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Maternal and Child Survival Program

User Guide for the Community Health Worker Coverage and Capacity Tool

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The Maternal and Child Survival Program (MCSP) is a global, $560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries,* as well as other countries. MCSP is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment.

* USAID's 25 high-priority countries are Afghanistan, Bangladesh, Burma, Democratic Republic of Congo, Ethiopia, Ghana, Haiti, India, Indonesia, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Nigeria, Pakistan, Rwanda, Senegal, South Sudan, Tanzania, Uganda, Yemen and Zambia.

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Acknowledgments

This user guide is the product of collective experience testing and applying the Community Health Worker Coverage and Capacity (C3) Tool in Egypt, Rwanda, Sierra Leone, and Tanzania. Eric Sarriot (Save the Children) and Melanie Morrow (ICF) originally developed the C3 concept and process, and Bill Winfrey (Avenir Health) developed the tool in Excel. The user guide was written by Ochiawunma Ibe (ICF), Melanie Morrow, Anika Hannan (ICF), Eric Sarriot, and Olga Wollinka (independent).

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Abbreviations

C3	CHW Coverage and Capacity
CHW	community health worker
CHPCT	Community Health Planning and Costing Tool
LMIC	low- and middle-income countries
MCH	maternal and child health
MCSP	Maternal and Child Survival Program
PHC	primary health care
PIN	population in need
SDG	Sustainable Development Goal
UHC	universal health coverage
USAID	US Agency for International Development
WHO	World Health Organization

Purpose and Structure of the Community Health Worker Coverage and Capacity Tool User Guide

This document is a guide to the Community Health Worker (CHW) Coverage and Capacity (C3) Tool, designed by the Maternal and Child Survival Program (MCSP) to support rational CHW program planning. The Excel-based tool models CHW program scenarios based on customizable assumptions related to CHW time allocation, workload, and population coverage. It is meant to be used to support a participatory prioritization and decision-making process.

The guide is addressed to the user of the tool. It is structured as follows:

I. Introduction: Why the C3 Tool was created: This section highlights common challenges to CHW program planning that the C3 Tool attempts to address.

II. Purpose and Intended Users of the C3 Tool: This section briefly describes the C3 Tool, who should use it, and for what purposes.

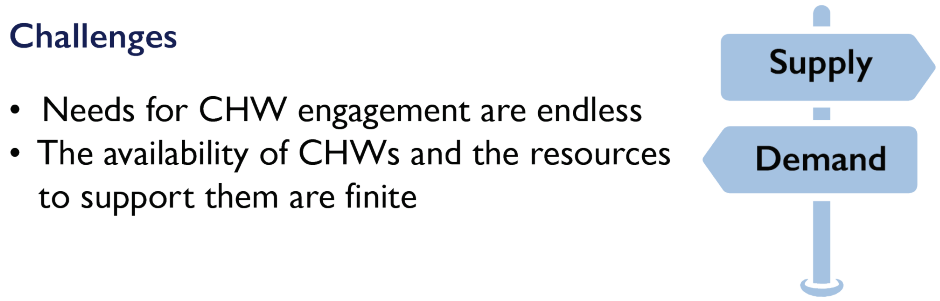
III. Process of C3 Tool Application: This section describes, in broad strokes, an iterative process for stakeholder engagement and data capture to agree on the assumptions that will be modeled in the tool and use of the outputs for decision-making.

IV. Tool Instructions: This section contains screenshots from the tool and describes how to enter data in each worksheet. The instruction complements what is embedded in the tool itself.

I. Introduction: Why the C3 Tool Was Created

CHWs are vital to country strategies to achieve universal health coverage (UHC). As health systems come to rely on them to deliver a growing number of interventions and activities, the potential for overburdening them with unrealistic expectations increases. Limited human and financial resources, combined with a lack of tools to operationalize context-specific considerations for planning CHW workload, can lead to wishful thinking when it comes to defining CHW scopes of work, how many CHWs to engage, and expectations for population-level impact.

Figure 1. Community health worker needs and activities often outstrip supply



What about existing technical resources? The *CHW Reference Guide*'s[1] chapter on CHW roles and responsibilities[2] contains many important elements for consideration in defining CHW scopes of work without being overly prescriptive, yet the potential for overloading CHWs remains. In terms of how many CHWs to deploy relative to the population size, another important factor affecting workload, global benchmarks are difficult to identify, given variability in context and the number and types of services that CHWs may offer. The World Health Organization (WHO) Global Health Worker Alliance's 2017 review of evidence concluded that the "estimation for an optimal population size would depend on various factors including the number and type of services and the actual time required for CHWs to complete their assigned tasks."[3]

The resulting *WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes*[4] suggests that most countries use the following criteria to determine target population size:

- "Expected workload based on epidemiology and anticipated demand for services
- Frequency of contact required
- Nature and time requirements of the services provided; and
- Expected weekly time commitment of CHWs (factoring time away from service provision for training, administrative duties, etc.); and
- Local geography (including proximity of households, distance to clinic, and population density)"

The WHO guideline also offers additional "criteria that might be of relevance in some settings:

- Weather and climate;
- Transport availability and cost;
- Health worker safety;
- Mobility of population;
- Available human and financial resources"

The C3 Tool takes into consideration many of these variables to address strategic and operational challenges associated with CHW planning. Although imperfect, it offers a reality check with respect to the potential overloading of CHWs from the combination of activities and populations assigned to them—and conversely, the approximate number of CHWs needed according to the scenarios modeled using the tool.

Reducing Uncertainty through Plausible Estimates: Reliable, hard measures of **all** variables included in the WHO guideline criteria would take years to capture with scientific precision in all local (not just national) contexts in which CHW programs can benefit public health. The C3 Tool serves to improve policy and management decisions, which inherently deal with a substantial amount of uncertainty, and contextual variability. For this reason, the C3 Tool uses as much hard data as are available but does not hesitate to use "rough measures of the right things"[5] and assumptions about the value of key variables, such as in time management.

[1] Perry H, Crigler L, eds. 2014. *Developing and Strengthening Community Health Worker Programs at Scale: A Reference Guide and Case Studies for Program Managers and Policymakers*. Washington, DC: Maternal and Child Health Integrated Program (MCHIP). https://www.mchip.net/sites/default/files/MCHIP_CHW%20Ref%20Guide.pdf.

[2] Glenton C, Javadi D. 2014. Community health worker roles and tasks. In: Perry H, Crigler L, eds. *Developing and Strengthening Community Health Worker Programs at Scale: A Reference Guide and Case Studies for Program Managers and Policymakers.* Washington, DC: MCHIP. https://www.mchip.net/sites/default/files/mchipfiles/07_CHW_Tasks.pdf.

[3] Center for Evidence and Implementation. 2017. *Systematic Reviews to inform guidelines on health policy and system support to optimise community health worker programmes. PICO 10. In the context of practising community health worker (CHW) programmes, should there be a target population size versus not? Final report to the World Health Organisation Guideline Development Group*.

[4] World Health Organization (WHO). 2018. *WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes.* Geneva: WHO. https://apps.who.int/iris/bitstream/handle/10665/275474/9789241550369-eng.pdf?ua=1.

[5] Balestracci D. 2009. *Data Sanity: A Quantum Leap to Unprecedented Results*. Englewood, Colorado: Medical Group Management Association.

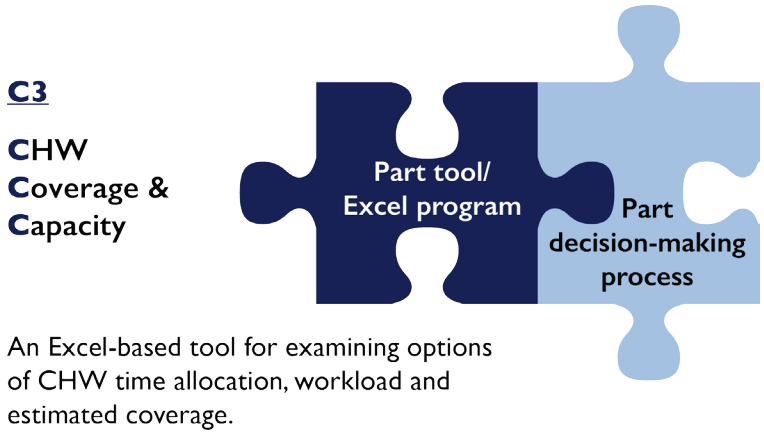
II. Purpose and Intended Users of the C3 Tool

The C3 Tool uses Excel to model options for CHW program design with respect to CHW time allocation, workload, and targeted population coverage of interventions, among other variables. The tool is designed to help health planners approach analysis from one of two sides: to determine the approximate number of CHWs required to efficiently carry out specified health interventions, or to define, rationalize, and optimize the effective level of coverage for and mix of activities/interventions that a predetermined number of CHWs undertake for a given population. Because it combines modeling with programmatic and management discussions (Figure 2), facilitating the use of the C3 Tool requires combining two sets of skills: the ability to navigate its Excel interface and engage in programmatic and operational deliberations.[6]

Application of the tool involves engagement with stakeholders to agree on the data and assumptions being used, scenarios to be tested, and interpretation of the output to inform feasible program strategy and operational plans. The tool makes use of informed reasonable assumptions when hard data are lacking, such as time spent on administrative tasks and local transport.

The C3 Tool is intended for CHW program planners at national and subnational levels, including district health teams adequately supported to use it. The tool is also valuable to technical assistance providers supporting ministries of health to optimize their CHW workforce. The C3 Tool is best applied in conjunction with champions who are well positioned at appropriate levels of influence to support data gathering, consensus building, and ultimate decision-making based on the tool's outputs. As will become apparent later in the guide, once the bulk of underlying program information has been entered, it is then easier for others to continue to modify scenarios of interest for ongoing application.

Figure 2. What is the C3 Tool?

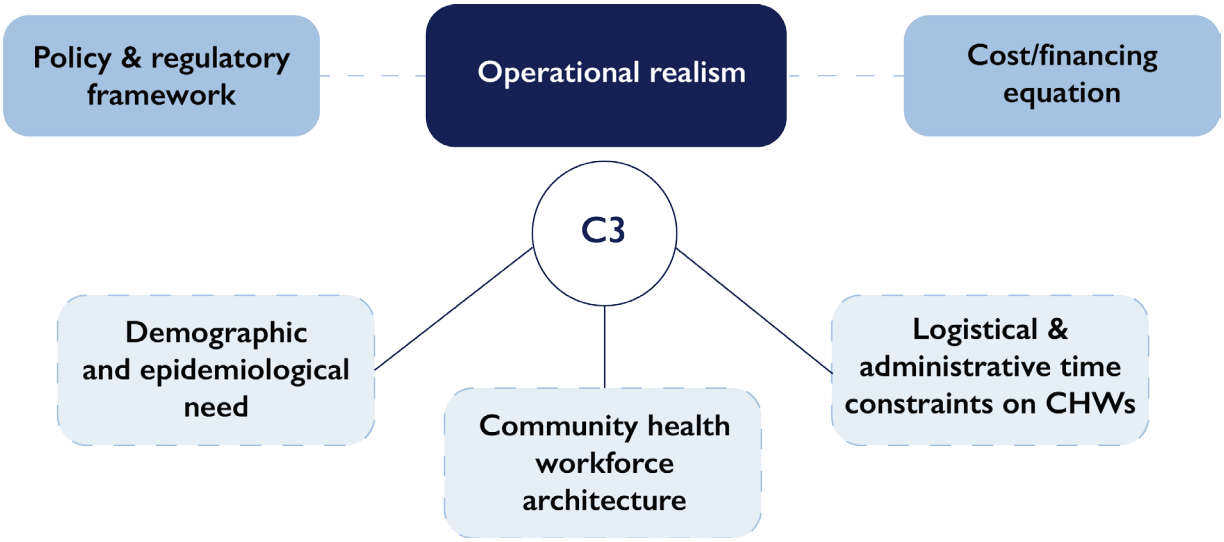


The C3 Tool complements other management tools (Figure 3), yielding a more complete picture for planners. For example, reproductive, maternal, newborn, and child health mortality modeling tools, such as the Lives Saved Tool,[7] can help with intervention prioritization by projecting the estimated number of lives that could be saved if population coverage of specific interventions were achieved. In contrast, the C3 Tool helps planners understand how many CHWs will be needed to carry out evidence-informed policies and make rational decisions with respect to workload. Other tools exist for costing, such as the UNICEF Community Health Planning and Costing Tool (CHPCT).[8]

[6] In our practice, these skills have sometimes been combined in a single facilitator, but they are easier to combine with two different facilitators, notably during the interactive stages of implementation with stakeholders.
[7] Johns Hopkins Bloomberg School of Public Health, Bill & Melinda Gates Foundation. Lives Saved Tool. https://www.livessavedtool.org.
[8] Management Sciences for Health/UNICEF. Community Health Planning and Costing Tool. https://www.msh.org/resources/community-health-planning-and-costing-tool.

Early design of the C3 Tool was adapted to improve consistency and complementarity with the CHPCT. The C3 Tool helps planners with priority setting and rationalization, while the CHPCT's stated purpose is "to support the planning and costing of effective community health services (CHS) packages. The results can be used to evaluate program performance, plan for future programming, and develop investment cases for introducing or expanding community health services."[9] Another way of considering the difference between the tools is that the CHPCT analyzes the financial and resource needs within the context of the health system, while the C3 Tool analyzes the packages of services within the context of a CHW's time availability and helps planners decide if the plan is even possible for CHWs to accomplish. In Zanzibar, planners designing a new national community health volunteer program found it helpful to first use the C3 Tool to establish realistic scopes of work, then use the CHPCT to assess costs.

Figure 2. C3 Tool provides operational realism



Uses of C3 Tool for Planners and Managers

The C3 Tool can be used for:

1. Planning community health programs that will use CHWs at district, subnational, and/or national levels
2. Testing the assumptions stated in existing or draft CHW program plans to determine:
    - Is the CHW plan rational?
    - Is the CHW plan realistic?
    - Options for prioritizing CHW activities to fit available resources
3. Scenario building and hypothesis testing regarding CHW workload and coverage for up to six cadres of CHWs:
    - Decide on the number of CHWs required to efficiently carry out specified health interventions.
    - Define, rationalize, and optimize the effective level of coverage for and mix of activities/interventions that a set number of CHWs can undertake at a given geographic scale.
    - Identify the package of services that the CHWs can deliver for optimal coverage and outcomes needed based on the overall population size for a district, region, state, etc., within a national area.
    - Make decisions about distribution of workload across various CHW types.

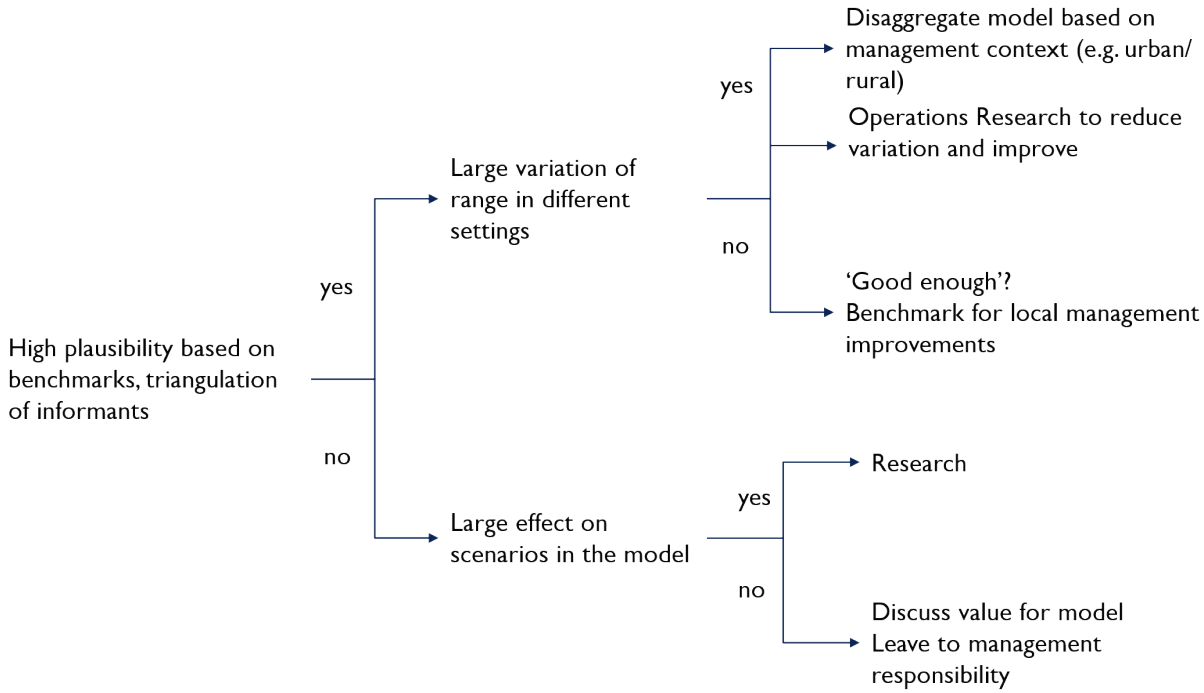
[9] Management Sciences for Health/UNICEF. Community Health Planning and Costing Tool. https://www.msh.org/resources/community-health-planning-and-costing-tool

- Determine proportion of needed services that could be delivered by CHWs in contrast to other health care providers.

4. Conducting a preliminary exercise to inform separate costing (national-, regional-, or district-level) activities based on the number of CHWs required to meet the coverage intended
5. Advocating for CHW programming

Stakeholders may find the recourse to assumptions challenging. It can be useful to discuss how many assumptions they already make in their plans without having stated them explicitly. The C3 Tool does not create plans out of thin air; it forces a clarification of assumptions, a reduction (not abolition of) uncertainty to improve plans (Figure 4).

Figure 4. What to do with the C3 Tool assumptions: discussion guide for stakeholders



Limitations

The C3 Tool operates in a space of limited precise data, so it relies on operational data and assumptions to rationalize plans. The better the inputs, the better the outputs. The tool may raise questions about what is "good enough" in terms of CHW time use and other data that may exhibit considerable variability or be difficult to quantify without more rigorous measurement. Stakeholders will thus need to agree on the inputs and assumptions being used, and separate analyses may need to be conducted for different settings in the same country to account for extreme variations in settlement patterns, distances to health facilities, and other factors that affect demands on CHWs' time.

Attention: The C3 Tool does not seek to provide a mathematical blueprint for national planners to guide regional plans for time use of CHWs or even a regional blueprint for district and local plans. The C3 Tool only seeks to establish rational and realistic parameters for planners to allow for effective, adaptive management by supervisors and managers.

As already described, the C3 Tool is not a costing tool, but it can be used to inform the use of other tools designed for that purpose. It can also provide a basis for "back-of-the-envelope" comparative estimates of cost between different scenarios.

III. Process of C3 Tool Application

This section describes, in very broad strokes, an overall process for stakeholder engagement and data retrieval to help decision-makers agree on the assumptions that will be modeled in the tool and use the outputs to inform decision-making.

C3 Implementation Process Steps

1. Agree with stakeholders to use the tool for policy and planning purposes
2. Agree about what policy/program questions are to be answered, as this can influence what data are needed and may affect how intervention data get entered
3. Defineregional or epidemiological subnational typologies to be examined
4. Collect/assimilate data from reports and, as needed, focus group discussions and interviews to inform estimates to use where data are lacking
5. Enterdata into the tool
6. Create preliminary scenarios
7. Facilitate interactive discussion of scenarios with decision-makers
8. Revise and finalize scenarios
9. Use analysis from C3 Tool used to inform program decisions

This includes iterative steps between steps 2–7. It is useful, however, to spend time clarifying questions and typologies (steps 2–3) at the onset.

The different steps require the participation of different individuals. Steps 1, 2, 6, 7, and 8 require broad participation of stakeholders and/or key decision-makers. Steps 3, 4, and 5 require intensive effort by a technician or technical team. This process flow will vary according to the situation, and some steps may need to be revisited depending on feedback received from stakeholders, decision-makers, or other experts.

After agreeing with stakeholders to use the C3 Tool for planning purposes and defining their aims or key questions to be addressed using the tool, the planning team needs to collect program-related data and consult with key CHW program stakeholders (including CHWs themselves) to validate assumptions that will be used to inform tool inputs. (Please refer to Appendix 1 for a consolidated list of the types of information that go into the tool.) Some inputs, such as demographic and health data, CHW cadres, and intervention activities for consideration, may be relatively straightforward, whereas other inputs may need to be based on reasonable assumptions. For example, in the absence of a formal time-motion study or other information on time use, it will be necessary to consult with a combination of CHWs, CHW supervisors, and others who are well acquainted with CHW activities to come up with reasonable estimates for how long CHW activities take (or should take, if protocols are followed without shortcuts), including estimates of relevant travel times (e.g., average travel time required house to house for home visits or to the health facility to accompany a woman in labor) in the local setting. Ultimately, those using the tool for decision-making will need to be comfortable with the assumptions being used and how they were derived.

The C3 Tool automatically generates graphics and other outputs, described in Section IV, that can prompt needed discussions with decision-makers about feasibility and potential tradeoffs associated with each scenario modeled and subsequent iterations as needed to inform CHW program design.

Figure 5 summarizes how the C3 Tool combines information from various sources, including what is based on informed, reasonable assumptions, to engage planners with data that they can use to model different options with implications for CHW workload and population coverage.

Table 1. Three steps (inputs, assumptions, engagement with data) that can be staged in different ways

Inputs	This can be time-consuming, and, if possible, carried out before a site visit. The C3 Tool incorporates demographic data, which facilitate the estimates of beneficiary populations (newborns, children under 5, pregnant women, etc.). One issue that deserves attention is ensuring that the right inputs are used for subnational scenarios (for example, if a region has higher natality or a different epidemiological situation).
Assumptions	This usually requires sitting down and working with national and local stakeholders to narrow down the plausible range of estimates, consider differences in regional subscenarios, and even clarify what actually happens on the ground. Absent time-use studies and research, increasing the diversity of stakeholders consulted (not just the central unit planners) will provide more realistic assumptions.
Engagement with data	This is the fun part of the process. The C3 Tool has proved to be engaging with stakeholders who can now visualize in real time what happens to expected coverage or need for CHWs based on their prioritization. It allows conducting rapid "what if" exercises and will often lead to framing new questions, challenging and improving assumptions, or deciding on new segmentation of data (region, rural vs. urban, different epidemiology, etc.). It can drive iterations in testing different scenarios. It is not rare that, after seeing the output data, participants will want to question and clarify their own assumptions. The challenge is making sure that assumptions are becoming more realistic to each study context and not made to provide a more desirable output on the C3 Tool spreadsheet.

Figure 5. C3 Tool data elements inform a consultative process

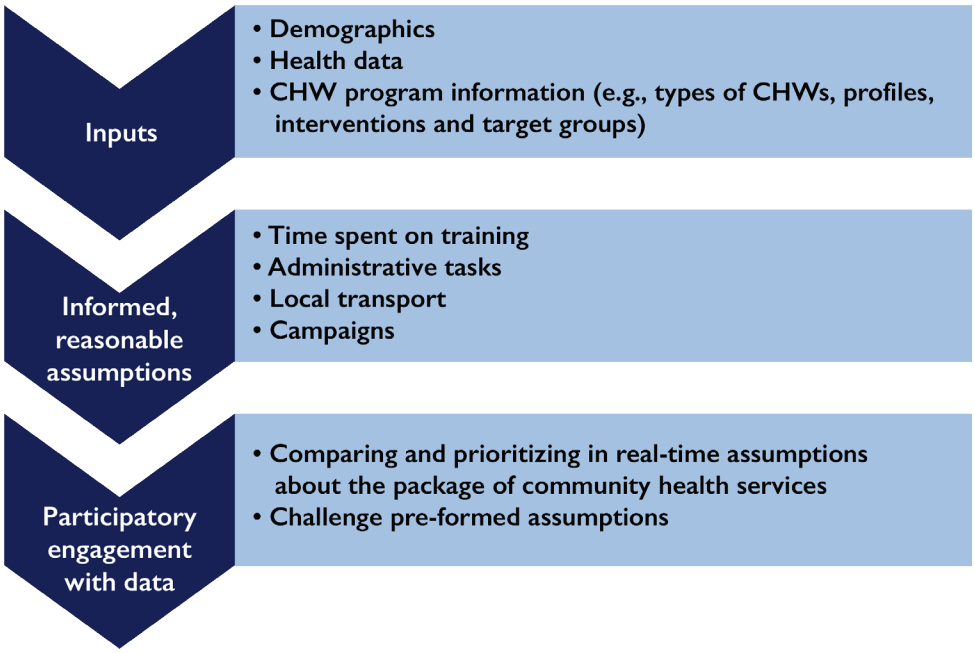
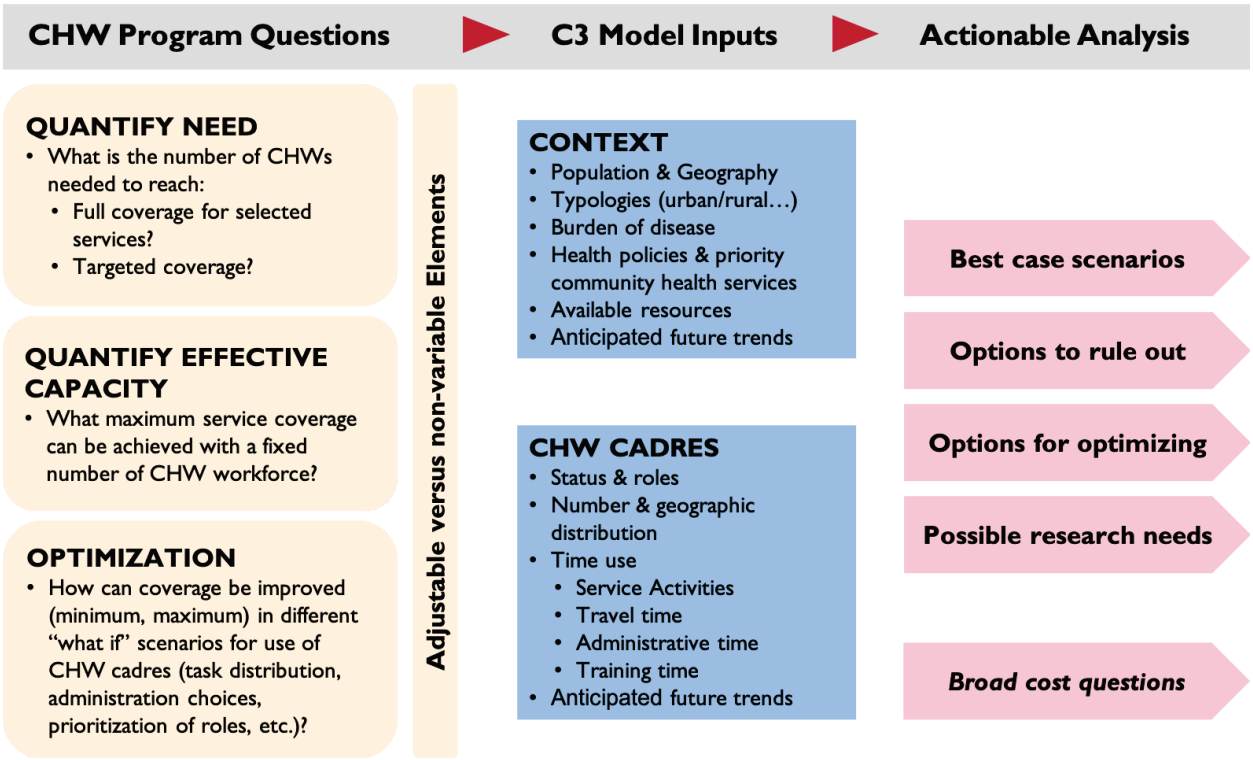


Figure 5 provides a time sequence of steps in implementing the C3 Tool process. It may also be useful to introduce it to stakeholders starting with the end in mind, beginning with the types of questions they want to address, then the inputs and assumptions that will be used to answer their questions, and finally, the analyses that will feed into their deicisions (Figure 6).

Figure 6. The C3 Tool modeling process—start with questions



IV. C3 Tool Instructions

This section walks through the C3 Tool. The descriptions and explanations that follow will be clearer if the tool is referenced in parallel (side by side) in Excel with this section of the user guide.

Attention: Do not delete or insert rows or columns in the tool. Doing so may corrupt calculations. As necessary, it is possible to copy-paste (do not cut-paste) cell content within existing rows and columns. This is most safely done when the worksheet is password protected to preserve formulas.

The C3 Tool is organized by the following tabs, from left to right:

Cover: Introductory information about the C3 Tool.

1. **Program Information:** General program information about the country or district being analyzed.
2. **CHW Input:** Basic information about the CHW cadre(s). This includes number of CHWs, hours worked per day, days worked per year, travel times, and proportion of time worked on nonservice delivery-related activities.
3. **Intervention Details:** Information about the interventions envisioned for implementation by CHW cadre(s). This includes target populations for the services, populations in need (PINs), and estimates of time required to provide the various services.
4. **Policy Interactive Screen:** Interactive screen, where as many as three alternative scenarios can be analyzed concurrently.

Scratch Paper: Blank sheet for intermediary calculations. This is also a place where users can document various decisions about inputs or scenario assumptions in addition to what is in "notes" columns elsewhere.

There are many hidden tabs that include default demographic parameters drawn from the UNICEF CHPCT, which were in turn derived from the World Population Prospects 2015.[10] There are also hidden intermediate calculations behind the final results.

The inputs are flexible to allow alternative input schemes. For example, travel times can be inputted as minutes per services or percentage of overall time allocation. The interactive policy screen then allows the policy analysis team to look at alternative mixes of services and alternative mixes of CHW coverage. The policy screen can also be adjusted to generate numbers of needed CHWs or percentages of planned activities that can be implemented given a known number of CHWs.

Users should document their work carefully and liberally. Many of the tabs include room for making comments. In other places, users may want to add comments to cells where they entered data. Modeling efforts using C3 may extend over time and include many actors. Careful documentation will allow others to understand decisions and where information comes from, in addition to helping users recall why some data entries were made.

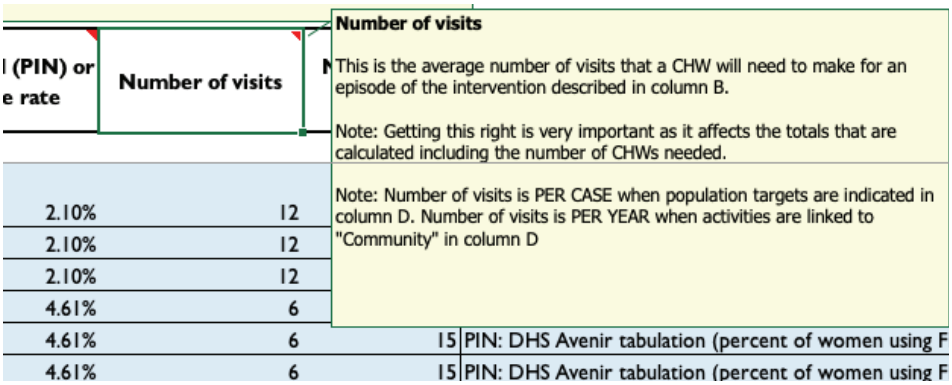
Password protection: The publicly shared version of the tool is "locked" to help prevent someone from inadvertently entering or changing data that could corrupt calculations**.** The default password to unlock the workbook or individual sheets is **mcsp**.

We strongly recommend that only advanced users of Excel unlock elements of the workbook as required and that they relock the workbook before sharing it with others.

Step-by-Step Walkthrough of Each C3 Tool Tab in Excel

Instructions and hints for using the tool are included in note boxes throughout the Excel workbook. Cells with notes have a small red triangle in the top right corner. To show or hide notes, click the cell where the note is. Next, go to the "Review" tab at the top of the task bar in Excel. Click the "Notes" button and choose the option "Show/Hide Note." For larger notes that may be partially hidden, right-click the note and choose "Order." From the drop-down menu, choose "Bring to front."

Figure 7. View comments in each cell with a red dot in the corner



In general, light blue cells indicate where data entry is needed. Some cells include drop-down lists because the cells link to other cells that will calculate the outcome only if particular inputs are given. Examples of cells where drop-downs are used include country name, CHW cadre names, and intervention names.

[10] United Nations Department of Economic and Social Affairs Population Division. 2015. *World Population Prospects: The 2015 Revision: Key Findings and Advance Tables*. New York City: United Nations. https://population.un.org/wpp/Publications/Files/Key_Findings_WPP_2015.pdf.

Cover Tab

The cover tab includes introductory information about the C3 Tool, including the version, acknowledgments, and material useful to users who have not read this manual. This tab may include information on future updates not included in this manual.

Figure 8. C3 Tool cover

Community Health Worker Coverage and Capacity Tool

September 2019

The Community Health Worker (CHW) Coverage and Capacity (C3) Tool was designed as an operational tool following the release of the *CHW Reference Guide*, notably Chapter 7 on CHW roles and responsibilities.

The C3 Tool can help health planners do one of two things: decide on the proper number of CHWs required to efficiently carry out specified health interventions, or define, rationalize, and optimize the effective level of coverage for and mix of activities/interventions that a set number of CHWs undertake at a given geographic scale (project, subnational, national).

The tool in its current state is self-guided, with blue cells indicating where inputs are appropriate and instructions on the type of information required. The tool can accommodate systems with as many as six different types of CHW and comparison of three scenarios.

The tool uses calculations consistent with and sometimes identical to the UNICEF Community Health Planning and Costing Tool developed by Management Sciences for Health (MSH)[+] The Maternal and Child Survival Program hopes that this consistency will allow a smooth transition from broad policy discussions to detailed operational planning necessary for successful implementation of a community health plan that includes CHWs.

Questions regarding the tool can be referred to one of the following contacts: [++]
Melanie Morrow: Melanie.Morrow@icf.com
Ochi Ibe: Ochi.Ibe@icf.com
Bill Winfrey: bwinfrey@avenirhealth.org

[+] The authors appreciate the insights gained from discussions with UNICEF and MSH. We took opportunity to harmonize some of the variables with the UNICEF tool but acknowledge that the C3 Tool is not endorsed by UNICEF or MSH. The UNICEF Community Health Planning and Costing Tool is available at https://www.msh.org/resources/community-health-planning-and-costing-tool. It is designed "to support the planning and costing of effective community health community health services (CHS) packages." The C3 Tool is designed to rationalize and optimize how CHWs and community health volunteers allocate their time.

[++] Special thanks to Eric Sarriot for his contributions to conceptualization and development of the tool, in addition to those listed above as contacts.

The Maternal and Child Survival Program (MCSP) is a global, $560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries,* as well as other countries. MCSP is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment.

* USAID's 25 high-priority countries are Afghanistan, Bangladesh, Burma, Democratic Republic of Congo, Ethiopia, Ghana, Haiti, India, Indonesia, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Nigeria, Pakistan, Rwanda, Senegal, South Sudan, Tanzania, Uganda, Yemen and Zambia.

This tool was made possible in part by the generous support of the American people through the US Agency for International Development (USAID), under the Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of the Maternal and Child Survival Program and do not necessarily reflect the views of USAID or the US Government.

Tab 1. Program Information

Cover | **1. Program Information** | 2. CHW Input | 3. Intervention Details | 4. Policy Interactive Screen | Scratch Paper

This tab captures basic information about the country, district, or other subnational area that is being analyzed, and the basic structure of the existing or envisioned CHW program.

Figure 9. Program information tab

Program information	I. Program Information	
I. Country Information	Name of subpopulation	North Western Rural
	Country	Example
	Policy analysis mode	Number of CHWs available
	Year of analysis	2019
	Total population (2019) North Western Rural	2,178,695
	Population per community	628
	What is the average household size? (Number of people/household)	4.3

II. Names of Community Health Subprograms (Please read comment)

	Abbreviation
Behaviour Change Communication	BCC
Community Based Provision of Family Planning	CBP-FP
Community Based Nutrition Program	Nut
Community Maternal and Newborn Health Package	MNH
Early Childhood Development	ECD
Integrated Community Case Management	I-CCM
Non-Communicable Diseases, TB & HIV	NCD/HIV/TB
HIS reporting and audit	HIS

Name of subpopulation: In this cell, type the name of the national or subnational area you are interested in analyzing. Please note that the name you enter here is for informational purposes only. The name itself is not linked to any default data.

Country: In this cell, choose the country you are analyzing or where the subnational area is from the drop-down list by clicking on the down arrow on the right side of the cell. C3 has default demographic data relative to national age/sex distributions of populations, population growth rates, etc. These are used in conjunction with the population of your subpopulation to establish target populations for calculating services.

Policy analysis mode: In this cell, choose from the drop-down menu between "Population per CHW" or "Number of CHWs available" to address the challenge of rationalizing the workload of CHWs:

- **Population per CHW:** In this case, you anticipate that CHWs will be allocated on a per capita basis. This may correspond, for example, to placing one CHW in each village where you know the average number of people per village, or perhaps you are trying to achieve a targeted coverage of CHWs per population relative to a national or global norm.
- **Number of CHWs available:** In this case, you have a fixed number of CHWs, possibly defined by a plan, budget constraint, or known number of extant CHWs.

Year of analysis: Enter the year that you are analyzing. This entry will not influence any of the calculations but will be used in some of the input and output labels.

Total Population [Year] of [Name of Subpopulation]: Enter the total population of the subnational area you are analyzing. The estimate should correspond to the year that was entered immediately above.

Population per community: Enter a value here that corresponds to the estimated average number of people who live in a village, an urban area, or a neighborhood. Some interventions are implemented at the community level or some subset of a community rather than at the household or individual level. On a

subsequent tab, you will see in the target population column that you have the option to choose "community" as a target population for an intervention.

Population per household: Some interventions are implemented at the household level. Please enter a value here that corresponds to the average number of people who live in a household. On a subsequent tab, you will see in the target population column that you have the option to choose "household" as a target population for an intervention.

Names of community health subprograms: To help you organize the interventions that will be listed on the next worksheet tab, please enter names of subprograms of the community health program. Please note that the names are merely labels and do not influence any calculations. Any names are OK but should correspond to areas of work that the CHW operates in. In the tab 2. Intervention Details, each intervention will need to be categorized by subprogram. Therefore, if the names do not already exist in a plan or policy, they should be created to be comprehensive and inclusive enough to allow any intervention to be categorized. You may want to create an "All Other" category if you are not sure that everything can be categorized.

Tab 2. CHW Input and Time Use

You may enter data for and analyze the workload of as many as six different cadres of CHWs. For each cadre, specify a name and details about time use parameters, including travel time, time spent on administrative tasks, time spent on campaigns, time spent in training, and time spent on "other" meetings not captured elsewhere. Time spent on service delivery tasks, such as prenatal care and sick-child visits, is calculated based on detailed calculations and not addressed in this tab.

Time usage options (near the top of the sheet): For each of the time use categories (travel time, etc.), choose from a drop-down menu how the C3 Tool will calculate the average time that a CHW will spend on that category of activity. Read on for a description of each of the categories, or from within the tool, refer to the notes accompanying each of the cells that has a small red triangle in the top right corner.

Figure 11. Community health worker input and time use tab

2. Community Health Worker Input and Time Use (Please read comment)

Time usage options	
Travel time	% of overall time available
Time spent on administrative tasks	Hours per month
Time spent on campaigns	Days per year
Time spent in trainings	Days per year
Time spent in other recurring meetings	Hours per month

Choose from drop-downs. The drop-down chosen will then cause the correct calculation method to be used and the subsequent cells below will have the correct labels.
Choose the calculation method for which you think you can make the most accurate estimate.
Read comment for each cell for details.

CHW 1 title:	Maternal-Newborn(+)
Abbreviation:	MN+
Travel time (% of overall time available)	10.0
Administrative tasks (Hours per month)	14.2
Campaigns (Days per year)	20.0
Training (Days per year)	5.0
Other Meetings (Hours per month)	1.3

For each of the cadres of interest, fill in the name, an abbreviation for the name, and corresponding information. Enter comments for source of data or assumptions below.

Higer travel than Child Health CHW because more home visits
Calculated based on intervention reporting and monthly coordination meetings
10+ days on MCH campaigns per year; plus add'l
5 Refresher training days per year
4 hours per quarter additional, not included elsewhere

Travel time: Travel time is meant to capture the time that is spent in transit from visit to visit, **independent** of service delivery. It is understood that the travel times are variable depending on the population density, how the CHW organizes his/her work, or if the CHW travels from a fixed health post to visit the households. An average time needs to be estimated.

Using the drop-down menu, select one of the two choices:

- % of overall time: an estimate of how much of available work time is spent on travel. Available work time is the number of hours devoted to CHW tasks as defined on the Policy Interactive Screen.

- Minutes per visit: This is the average travel time from household to household where services or other activities are carried out.

Administrative tasks: These relate to items such as organizing oneself for work, reporting duties, visits to a supervisor or with a supervisor usually at the catchment area health post/facility, etc.

- % of overall time available: percentage of time spent on recording, ordering supplies, gathering supplies, meeting with supervisors, monitoring, evaluation, etc.
- Hours per week: hours spent per week on the activities mentioned above
- Hours per month: hours spent per month on the activities mentioned above

Campaigns: Campaigns are centrally organized events or efforts to increase the awareness or use of a health service or behavior. CHWs frequently support these efforts. Examples might include supplemental vaccine days, family planning days, maternal and child health week, National AIDS Day, etc. Only one option is available: days per year.

Training: CHWs are typically required to attend in-service trainings to gain initial skills, learn new skills, or reinforce skills that they already have. The user of the C3 Tool needs to make an estimate of the average number of days a CHW of a given cadre spends in training. Pre-service training should not be included in this estimate. Only one option is available: days per year.

Other Meetings: This is a catchall category for recurring meetings or activities that need to be factored into the CHWs time that may be difficult to categorize as interventions or campaigns, or difficult to allocate on a per person, per household, or per community basis.

Please note that the time indicated here should not be duplicative of activities on the Intervention Details tab. This may require judgment about what is appropriate or covered in the other location.

Using the drop-down menu, choose from one of the following options:

- Days per week: days per week on the activities mentioned above
- Hours per week: hours per week on the activities mentioned above
- Days per month: days per month on the activities mentioned above
- Hours per month: hours per month on the activities mentioned above
- % of overall time available: percentage of total time available on activities mentioned above

Tab 3. Intervention Details

Figure 10. Tab 2. Intervention Details

3. Intervention Details (Please read comment)

	Service/Intervention	Program	Target population	Population in need (PIN) or annual incidence rate	Number of visits	Minutes per visit	Comments and assumptions
1	Male condom distribution (MN+)	CBP-FP	Female Rep Age	2.10%	12	10	PIN: DHS Avenir tabulation (percent of women using FP method); one visit per month as come to CHW
2	Male condom distribution (Ch)	CBP-FP	Female Rep Age	2.10%	12	10	PIN: DHS Avenir tabulation (percent of women using FP method); one visit per month as
3	Male condom distribution (FTP)	CBP-FP	Female Rep Age	2.10%	12	10	PIN: DHS Avenir tabulation (percent of women using FP method); one visit per month as
4	Oral Contraceptives (MN+)	CBP-FP	Female Rep Age	4.61%	6	15	PIN: DHS Avenir tabulation (percent of women using FP method); 2 packets per visit
5	Oral Contraceptives (Ch)	CBP-FP	Female Rep Age	4.61%	6	15	PIN: DHS Avenir tabulation (percent of women using FP method); 2 packets per visit
6	Oral Contraceptives (FTP)	CBP-FP	Female Rep Age	4.61%	6	15	PIN: DHS Avenir tabulation (percent of women using FP method); 2 packets per visit
7	Depo Provera Injections (MN+)	CBP-FP	Female Rep Age	15.18%	4	30	PIN: DHS Avenir tabulation (percent of women using FP method); a visit every 3 months
8	Depo Provera Injections (Ch)	CBP-FP	Female Rep Age	15.18%	4	30	PIN: DHS Avenir tabulation (percent of women using FP method); a visit every 3 months
9	Depo Provera Injections (FTP)	CBP-FP	Female Rep Age	15.18%	4	30	PIN: DHS Avenir tabulation (percent of women using FP method); a visit every 3 months
10	Cycle bead (MN+)	CBP-FP	Female Rep Age	0.36%	1	20	PIN: DHS Avenir tabulation (percent of women using FP method); one acceptance visit
11	Cycle bead (CH)	CBP-FP	Female Rep Age	0.36%	1	20	PIN: DHS Avenir tabulation (percent of women using FP method); one acceptance visit
12	Cycle bead (FTP)	CBP-FP	Female Rep Age	0.36%	1	20	PIN: DHS Avenir tabulation (percent of women using FP method); one acceptance visit

The C3 Tool calculates the number of services, visits, and overall time needed to deliver the services based upon information in this tab: target population, PIN or incidence rate, number of visits, and minutes per visit. The minutes needed to deliver the collection of services is very important in the tool, as it most frequently occupies the largest amount of time for CHWs and is used in the policy interactive screen to evaluate whether CHWs are potentially over- or underworked, with implications for staffing needs.

The basic equations that are used are:

Services = Target Population X (PIN) X Coverage

Visits = Services X Number of Visits per Service

Time Needed = Visits X Minutes per Visit

For example: Antenatal care services are needed by "pregnant women" 100% of the time X 8 times (coverage) X 25 minutes per visit.

This yielded data on whether there were enough CHWs trained in antenatal care to cover pregnant women in that area.

*Note that if the minutes per visit option for travel time is chosen in Tab 2. CHW Input, travel time is also based on the calculation of visits.

Service/Intervention: Specify a comprehensive list of interventions that are part of the community health program or are under consideration in the planning process. Better to overspecify than underspecify.

If a service or intervention is potentially offered by more than one type of CHW, list the intervention once for **each** of the CHW types that may implement it. For example, if a cadre called Maternal-Newborn+ CHWs and another cadre called Child Health CHWs both may provide condoms in the community, specify the intervention twice, each with its own row specific to the CHW cadre that may implement it:

- Male condom provision (MN+ CHWs)
- Male condom provision (Ch CHWs)

Later, when building scenarios on the Policy Interactive Screen, you will be able use the separate entries to define how intervention coverage will be divided across the CHW cadres.

Program: Choose a program from the drop-down list that seems most correct for the intervention. Note: The choice of program will not impact the overall calculations, only the category totals in the overall summaries. If you do not like the list of programs from which to select, it can be changed in tab 1. Program Information.

Target Population: Choose from the drop-down menu to specify the most appropriate population for the activity or intervention. If no drop-down looks appropriate, put a comment in column N describing what the target population should be. Getting this right is very important, as it affects the totals that are calculated and the numbers of CHWs that will be needed. If the target population is reached via a group-based intervention at the community level, where it makes more sense to base calculations on the time required for the overall group activity, rather than on an individual basis, select "community." Examples of this could include community outreach sessions for growth monitoring and promotion, or support group meetings.

PIN or Incidence Rate: This reflects the number of services needed, defined as the number of episodes per target population per year. For example, for an intervention specific to diarrhea treatment, in which there are expected to be three cases per child in the course of a year, the PIN would be 300% for the corresponding target population. As another example, the PIN for an intervention to refer all pregnant women to antenatal care would be 100% because all pregnant women need this from the CHW. Getting the PIN right is important, as it affects totals that are calculated, including the numbers of CHWs that will be needed. For some illnesses like malaria, data may not be readily available on the annual incidence, and they may be necessary to approximate from other sources.

Number of visits: This is the average number of visits that a CHW will need to make for an episode of the intervention described in column B. Getting the number of visits right is very important, as it affects the totals that are calculated and the number of CHWs needed.

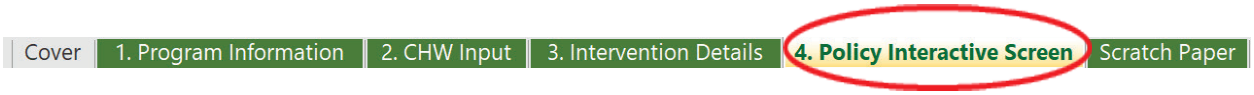
Minutes per visit: This is the average amount of client contact time needed for a particular visit for the treatment/care of the corresponding intervention in column B. This does not include travel time or administrative time associated with the intervention. If an intervention requires several visits that require variable amounts of time, consider breaking the intervention up into subinterventions as an alternative to calculating an average time across visits.

Example 1: If eight visits pertaining to antenatal care are required, but they require different amounts of time from the CHW, consider breaking antenatal care into eight separate intervention activities, each with its own row and time allocation.

Example 2: If a particular condition has variable levels of severity requiring different numbers of visits or different amount of time per visit, consider breaking it into subinterventions—for example, severe malnutrition versus moderate malnutrition. The expected utilization rate would also need to be adjusted.

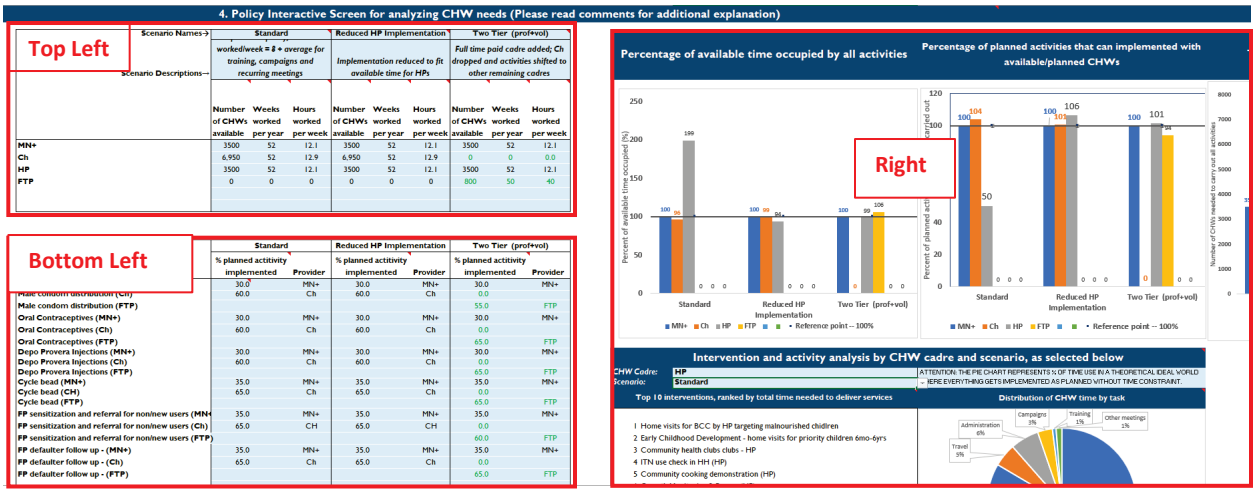
Comments and Assumptions: These cells do not impact calculations. However, they are important for noting sources of data, rationales for choosing a target population, value for PIN, numbers of visits, or time per visit. This cell will be particularly helpful when validating inputs with other team members.

Tab 4. Policy Interactive Screen



The Policy Interactive Screen at first glance can be overwhelming in the amount of detail it includes. There are three basic parts. At the top left is the definition of scenarios and assumptions about the numbers of CHWs and their availability for work. The bottom left allows you to define which cadre will offer a service and the level of coverage. The right side of the screen includes outputs that change depending on the values entered on the left. In other words, as items are changed on the left and work is saved, the graphs and other outputs on the right will automatically populate in response.

Figure 12. Description of areas of the Policy Interactive Screen



This screen has several options for analysis: adjusting the amount of time that a CHW will work, the size of the population that each CHW will serve, what cadre will provide a service, and the percentage of the needed services that will be provided by the CHW.

Step 1: Provide names for as many as three alternative scenarios in the blue cells designated for scenario names (see Figure 13). It is best to provide a name that is descriptive and short, such as "Current situation," "Twice as many CHWs" or "50% coverage of less essential services." Immediately below these cells, provide fuller descriptions of the scenarios. For example, if there was a "Current situation" scenario, consider writing "Scenario based on data drawn from current policy and recent CHW evaluation report." Then, design scenarios that alter various policy variables defined below.

Figure 13. Naming scenarios in the Policy Interactive Screen

4. Policy Interactive Screen for analyzing CHW needs (Please read c

Scenario Names→	Standard			Reduced HP Implementation			Two Tier (prof+vol)		
Scenario Descriptions→	*per CHW policy, hours worked/week = 8 + average for training, campaigns and recurring meetings*			*Implementation reduced to fit available time for HPs*			*Full time paid cadre added; Ch dropped and activities shifted to other remaining cadres*		
	Number of CHWs available	Weeks worked per year	Hours worked per week	Number of CHWs available	Weeks worked per year	Hours worked per week	Number of CHWs available	Weeks worked per year	Hours worked per week
MN+	3500	52	12.1	3500	52	12.1	3500	52	12.1
Ch	6,950	52	12.9	6,950	52	12.9	0	0	0.0
HP	3500	52	12.1	3500	52	12.1	3500	52	12.1
FTP	0	0	0	0	0	0	975	50	40

Step 2: Enter a value for a targeted "Population per CHW" or "Number of CHWs available" for each cadre. Which heading appears in the column depends on the "Policy analysis mode" selected on the Program Information tab. Figure 14 shows the option "Number of CHWs available" The choice between the two should be driven by the questions and scenarios being considered (Figure 6).

Figure 14. Community health worker availability inputs in the Policy Interactive Screen

4. Policy Interactive Screen for analyzing CHW needs (Please read

Scenario Names→	Standard			Reduced HP Implementation			Two Tier (prof+vol)		
Scenario Descriptions→	worked/week = 8 + average for training, campaigns and recurring meetings			Implementation reduced to fit available time for HPs			Full time paid cadre added; Ch dropped and activities shifted to other remaining cadres		
	Number of CHWs available	Weeks worked per year	Hours worked per week	Number of CHWs available	Weeks worked per year	Hours worked per week	Number of CHWs available	Weeks worked per year	Hours worked per week
MN+	3500	52	12.1	3500	52	12.1	3500	52	12.1
Ch	6,950	52	12.9	6,950	52	12.9	0	0	0.0
HP	3500	52	12.1	3500	52	12.1	3500	52	12.1
FTP	0	0	0	0	0	0	800	50	40

Enter details on CHW numbers and work hours

- **Population per CHW:** Enter an expectation or estimate of, on average, how many people a particular cadre of CHW will serve. This should be expressed relative to the overall population, as the tool already takes into account the target sub-PINs as defined in the Intervention Details sheet (e.g., pregnant women, children 2–59 months, and the like, as appropriate). If a CHW is expected to serve a single village, consider entering the average size of a village. This can be altered across scenarios. For example, consider testing out the assumption of having two or more CHWs per village. In the case of two CHWs per village, decrease the population per CHW by 50% relative to the scenario with one CHW per village.
- **Number of CHWs available:** Enter the number of CHWs who are available to offer services. This number may come from several possible sources. It could be a known number of CHWs who are available, a number of CHWs in a plan or policy, a number of CHWs dictated by a budget constraint, etc. Across scenarios, consider assessing the impact on workload of increasing or decreasing the planned number of CHWs.

Step 3: Define the amount of time that a CHW will work via number of weeks per year worked and hours per week. The time worked by CHWs can be adjusted across two axes: weeks worked per year and hours worked per week. For a baseline or "current situation" scenario, this could be drawn from an official policy or evaluation report. To analyze alternative scenarios, consider increasing the time worked to reflect improved remuneration or other factors that might increase or decrease the number of hours worked.

Step 4: For each intervention/activity, choose which cadre will provide the service and the percentage of the overall need for the service that should be met by the cadre (see Figure 15).

Figure 15. Intervention coverage and assignment of interventions to cadres in the Policy Interactive Screen

	Standard		Reduced HP Implementation		Two Tier (prof+vol)	
	% planned actitivity implemented	Provider	% planned actitivity implemented	Provider	% planned actitivity implemented	Provider
Male condom distribution (MN+)	30.0	MN+	30.0	MN+	30.0	MN+
Male condom distribution (Ch)	60.0	Ch	60.0	Ch	0.0	
Male condom distribution (FTP)					55.0	FTP
Oral Contraceptives (MN+)	30.0	MN+	30.0	MN+	30.0	MN+
Oral Contraceptives (Ch)	60.0	Ch	60.0	Ch	0.0	
Oral Contraceptives (FTP)					65.0	FTP
Depo Provera Injections (MN+)	30.0	MN+	30.0	MN+	30.0	MN+
Depo Provera Injections (Ch)	60.0	Ch	60.0	Ch	0.0	
Depo Provera Injections (FTP)					65.0	FTP
Cycle bead (MN+)	35.0	MN+	35.0	MN+	35.0	MN+

For example, if it is anticipated that CHWs of a given cadre will be the sole providers of a service and the plan expects them to achieve this, enter 100% under "% planned activity implemented." Alternatively, if some of the service need will not be the responsibility of CHWs, the "% planned activity implemented" should be reduced accordingly. In other words, if 25% of the target population is expected to receive a service from a health facility and the remaining 75% of need is to be met by CHWs, enter 75 for the activity. The impact of including or excluding services from the CHW workload can be analyzed across scenarios by varying the percentage accordingly, entering "0" to fully eliminate the activity from a given scope.

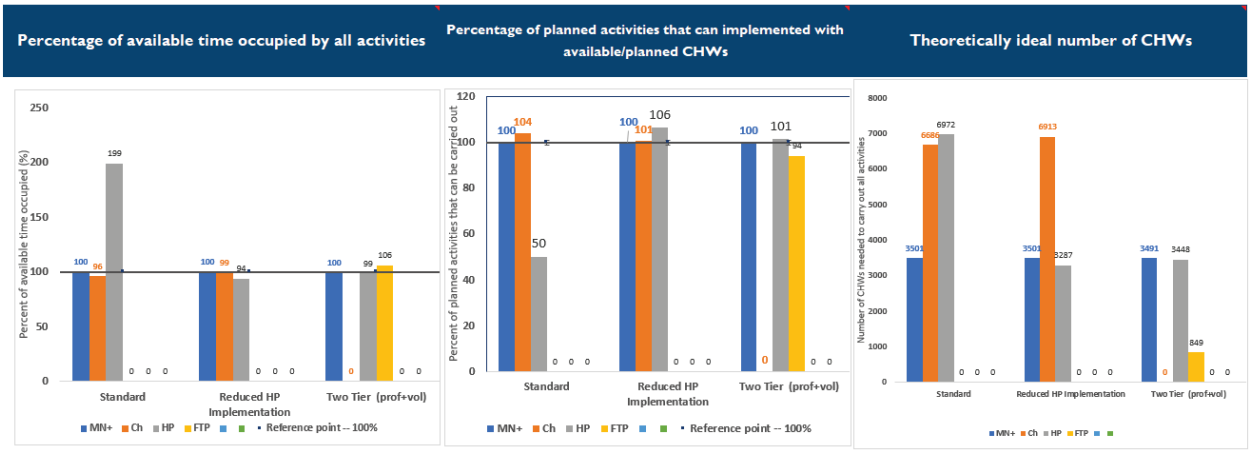
In some cases, implementation coverage for the same activity may be shared across cadres. To set up for this, create separate rows specific to each CHW cadre for a given intervention activity on the Intervention Details worksheet, as previously described. This helps to distinguish between cadres on the Policy Interactive Screen and split the workload across cadres accordingly. See an example of this in Figure 16, in the lines boxed in red. In this example, 30% of condom distribution was assigned to Maternal-Newborn+ CHWs and 60% to Child Health CHWs for the first two scenarios ("Standard" and "Reduced HP Implementation"). In the third scenario, 30% of the need is assigned to Maternal-Newborn+ CHWs and 55% to a new, full-time, professional cadre under consideration. In this case, the total coverage is less than 100% because it is assumed that some of the need for condoms will be met by facilities or shops.

Figure 16. Intervention sharing across cadres in the Policy Interactive Screen

	Standard		Reduced HP Implementation		Two Tier (prof+vol)	
	% planned actitivity implemented	Provider	% planned actitivity implemented	Provider	% planned actitivity implemented	Provider
Male condom distribution (MN+)	30.0	MN+	30.0	MN+	30.0	MN+
Male condom distribution (Ch)	60.0	Ch	60.0	Ch	0.0	
Male condom distribution (FTP)					55.0	FTP
Oral Contraceptives (MN+)	30.0	MN+	30.0	MN+	30.0	MN+
Oral Contraceptives (Ch)	60.0	Ch	60.0	Ch	0.0	
Oral Contraceptives (FTP)					65.0	FTP
Depo Provera Injections (MN+)	30.0	MN+	30.0	MN+	30.0	MN+
Depo Provera Injections (Ch)	60.0	Ch	60.0	Ch	0.0	
Depo Provera Injections (FTP)					65.0	FTP
Cycle bead (MN+)	35.0	MN+	35.0	MN+	35.0	MN+

Step 5: Analyze the alternatives via the graphs and table in Figures 17–19, and the C3 Tool graph and table comments for more information. The right side of the Policy Interactive Screen has several graphs that illustrate the relative workloads implied by alternative scenarios.

Figure 17. Community health worker capacity graphics in the Policy Interactive Screen



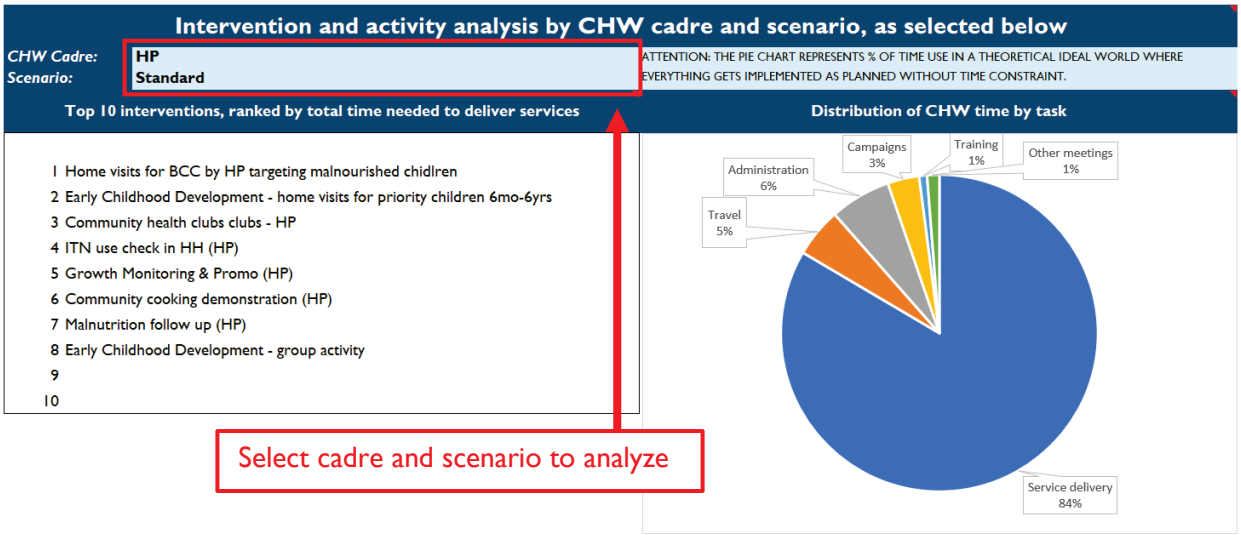
- **Percentage of available time occupied by all activities:** This bar graph reflects time needed to perform all covered services relative to the time available. One hundred percent means that the CHWs' time is completely occupied with the services. If it were 50%, it would mean that they had 50% idle time. Two hundred percent would mean that they are being asked to do twice as much work as they have time available to do the tasks. Note that this is all on average. Given variations in population densities, disease burden, and actual number of people served across the local populations that CHWs serve, there may be considerable variation across individual CHWs.
- **Percentage of planned activities that can be implemented with available/planned CHWs:** This bar graph illustrates the percentage of activities that can be implemented given the number of CHWs, hours worked, and set of activities to be carried out. If the percentage exceeds 100%, it indicates that there is a potential underutilization of CHWs. If the percentage is less than 100%, it indicates that not all activities can be carried out. Note that the bars in this graph are essentially the inverse of the first graph in this series.
- **Theoretically ideal number of CHW:** Based upon the time availability of the CHWs, degree of implementation of the activities, and assumptions built into the CHW time allocation for administration, training, etc., this graph shows the number of CHW that would be necessary. It is only a rough measure, as it is impossible to evenly distribute CHWs across geographically distant communities that vary greatly in size. In addition, planners will need to consider the demands for management, including training and supervision, associated with the number of CHWs needed.
- **Intervention and activity analysis:** Below the top row of bar charts is a time use distribution analysis of the activities carried out by CHWs. **In contrast to the charts above, this analysis is done cadre by cadre and scenario by scenario.** Figure 18 indicates the location of drop-down lists that allow you to select the cadre and scenario to analyze.

  The list at left in Figure 18 is a **top 10 ranking** of the services in terms of the time required to deliver them, pertaining to the cadre and scenario selected. Please note that this ranking does not take into consideration the travel time associated with the services.

  The **pie chart** to its right shows the distribution of time used across time use categories, albeit with important caveats. *The pie chart does not reflect if the CHW is under or overworked.* If the time required to carry out the activities is less than 100% of the time available to CHWs, the chart indicates how time is used when a CHW is busy with activities; idle time is not shown. In the converse case, where CHWs are unable to carry out all activities with the time available, the chart shows the distribution of time use across activities **if they had been able to complete all activities**, meaning if they did not have limited time to carry out all the work assigned to them.

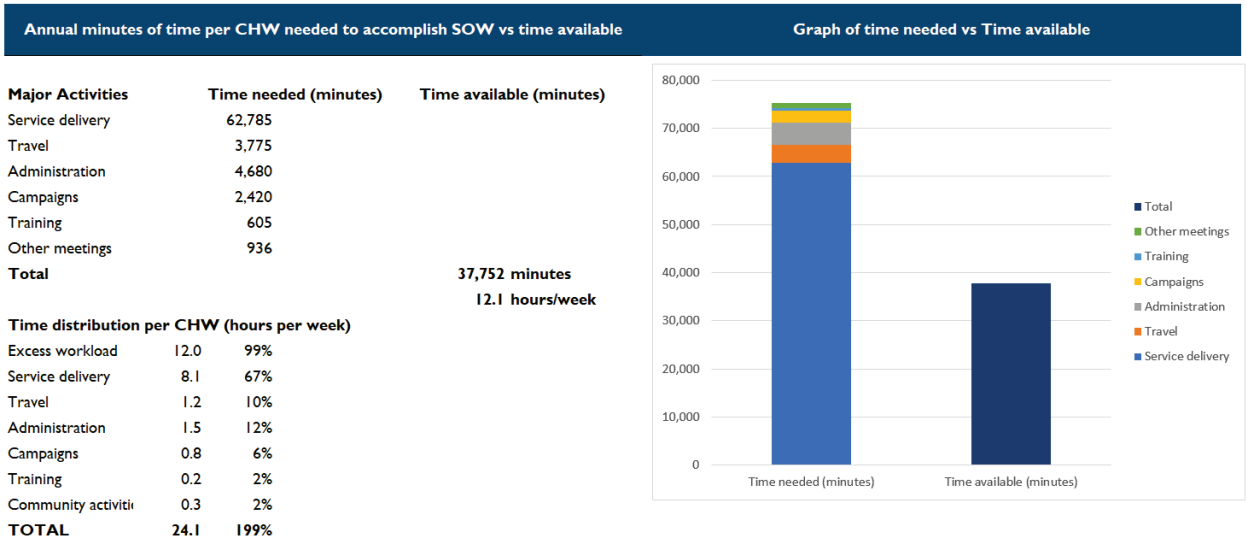
  This list and charts are important reality checks for the user. If an intervention is ranked higher than expected in terms of time use, return to the Intervention Details tab and validate that the intervention inputs are realistic. Similarly, if a specific task category is unexpectedly occupying a large proportion of the CHWs time, return to the CHW Input tab to validate the assumptions on travel, training, administration, etc.

Figure 18. Time utilization analysis in the Policy Interactive Screen



Time needed versus time available: Figure 19 can be useful in communicating the findings. It maps the distribution of time (same data as in Figure 18's pie chart) as a stacked bar, compared to the actual quantity of time available by the CHW cadre under review (total time available = annual time available per CHW multiplied by number of CHWs).

Figure 19. Stacked bars of time needed versus time available



Additional Considerations for Analysis Requiring Separate Excel Files

There are any number of situations in which you may find it necessary to define tool parameters and conduct analyses in separate Excel files. The most obvious are when you want to analyze specific districts or regions of the country separately from the rest. More complicated examples include needing to distinguish between urban versus rural areas, or populations residing within or beyond a set distance from health facilities. In such instances, the total population entered in the Program Information sheet would need to be adjusted and labeled accordingly, as would corresponding information on intervention details, travel time, and anything else thought to differ significantly.

Scratch Paper Tab

Use this blank sheet to make any intermediary calculations that may be necessary to get data in the form needed for entry on the other sheets and/or to save reference data from other sources. Additional blank sheets can be added by clicking the plus arrow on the tab row.

Appendix 1. Information requirements and descriptions for the C3 Tool

This appendix consolidates in one table the types of information that the C3 Tool requires, along with accompanying explanation. The column Your Data and Sources can be used to organize the types of information needed and where it can be obtained to complete the tool itself. The intervention-specific and community health worker (CHW)-specific information will need to be repeated as many times as there are interventions and CHW cadres of interest.

Type of Data	Description as It Relates to Use in the C3 Tool	Your Data and Sources
Program Information Tab		
Country	Select from drop-down tab. The tool has default demographic data relative to age/sex distribution of populations, population growth rates, etc. These are used in conjunction with the population of the user's subpopulation to establish target populations for calculating services.	
Year of analysis	Enter the year to be analyzed. This entry will not influence any of the calculations but will be used in some of the input and output labels.	
Total population	Enter the total population of the national or subnational area to be analyzed. The estimate should correspond to the year that was entered immediately above.	
Population per community	Enter a value here that corresponds to the estimated average number of people who live in a village or other unit as relevant to activities carried out "per community." Some interventions are implemented at the community level or some subset of a community rather than at the household or individual level. On a subsequent tab, users will see in the target population column that they have the option to choose community as a target population for an intervention.	
Average household size	Some interventions are implemented at the household level. Enter a value that corresponds to the average number of people who live in a household.	
Names of community health subprograms	To help organize the interventions that will be listed on the next tab, enter names of subprograms of the community health program. Note that the names are merely labels for categorizing interventions and do not affect any calculations.	
CHW Input and Time Use Tab Note: If results from formal time studies are available in a user's setting and relate to the parameters used in the C3 Tool, they can be very helpful to reference. However, that level of precision is not expected. Information for the purposes of these estimates may be obtainable from discussions with CHWs and those who work with them to get a sense of how much time on average is required for adequate performance of activities. While more precise information will lead to better output from the tool, it is intended to support management decisions with "good enough" estimates without creating excessive burden in terms of data collection.		

Type of Data	Description as It Relates to Use in the C3 Tool	Your Data and Sources
Names of cadres of interest (full or part time, paid or volunteer), up to six: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____	Some health systems have more than one cadre of CHW with different roles. Please list the names of any cadres of CHWs of interest for analysis and indicate if they are full or part time, paid or volunteer. For each cadre, specify a name and details about time use parameters, including travel time, time spent on administrative tasks, time spent on campaigns, time spent in training, and time spent on recurring meetings. **Time spent on service delivery tasks, such as antenatal care and sick-child visits, is based on detailed calculations and not addressed in this tab.** For each of the time use categories of the CHW, choose how the tool will calculate the average time that a CHW will spend. Look in the note windows (hover over the cells that have a red arrow in the top right corner) for each of the items to better understand the options. Below are descriptions of each time usage option.	
Travel time for each CHW cadre	Travel time is meant to capture the time that is spent in transit from visit to visit, independent of service delivery. It is understood that travel times are variable depending on factors including population density, how the CHW organizes his/her work, or if the CHW travels from a fixed health post to visit households. An average time needs to be estimated. Using the drop-down menu, select one of the two choices: • **% of overall time:** An estimate of how much of available work time is spent on travel. Available work time is the number of hours devoted to CHW tasks as defined on the Policy Interactive Screen. • **Minutes per visit:** This should be the average travel time from household to household where services or other activities are carried out.	
Administrative tasks For each CHW cadre	Administrative tasks relate to items such as organizing oneself for work, reporting duties, visits to a supervisor or with a supervisor usually at the catchment area health post/facility, etc. Using the drop-down menu, choose one of the three options for time spent on administrative tasks: • **% of overall time available:** percent of time spent on recording, ordering supplies, gathering supplies, meeting with supervisors, monitoring, evaluation, etc. • **Hours per week:** hours spent per week on the activities mentioned above • **Hours per month:** hours spent per month on the activities mentioned above	
Campaigns: days per year Specify as pertinent to each CHW cadre	Campaigns are often centrally organized events/efforts to increase the awareness/use of a health service or behavior. CHWs often support these efforts. Examples include supplemental vaccine days, family planning days, maternal and child health week, National AIDS Day, etc.	

Type of Data	Description as It Relates to Use in the C3 Tool	Your Data and Sources
Training: days per year Specify for each CHW cadre	CHWs are typically required to attend in-service trainings to gain initial skills, learn new skills, or reinforce skills that they already have. The user of the C3 Tool needs to make an estimate of the average number of days a CHW spends in training per year. Pre-service training should not be included in this estimate.	
Other recurring meetings	This is a catchall category for other meetings or activities that are not reflected elsewhere and need to be factored into CHW time use. Please note that the time indicated here should not be duplicative of activities noted on the Intervention Details tab. This may require judgment on the user's part about what is appropriate. Using **the drop-down menu, choose from one of the following options pertinent to how data on other recurring meetings will be entered:** **Days per week** **Hours per week** **Days per month** **Hours per month% of overall time available**	
Intervention Details Tab The data in this section will need to be specified for **every** intervention activity to be implemented by CHWs.		
Detail a comprehensive list of services/interventions	Specify a relatively comprehensive list of interventions that are part of the community health program or are under consideration in the planning process. Better to overspecify than underspecify.	
Select a program for each intervention	Choose a program from the drop-down list that seems most correct for the intervention.	
Target population for each intervention	Choose from the drop-down menu to specify the most appropriate population for the activity or intervention (such as females of reproductive age, pregnant women, specific age groups, etc.). If the intervention takes place in a group setting at the village level, select "community"; if group size needs to be limited, it may be necessary to do side calculations to determine how many groups on average will be needed per community for the subsequent determination of "Population in need" and/or "Number of visits."	
Population in need (PIN) or incidence rate	This reflects the number of services needed, defined as the number of episodes per target population per year. If annual incidence to define the population in need is not available, triangulation using other data sources may be necessary. Keep in mind that current service statistics may not reflect the total need, especially if care seeking is low.	
Number of visits	This is the average number of visits that a CHW will need to make for an episode of the illness, etc. described above. If the intervention is a recurring activity that takes place at the community level, such as a group meeting or group growth monitoring and promotion sessions, the number of visits would be the number per community per year.	

Type of Data	Description as It Relates to Use in the C3 Tool	Your Data and Sources
Minutes per visit	This is the average amount of client contact time needed per visit for the treatment/care of intervention in column B of the tool. This does not include travel time or administrative time associated with the intervention. If an intervention requires several visits that require variable amounts of time, consider breaking the intervention up into subinterventions.	
Comments and assumptions	These cells do not impact calculations. However, they are important for noting sources of data, rationales for choosing a target population, value for PIN, numbers of visits, or time per visit. This information will be particularly helpful when validating inputs with other team members.	
Policy Interactive Screen		
	This is where all the work of inputting data about CHWs comes to fruition. The top left of the screen has the definition of scenarios and assumptions about the numbers of CHW and availability for work. The bottom left allows the user to define which cadre will offer a service and the level of coverage. The right side of the screen includes outputs that change depending on the values entered on the left. When changing parameters on the left, the graphs and charts on the right will change. This is what enables the user to compare different scenarios.	
Step 1: Provide names for as many as three alternative scenarios to be analyzed.	It is best to provide a name that is descriptive and short, such as "Current situation," "Longer work hours," or "50% coverage of less essential services." Then, design scenarios that alter various policy variables defined below.	
Step 2: Enter a value for a targeted "population per CHW" or "number of CHWs available" for each cadre.	Depending on the choice made on the Program Information tab, the user will see one of two things for this group of cells: Population per CHW or Number of CHWs available. • **Population per CHW:** Enter an expectation or estimate of, on average, how many people a particular cadre of CHW will serve. This should be expressed relative to the total population, as the tool already takes into account the target population(e.g., pregnant women, women of reproductive age, children under 5) and PIN for specific interventions, such as postnatal visits or integrated community case management for sick children.**Number of CHWs available:** Enter the number of CHWs who are available to offer services. This number may come from several possible sources. It could be a known number of CHWs who are available, the number of CHWs in a plan or policy, the number of CHWs dictated by a budget constraint, etc. Consider assessing the impact of increasing or decreasing the planned number of CHWs across scenarios.	

Type of Data	Description as It Relates to Use in the C3 Tool	Your Data and Sources
Step 3: Define the amount of time that a CHW will work via number of weeks worked per year and hours worked per week.	Users are able to adjust the time worked by CHWs across two axes: weeks worked per year and hours worked per week. For a baseline or "current situation" scenario, this could be drawn from an official policy or evaluation report.	
Step 4: For each intervention/activity, choose which cadre will provide the service and the percentage of the overall need that will be met by the cadre.	For example, if it is anticipated that CHWs will serve 75% of the population and 25% of the population will be served in health centers, enter 75. The impact of including or excluding services from the CHW workload can also be analyzed across scenarios by putting 0 for excluded services and anticipated coverage for included services. In some cases, service delivery may be shared across cadres. If so, the intervention will need to be entered and defined in separate rows of the Intervetnion Details sheet for each cadre to which it can later be assigned. When preparing to use the C3 tool, it is helpful to note which intervention activities may be implemented by more than one CHW cadre.	
Step 5: Analyze the alternatives via the graphs and tables at the right. See C3 Tool graph and table comments for more information.		