicles per administrative level)

**1. Number of Vehicles in current Use:** Enter the number of vehicles used for the past years. These will be used to determine when vehicles need to be replaced, and for operational and fuel costs.

**2. Entering Average or Total Costs:** If you select "yes" here, then you need to enter the average number of vehicles used PER province or district (as entered on the Base Parameters Worksheet). If you select "no" then you should enter the total number of vehicles used by ALL provinces or districts.

**Box 74: Determining the Number of New Vehicles to be Bought**

(C.) Establish Scale-Up Vehicle Use: Total Number of New Vehicles used for Malaria Control

Enter the number of new vehicles to be bought in the appropriate year  
National Level:

| Year | 4WD vehicle | Cars | Motorcycle | Boats (Motor) | Bicycle | Trucks (for Insecticides) | Other <please specify> |
|------|-------------|------|------------|---------------|---------|---------------------------|------------------------|
| 2007 |             |      |            |               |         |                           |                        |
| 2008 |             |      |            |               |         |                           |                        |
| 2009 |             |      |            |               |         |                           |                        |
| 2010 |             |      |            |               |         |                           |                        |
| 2011 |             |      |            |               |         |                           |                        |
| 2012 |             |      |            |               |         |                           |                        |
| 2013 |             |      |            |               |         |                           |                        |
| 2014 |             |      |            | 1.            |         |                           |                        |
| 2015 |             |      |            |               |         |                           |                        |
| 2016 |             |      |            |               |         |                           |                        |

Using an Average No. of Vehicles per sub-administrative Level ?  Yes (Enter Yes if the average number of vehicles per administrative level is entered in the table. Otherwise, enter No if entering the total number of vehicles per administrative level)

**1. Entering New Vehicle Purchases:** Here, you will need to enter the total number of vehicles for future **additional** needs - by vehicle type and by administrative levels. Current vehicles are already accounted for in the model. Your estimates should be based on the needs to reach programme objectives and targets.

**Box 75: Definition of Terms used for Costing Storage**

- Costs to include:**
- Include storage as a percentage of commodity prices
  - Situational Assessment
  - Issuing tenders and procurements **1.**
  - Quality assurance of shipments received **2.**
  - Construction of new storage areas **3.**
  - Storage area upgrades **4.**
  - Rental of warehouse space
  - Other <please specify>

**1. Issuing Tenders and Procurements:** If new products are being used for your programme [or the products are going to be procured under different audit rules] then a new system for issuing, advertising, and distributing tenders may need to be considered and the costs for this process included.

**2. Construction of New Storage Areas:** Long term scale up may mean a predictable and larger quantity of drugs and supplies will flow through storehouses. Thus, new storage areas may need to be built. On the other hand, new drugs may mean that storage areas in health centres may need to be expanded. These costs should be considered if and only if the malaria programme will directly pay for these changes.

**3. Storage Area Upgrades:** The physical facilities of storage areas may need upgrading (climate control, security, shelving, etc.) or the IT system for storage areas may need upgrading, and should be considered here. Other costs associated with storage area upgrades can also be considered.

**4. Renting Store Space:** You can also include the cost of increasing the storage area available by renting storage area. If you include these costs, enter the amount of rental space you will need for each year.

**Box 76: Definition of Terms used for Costing M&E**

Costs to include:

- Cost M&E as a percentage of other costs
- Design of M&E frameworks and systems
- Design of quality control and assurance
- Design of data management systems
- Data collection
- Data analysis
- Quality control/quality assurance
- Epidemiological mapping
- Review and feedback

**1. Data management Systems:** This potentially includes the costs of developing an IT infrastructure to facilitate data sharing in an M&E framework, but also the design and review of data management systems.

**2. Data Analysis:** Data analysis may be routinely done by M&E staff, and, if so, the costs should not be included here. However, if outside expert opinion is sought when interpreting the data, then costs for meetings (or other costs associated with this process) can be included here.

### Appendix Q: The Global Fund Worksheet

The tool automatically generates costs sorted by Global Fund budgeting categories. This can also be used for information of costing breakdowns that are not presented elsewhere in the model. Some additional data entry MAY be required to correctly complete this worksheet—See Box Q1 for more details on how to do this.

#### Box 77: Selecting Costs Included and Entering Cost Breakdowns

|  |     |   |                  |
|--|-----|---|------------------|
| Include only the cost of scaling-up on this sheet: | YES | <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1</span> | (Click on Cell)  |
|  |     |   | Important Note 1 |
|  |     |   | Important Note 2 |

Cost Breakdown:

Enter the estimated percentage of costs by category for:

|                                  |                                  |   |  |
|----------------------------------|----------------------------------|---|--|
|                                  | All Cost Categories Are Itemized | <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">2</span> |  |
| Human Resources                  |                                  |   |  |
| Infrastructure and Equipment     |                                  |   |  |
| Training                         |                                  |   |  |
| Commodities and products         |                                  | <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> |  |
| Drugs                            |                                  |   |  |
| Planning and administration      |                                  |   |  |
| Mass Media/IEC/Printed Materials |                                  |   |  |

**1. Including Appropriate Costs:** Strictly speaking, the correct answer to this question is “yes”; the Global Fund will only fund efforts incremental to the current effort.

However, there are some reasons why you may answer ‘no’ to this question:

(a.) You have changed drugs and the new drug price is much greater than the old drug price (in which case you may want to run two models, one with the new drug and scaled-up coverage rates and one with the old drug at current coverage rates, and take the difference between the two models as the incremental costs).

(b.) You are not actually using the model for a global fund application, but are interested in how the costs break down.

**2. Category of Costs:** If at some point in the model, you calculated certain costs as a percentage of other costs (see Appendix P), then you will need to fill in this section. If you see at the top of the first yellow column “All Cost Categories are Itemized” then you can skip this section.

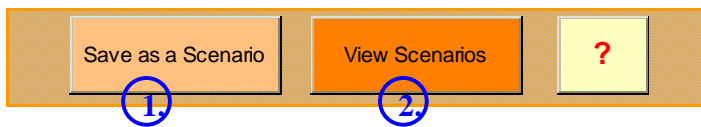
**3. Breaking costs into Global Fund Categories:** If, as per step 2, you need to fill in this section, you should enter the percentage breakdown in this box. For example, if the top of the column reads “Monitoring and Evaluation” then you should enter the percentage of costs of M&E that normally fall under the category listed for each row (e.g., maybe 20% is human resources). These may be obtainable from past budgets, or expert opinion. This table must be filled in, with every column summing to 100%, for the global fund tables below to accurately reflect your total costs.

## Appendix R: Saving Scenarios

The model allows you to save RESULTS from different scenarios and compare them. At this time, however, the entire scenario inputs cannot be saved; it is therefore recommended that you save each scenario you develop as a separate file with a different name unless the differences between the scenarios are relatively easy to recover (e.g., you want to compare the cost of a programme that includes ITNs vs. a programme that doesn't, or you simply change the price of drugs, etc.)

Box R1, Box R2, and Box R3 give more details on how to save scenario results.

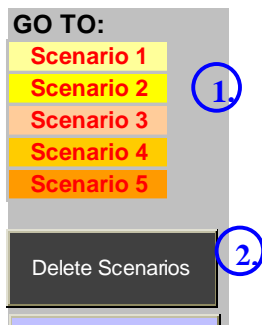
### Box 78: Accessing the Scenarios Worksheet



**1. Saving a Scenario:** If you want to save the total costs as a scenario as you currently see them on the Total Costs worksheet, click this button. The tool will automatically open the scenarios worksheet, and copy in the results. Note that you can also do this for the incremental costs (which operates completely independent of the total costs but in an identical way).

**2. Viewing a Scenario:** If you want to view the scenarios you have already saved without saving your current results (e.g., if you have already saved them as a scenario) then you should click this button.

### Box 79: Control Buttons on the Scenario Worksheet



**1. Going to a Particular Scenario:** Each box allows you to go directly to a scenario and see the results.

**2. Starting Over:** If you want to delete the WHOLE set of scenarios that you have currently saved, click this button.

**Box 80: Naming Scenarios**

|                    |       |                   |   |
|--------------------|-------|-------------------|---|
| <b>Scenario 1:</b> | Name1 | Enter Notes here. | 1 |
|--------------------|-------|-------------------|---|

**1. Entering the Name:** For each scenario, you can enter a name for the scenario (e.g., 'no ITNS' or 'Low drug price'), and in the next cell to the right you can specify what this scenario entails (e.g., you can type in: 'does not include ITNs as an intervention') to remind yourself what this scenario was intended to cost.