Following several years of implementing a new, simplified malnutrition treatment approach in Somalia, the International Rescue Committee's (IRC) Somalia country team intended to expand the program to new parts of the country. However, the team wanted to better understand the cost implications of expanding this approach, in order to maximize value-for-money. The IRC Best Use of Resources (BUR) team developed a scenario model to help answer key questions.

Use-Case for the Scenario Model

CPAM without these donated supplies. In addition, they knew that convincing other actors to change to the CPAM modality would require strong information sharing and advocacy.

In February 2022 the Somalia team partnered with the IRC's Best Use of Resources (BUR) team, the nutrition technical unit, and the IRC advocacy team to undertake a scenario analysis to help them better understand the most cost-effective ways to scale their nutrition programing.

The first step in creating a scenario model is to identify the core questions that the program team wanted to model to address. They agreed on the following:

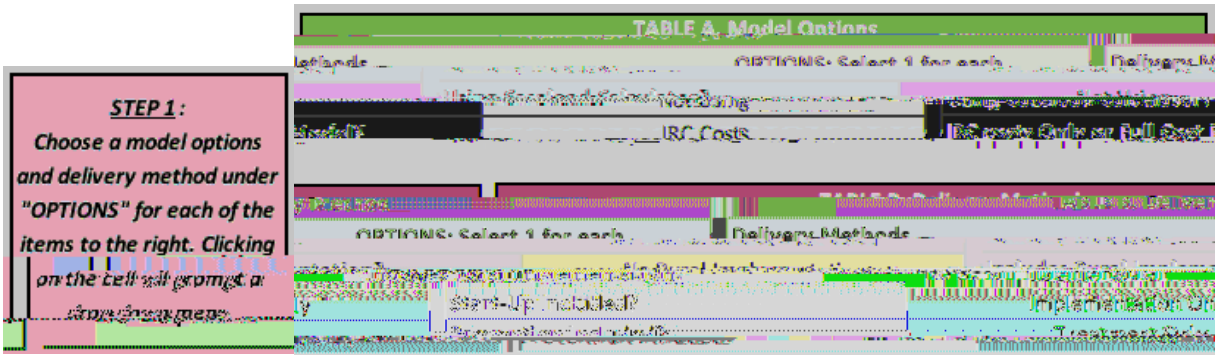
1. How do costs (both total and per child treated) scale as we increase the number of locations covered and coverage rates within a single location?
2. What are the relative cost differences per child between SAM and MAM treatment?
3. How do rural costs scale? How much would it cost per child?
4. What is the full program cost beyond IRC expenses (including in-kind costs)

Recent cost data from the same context is a requirement to create a quality model of alternative implementation scenarios– so the BUR team next identified appropriate costing data to underly the analysis. Because nutrition programing using the CPAM was already underway in Somalia they had recent, relevant costing data from three different grants to build on.

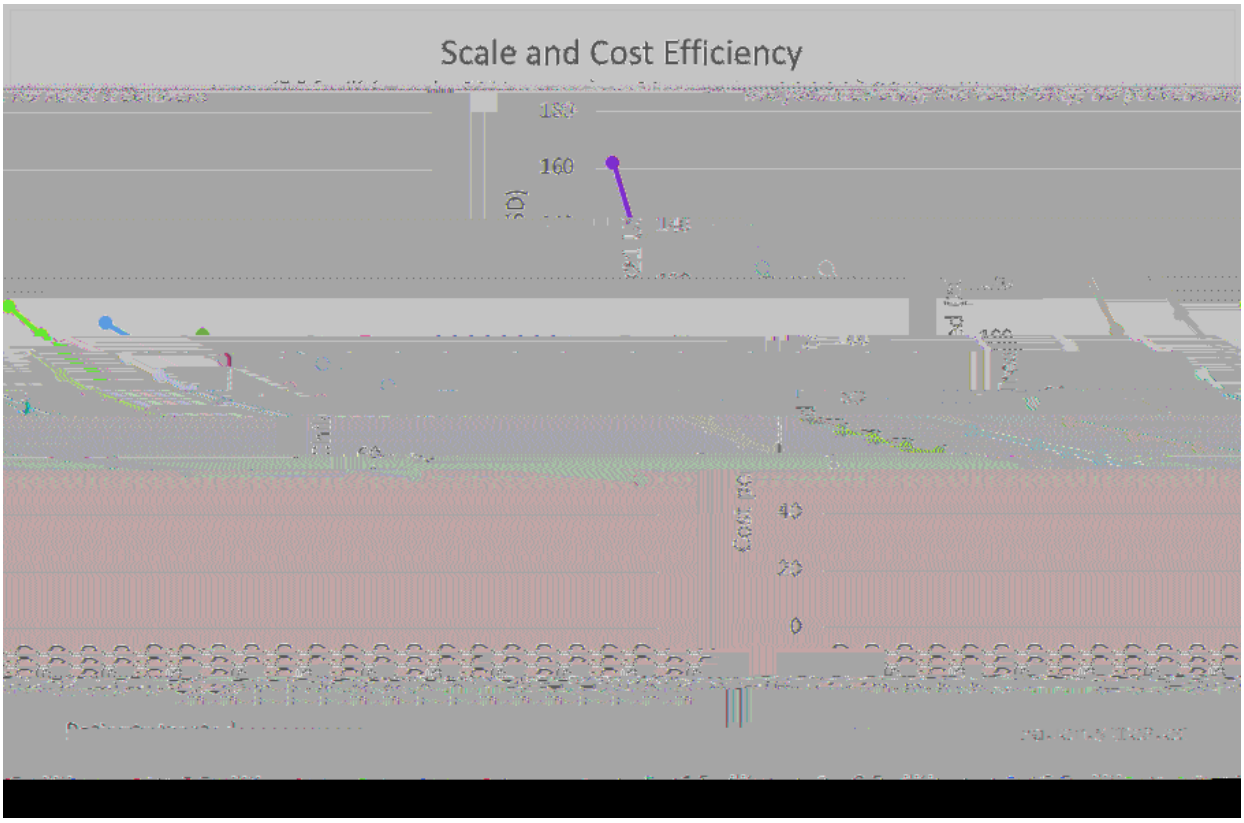
Finally, the BUR team built a scenario model that works similar to a calculator. This model included all of the individual "ingredients" of a CPAM program, based on prior IRC programming experience, but explicitly linked the amount of each resource needed to the number of districts, clinics, or children served. This allowed the Somalia team themselves to vary the specifics of the program roll-out plan and see results both in the overall cost of the program as well as the cost per child treated and child recovered.

Scenario Model

The scenario model worked by first allowing the user to modify key elements of the rollout approach in Excel tables, as seen in Tables A and B below.



First, the user can decide if they would use an optional caseload calculator (see details below) to input more precise information about the anticipated number of locations and children who would receive treatment. If the team choose not to enter data into the caseload calculator, they would need to enter additional information at a later step. Next, the user would choose if they were interested just in a cost



The figure demonstrates, if we are seeking to maximize the number of children we reach within a given budget, it is a more efficient strategy to first increase coverage at existing facilities than to open services in new catchment areas For example, it is predicted to cost $62/child for a caseload of 7000 children who are treated for SAM from two facilities (or $55 for MAM), but the cost-per-child nearly doubles when the same 7000 children are treated in four facilities ($93 for SAM and $86 for MAM). Of course, to reach larger and larger numbers of children in need, eventually, it is necessary to offer services at more facilities—as the graph shows, there's no means of reaching 10,000 children with just two facilities. The key insight is that, with a given amount of money to invest, you can likely reach the most additional children by first maximizing coverage at existing facilities and only then moving on to offer services at new facilities.

As a result, the BUR team recommended that if the IRC does not have guaranteed funding for more than two years to maintain high coverage at newly added facilities, it is better to focus on maximizing coverage at existing facilities than it is to expand to new ones, at least from a cost-efficiency standpoint.

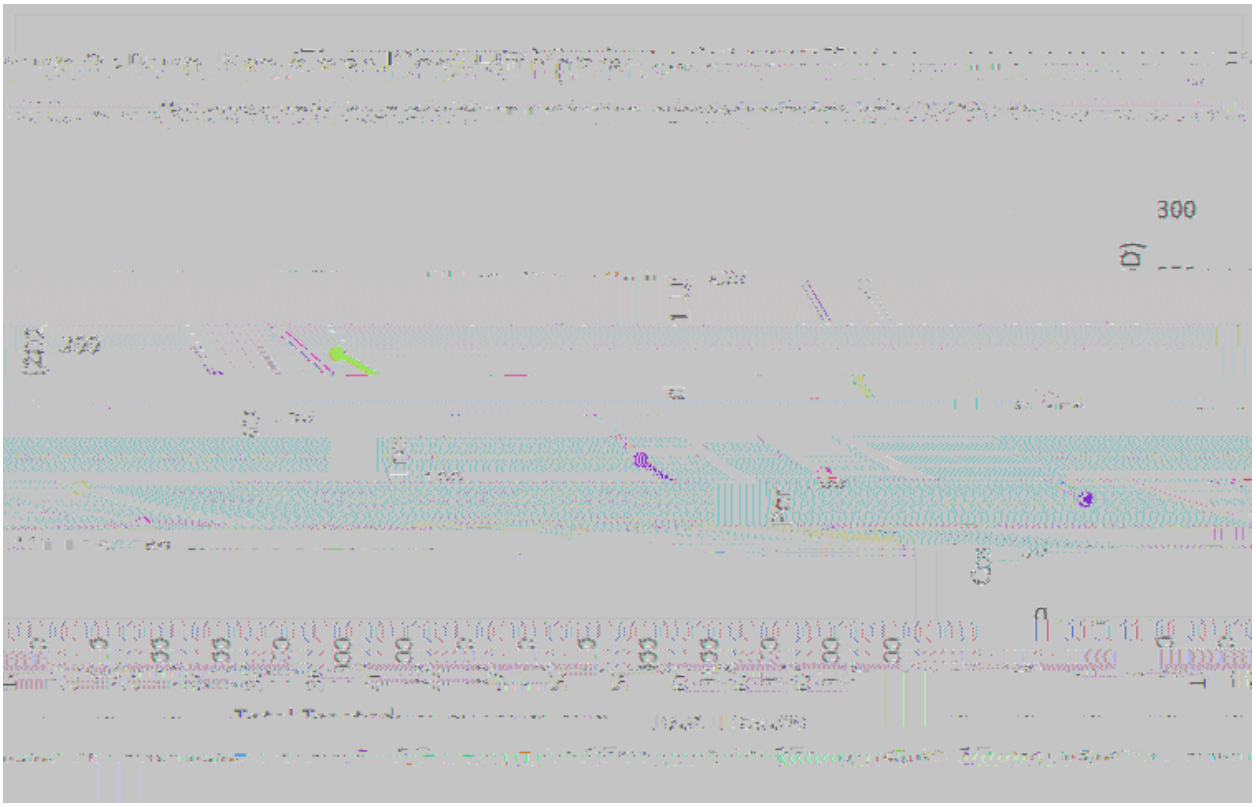
Given that scale due to increased coverage (in fewer facilities) is more cost-efficient than increased scale due to widened geographic coverage (more facilities) – investing additional funding in outreach activities is actually expected to drive *down* the cost per child treated.

The BUR team found that the inclusion of preventative/outreach activities completed by community health workers (such as proactive family MUAC screenings) added $10 to the cost per treatment of each child at most. At a minimum, it added less than $1. The variation in cost comes from varying the number of children treated from low to high ranges – prevention activities cost less per child, for each additional child they reach. In practice, this means that if the CHW outreach allows a Program to increase admissions by at least

10%, the program is more cost efficient (costs less per child) with the CHWs than without them due to the increase in scale. This was identified by looking at the cost-per-child treated using the number of children treated in the 2021 Somali program. When prevention activities are excluded, we found a cost of $96 per child. If we increase the number of children from 2021 by 10% and include the cost of prevention (again using estimates from 2021) – we get a cost-per-child of $97. This means that if the same outreach workers actually increase the number of children treated by more than 10% the cost per child will be lower with prevention measures, than without them.

For the rural program delivering services via mobile teams to be as cost-efficient as facility-based programing, each mobile team needs to reach between 450 to 550 children per year.

As seen in Figure 1, assuming a target of 7000 SAM/MAM cases (the reach of IRC's 2021 nutrition program), we expect our cost per child treated to be below $100. Figure 2 below examines the expected cost per child treated by mobile teams in rural areas, based on the number of teams and the number of children treated.



In order to achieve a cost per child treated below $100, a mobile-focused rural program would need between four and eight mobile teams. Given limits on the number of children one mobile team can reach, the start-up costs to mobilize just two rural teams are spread over so few beneficiary children that the cost-per-child remains high. The number of children who can be treated per team is also important, as either four teams will need to treat 2200 children (550 children per team), six teams will need to treat 2800 children (467 per team), or eight teams will need to treat 3600 children (450 per team). Rather than prescriptively suggesting a single conclusion, this data can be used to highlight important questions for team planning—how many children can a mobile team feasibly reach? In what areas are investments in

mobile teams likely to “pay off” with the greatest number of children served? Are there additional investments the team could consider, that maximize the reach of each mobile team?

It is important to remember that this scenario model was built for a specific use case based on contextual monitoring and cost data, so not all findings will be transferable to different contexts or activities. At a minimum, this case study simply demonstrates the value of accumulating quality cost evidence, to help inform decision-making at key moments. Nonetheless, a few broader lessons are likely to hold true in many other settings.

First, the lesson learned that it is more cost-efficient to serve more people from fewer field sites is well demonstrated in the model but is also intuitive for the majority of center-based humanitarian service delivery. Certainly, this does not mean that those most in need of IRC assistance will always be in concentrated areas, or that the additional cost to program in more dispersed geographic areas is not, often, required. Rather this lesson can serve as a reminder to evaluate the density of need in new locations compared to existing locations and consider the trade-off between the “carrying costs” of new facilities and the possibilities of intensifying activities in areas already being served.

Second, encouraging care-seeking behaviors can be one of the most cost-effective additions to any service delivery that has high fixed costs to operate in a particular area. Unfortunately, because it is often time-consuming, training heavy, and hard to calculate its impact (did this child come to the clinic because of the CHW, or would they have come anyway?), behavior change activities can also be the easiest to cut when a given budget is tight – often in favor of additional staff or program supplies. The transferable insight