

Orphanage Model Template

Created in Project Management

For Dr. Sameer Prasad

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Introduction:

In third world countries, there is a pressing need for more orphanages with sufficient quality standards. Due to the rapidly growing AIDS epidemic, the number of children being abandoned in third world countries is on the rise. According to UNICEF, there will be 20 million orphans due to HIV/AIDS in sub-Saharan Africa by 2010. HIV/AIDS is not the only reason for quality orphanages to be set up. Many children in third world countries face a future of menial labor and poverty due to the socio-economic conditions that they are born into. Many of these children are left to fend for themselves in order to survive. These children are especially vulnerable and they need to have a safe and healthy environment which is what these orphanages are set up to provide.

According to the United States Agency of International Development, there are seven components of care that need to be taken into consideration when setting up orphanages. These core services are:

1. Food and nutrition support – There needs to be enough food and nutrition available in order to sustain proper development.
2. Shelter and material care – the children need to have protective shelter, clothing, and access to clean water.
3. Protection – The orphans need to have access to legal support while eliminating stigma, social neglect, physical and sexual abuse and exploitation.
4. Health care – There needs to be immunizations and proper treatment for sick children.
5. Psychosocial support – The children need to have relationships that enable them to develop and function properly in school, recreation, and work.

6. Education and vocational training – The orphans need to have educational and vocational opportunities that relate to the norms of the surrounding culture.
7. Economic strengthening – The physical places that are housing the children need to be economically sustainable.

Once all of these core needs are considered, the cost structure of setting up and running an orphanage needs to be addressed. Many of the people that are in the practice of setting up orphanages tend to have a more humanitarian approach when it comes to the business side of it. They might think that as long as the children have their needs met and a roof over their heads, that this is all that really matters. While this is the main goal, doing it in the most cost efficient manner is absolutely necessary. This is where the need for a more analytical/business minded approach needs to transpire.

Many different variables need to be taken into consideration when developing a cost structure. Things such as the resources available in the area, how many children need to be housed, and how many orphans that the housing unit(s) can hold have to be analyzed in order to have the most cost efficient method of setup. When done with a more business-minded approach, orphanage setup can be much more efficient and that way, more children can be taken care of with the resources available.

With this in mind, we can look at the specific cost structure of setting up an orphanage in India for 40 boys and 40 girls. We must make a choice between housing them separately or together and we must analyze the costs associated with making one of these choices. In the end, we will choose the option that makes the most sense economically.

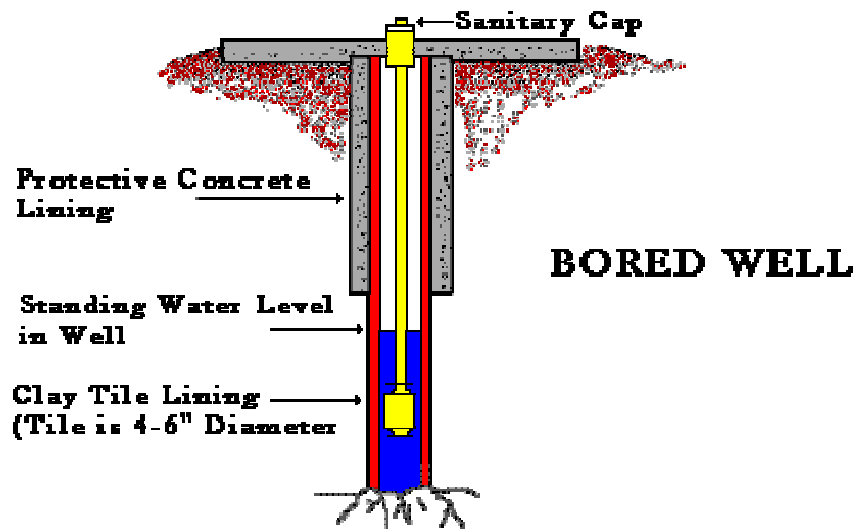
Cost Structure:

One of the first tasks that need to be done when thinking about setting up an orphanage project such as this, is you need to establish your costs. There are three costs in which we are working with and they are initial set-up cost, initial variable setup costs, and monthly operational costs. Let's break down these three costs so we can see what makes them up.

- Initial Set-Up Cost
 - Electrical Work
 - Bore well, painting, cement
 - Cooking equipment, gas
 - Water purification System
 - Inverter
 - Sheet roofing
 - Supervisor equipment Misc. Expenses
 - Additional bathrooms

Initial setup costs are those expenses that are required just one time at the start of the project. They can be very high, especially if buying land and buildings is involved, but in our situation we have been graced enough to receive a building. We want nothing more than to provide a safe place where these children can grow and have the opportunities of other kids there same age. In order to provide that safe place, certain things need to be done first. There is electrical work that needs to be done such as adding more lights, sockets, and running the wire for those. The cost of that is \$143 and we plan to buy these parts from places such as Aditya Enterprises in Vizianagaram. The next major item is a bore well, which is built by an earth auger rotated, by hand or power that bores the hole and carries the earth to the surface. The casing is

usually steel, concrete or plastic pipe. The hole diameter ranges from 2 to 30 inches and can be up to 1000 feet deep.



Source: "Water Supply Sources for the Farmstead and rural home", FARMERS BULLETIN #8237

This large undertaking of a bore well costs \$762, but the benefits of having access to water that can be ran through a filtration system is key to maintaining a healthy community among the orphanage. Prasad Rao is a civil engineer in Vizianagaram, who is a man capable of helping with a well project. The next cost is the cooking equipment, gas stove, and supplies which will come at the price of \$238. A company such as Srinivas Gas Agencies can be a potential supplier for such things. Next is a water purification system that costs \$286. Obviously, it is very important to have clean drinking water that can be dependably clean all the time. In order to make that happen we need to add this system. Indo American Water systems in Vizianagaram sell these systems. The next cost is an inverter which will be \$357. This will be primarily used for power outages and is a necessary item when you have 40+ kids to be taking care of. Sri Sai Furniture in Gajapathinagaram, India is a vendor that we could use to purchase one. Sheet roofing is another cost that we have and will be \$357. The building we are in currently needs this and it's important we do this to maintain a well kept orphanage. We want to

make sure the basics are covered and shelter is one of the basics. The next item is supervisor equipment which costs \$95. This equipment includes a desk and a bed. Sri Sai Furniture in Gajapathinagaram, India also has these items available and would be a potential supplier of these items. Miscellaneous expenses cover any little things that come up directly related to these basic start-up costs. Finally, the last items are additional bathrooms. Once the orphanage gets bigger more bathrooms are going to be an absolute necessity. This will cost \$190/bathroom and again Prasad Rao, civil engineer in Vizianagaram, would be a likely person to hire for this job. The total for all the initial setup cost is \$2998 based off of 40 children.

Besides having the set-up costs we have the initial variable setup costs which are onetime expenses but are based on per child. The more children there are the higher the variable setup costs. These costs include:

- Plates, glasses, soap, etc.
- Foldable bedding, etc.
- Entrance health check up
- School supplies (books, pens, etc.)
- Uniform/clothes
- Toys/games
- Inauguration (food)

All of these are things each child will need in order to be able to go to school and eat their food. An entrance health examine is such an important tool to be used because we will be running into kids who have never seen a doctor in their lives. Also, this way we have somewhere to start our health records with so that we are capable of keeping track of each child as they grow up. The total cost of initial variable setup cost based off of 40 children is \$2400.

The third cost involved with the opening of our orphanage is the monthly operational costs. This cost will be the most important to the orphanage. The money can be raised for the initial setup costs and the first couple months, but if this cost doesn't get covered the orphanage will not be able to function. The monthly operational costs are as follows:

- Salaries
- Food
- Milk
- Gas/cooking
- Paper Bill
- Telephone Bill
- Misc. Expenses
- Transport Charges
- Traveling Charges
- Rent

These costs are what run the orphanage day in and day out. The total monthly operational costs are \$1168.40. That does seem like a lot of money when put into comparison with some of the other costs, but it is necessary to remember 40 children are housed, fed, and kept healthy for that.

As we have already gone over there are a lot of costs involved with starting an orphanage, but they are attainable costs. To start up it is \$5400 and then \$1170/month. To put this in a years' time frame you are looking at \$19,440 for the first year and \$14,040/year from then on.

Model Description:

When constructing our model there were many factors that we knew had to be included in order to make our model practical and useful. These factors included the following:

- Convert U.S. Currency to Foreign Currency
- Monthly Operations Cost
- Initial Setup Cost
- Initial Variable Setup Cost
- Ratios for (certain) Variables of Setup Cost
- Inputs
 - Number of Children
 - Rent Cost (monthly)
 - Supervisor Salary (monthly)
 - Initial Setup Cost
 - Initial Variable Setup Cost
 - Monthly Operations Cost

The fact that we knew our model was going to be posted on the web, in order for other campuses and organizations here in America to see how much it would cost to setup and run orphanages in other parts of the world, we knew we had to implement a currency converter into our model. This currency convertor is extremely important to our model because these orphanages will be setup in other parts of the world therefore using the currency in these respective countries will be the true cost of the orphanage. Our model's currency convertor is linked up with the MSN Money website, therefore if the user has internet capability; currencies

will be updated every five minutes (to keep the model's cost in real time). These conversions are linked to the three tables (monthly operations cost, initial setup cost, initial variable setup cost) in our model and shows cost for currencies in both US money and the foreign currency selected.

Monthly operations cost, initial setup cost, and initial variable setup cost are the cost structures we used in order to determine the total cost to setup and run an orphanage. In monthly operations cost we included costs such as: rent, salaries, food, utilities, and miscellaneous expenses. Then we have initial variable setup cost which included costs such as: dishware, foldable bedding, school supplies, toys, clothes, and of course an entrance health checkup. Finally initial setup cost included costs such as: electrical work, painting, additional bathrooms, sheet roofing, water purification systems, and inverter capacity. Initial setup cost is also the table that needed ratios for three of its inputs.

The ratios we constructed for initial setup cost had to deal with the amount of supervisors needed for a given amount of children, the number of water purification systems/inverter capacity needed for a given amount of children, and lastly how many bathrooms would be needed in a facility for a given amount of children. We decided as a group that our base model ratio for these three variables would be 1 supervisor per 40 children, 1 water purifier system and inverter per 40 children, and lastly 1 bathroom per 10 children. However, these ratios can be easily changed by the user simply typing in a desired ratio into the input cell for the respective variable.

The model we created is extremely valuable and useful. In the next section we will prove this by showing two scenarios in which we are able to show significant cost savings from combining two orphanages that have previously been kept separate.

Implementation:

To properly use the template users must first select the local currency of where the orphanage will be setup. This can be done by clicking on the cell highlighted in yellow, below the table titled, “Converting from a Foreign Currency to U.S. \$.” As stated earlier, this is extremely important because of its significance, all tables are linked up; initial setup cost, initial variable setup costs, and monthly operations cost. Within these tables separate columns in the U.S. dollar amount and the local currency, gives you the cost per kid and overall total cost. Next the user must enter all inputs; number of kids, ratios, monthly rent cost, monthly salary expenses, and the U.S. dollar amount for monthly operating expenses, and setup expenses. All of these cells that need inputs will have the cell highlighted in yellow, allowing the user to enter the desired amount (Exhibit 1).

Variables for Initial Setup Cost		Ratio
The Amount of Kids Needed Per Supervisor		40
The Quantity of Bathrooms Needed per kid		10
Water Purification/Inverter Capacity Needed		40
Initial Setup Cost		
	Unit cost \$	Setup up cost \$
Electrical Work	\$ 143.00	\$ 143.00
Borewell, painting, cement	\$ 762.00	\$ 762.00
Cooking equipment, gas	\$ 238.00	\$ 238.00
Water Purification system	\$ 286.00	\$ 286.00
Invertor	\$ 357.00	\$ 357.00
Sheet roofing	\$ 357.00	\$ 357.00
Supervisor equipment	\$ 95.00	\$ 95.00
Mis. Expenses	\$ -	\$ -
Additional bathrooms	\$ 190.00	\$ 760.00
	Total	\$ 2,998.00

Exhibit 1

All cells in yellow allow you to enter the appropriate data, to help develop a cost analysis

Please note that some of the yellow input boxes including, all ratios, number of kids and the choosing the local currency will have a drop down list with instructions, which allows you to select an option. Next we will be discussing the cost structure of setting up two separate orphanages in India, one for boys and one for girls.

First we will be developing a cost structure for the boy's orphanage, located in the village of Nilayam. This facility is based upon 37 boys living there and because the facility is already up and running; no initial setup costs will be factored into this model. However the initial variable setup costs will still be factored in appropriately. The monthly rent cost on this building is about \$405 per month and the salary cost per supervisor is \$95 per month; this figure was obtained through a monthly average based upon last year's data at the facility. We then determined the following ratios that were to be applied. Ten boys will be assigned to a bathroom; this requires four bathrooms for the boy's facility. There will also be one supervisor and water purification/inverter system required per 40 boys Exhibit 1. This means that one additional boy at the hostel will require an additional supervisor, water purifier and inverter. These ratios are relatively high because of the significant volunteers hours contributed, at the orphanage. We then plugged in additional averages based on previous data at the orphanage, to get the monthly operating costs and initial variable setup costs. After the inputs were plugged in we see that the monthly operating cost is about \$979. If we multiply this figure by twelve we see that the yearly cost of operating this facility is \$11,748. The initial variable setup cost is an additional \$2,220 every year. When we add the yearly operating costs and the initial variable setup costs together we see that the boy's facility will cost about \$13,968 (Exhibit 2 & 3).

Number of Children		37
Currency		Total Montly Operating Cost
\$ U.S. Dollar		\$979.12
In local currency		48,399.41
Variables for Initial Setup Cost	Ratio	Number Needed
The Amount of Kids Needed Per Supervisor	40	1
The Quantity of Bathrooms Needed per kid	10	4
Water Purification/Inveter Capacity Needed	40	1

Exhibit 2

Total monthly operating cost equals \$979.12

Converting From a Foreign Currency to U.S. \$	
Currency	Value
Indian Rupee to US Dollar	\$ 1.00
U.S. \$	\$ 0.02023000000
Monthly Rent Cost in \$ U.S. Dollar	404.6
Monthly Rent Cost in Foreign Currency	\$ 20,000.00
Monthly Salary Cost Per Supervisor in \$ U.S. Dollar	95
Monthly Salary Cost Per Supervisor in Foreign Currency	\$ 4,696.00

\$ U.S. Currency per Child	Local currency per child	Local Currency Total	\$ U.S Currency Total
5	\$ 247.16	9,144.83	\$ 185.00
7	\$ 346.02	12,802.77	\$ 259.00
5	\$ 247.16	9,144.83	\$ 185.00
12	\$ 593.18	21,947.60	\$ 444.00
24	\$ 1,186.36	43,895.21	\$ 888.00
5	\$ 247.16	9,144.83	\$ 185.00
2	\$ 98.86	3,657.93	\$ 74.00
	Total	109,738.01	\$ 2,220.00

Exhibit 3

Total initial variable setup costs equal \$2,220

The separate girl's orphanage that we will be setting up is located in the village of Gajapathinagaram. This building was kindly donated for our use in setting up this hostel; therefore no rent is being applied towards this model. The salary cost per supervisor is about \$83 per month; this figure is determined by the budget allocation provided by The Lions Club. There will be 40 girls living at this facility, with the following ratios being applied. Ten girls will be

assigned to a bathroom; this will require four bathrooms in the girl's facility. There will be one supervisor required per 40 girls at the facility and one water purification/inverter system per 40 girls; requiring one of each at the Gajapathinagaram hostel. These ratios are the same as the current boy's facility; we are making the assumption of being able to retain the same number of volunteer hours at each facility. All other inputs are being based off of figures from the already established boy's orphanage in Nilayam. After plugging these figures into the input cells, we can see that the initial setup cost will be about \$2,998 and the initial variable setup costs will be \$2,400. This means that to get the girls orphanage up and running, it will cost \$5,398 (Exhibit 4).

Initial Setup Cost			Monthly Salary Cost Per Supervisor in \$ U.S. Dollars	95
Unit cost \$	Setup up cost \$	Local currency	Monthly Salary Cost Per Supervisor in Foreign Currency	\$ 4,696.00
Electrical Work	\$ 143.00	\$ 143.00	\$ 7,068.71	Initial Variable Setup Costs \$ U.S. Currency per Child Plates, glasses, soap 5 \$ 247.16 9,886.31 \$ 200.00 Foldable bedding, etc 7 \$ 346.02 13,840.83 \$ 280.00 Entrance health check 5 \$ 247.16 9,886.31 \$ 200.00 School supplies (books, etc) 12 \$ 593.18 23,727.14 \$ 480.00 Uniform/clothes 24 \$ 1,186.36 47,454.28 \$ 960.00 Toys/games 5 \$ 247.16 9,886.31 \$ 200.00 Inauguration (food) 2 \$ 98.86 3,954.52 \$ 80.00 Total 118,635.69 \$ 2,400.00
Borewell, painting, cement	\$ 762.00	\$ 762.00	\$ 37,666.83	
Cooking equipment, gas	\$ 238.00	\$ 238.00	\$ 11,764.71	
Water Purification system	\$ 286.00	\$ 286.00	\$ 14,137.42	
Inverter	\$ 357.00	\$ 357.00	\$ 17,647.06	
Sheet roofing	\$ 357.00	\$ 357.00	\$ 17,647.06	
Supervisor equipment	\$ 95.00	\$ 95.00	\$ 4,696.00	
Mis. Expenses	\$ -	\$ -	\$ -	
Additional bathrooms	\$ 190.00	\$ 760.00	\$ 37,567.97	
Total	\$ 2,998.00	\$ 148,195.75		
Monthly Operations Cost				

Exhibit 4

Total initial variable setup costs equal \$2,400. Total initial setup costs equal \$2,998

Next we can see that the monthly operating costs will come out to be approximately \$613 (Exhibit 5). If we multiply this figure by twelve, the yearly operating cost to run the girl's facility is about \$7,356. If we add the yearly operating costs and the setup costs together we see that the girl's facility will cost about \$12,754 in the first year.

Number of Children		40
Currency		Total Montly Operating Cost
\$ U.S. Dollar		\$613.40
In local currency		30,321.30
Variables for Initial Setup Cost	Ratio	Number Needed
Amount of Kids Needed Per Supervisor	40	1
Quantity of Bathrooms Needed per kid	10	4
Water Purification/Inverter Capacity Needed	40	1
Initial Setup Cost		

Exhibit 5

Total initial variable setup costs equal \$2,400. Total initial setup costs equal \$2,998

As we can see by these figures, the girl's facility is cheaper to operate for a year, with a cost of \$12,754 for the first year and about \$9,761 thereafter. The boy's facility is more expensive, at \$13,968 per year, even though no initial setup costs were factored into their model. With all ratios being the same and the girl's inputs being based off of the Nilayam facilities' monthly averages; we can compare the two cost structures and see that the girl's facility is relatively cheaper to operate. The main difference between the two facilities is the rent cost, as it is directly correlated between these two separate cost structures. If implemented, these two facilities will cost a little over \$26,700 next year to run, and about \$23,730 for every year thereafter.

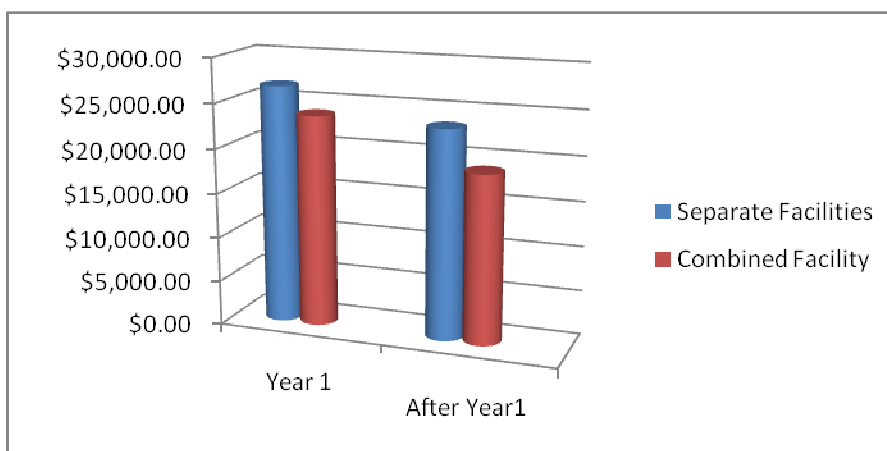
Next we will look at the costs of combining both a girls and a boys facility together. This model will look at adding 40 additional girls to the original "boys only" facility in Nilayam. For this model, we will set the number of children to eighty. Costs per supervisor and rent costs will be the same as in the boys orphanage model, \$85 and \$0 respectively. For the combined facility all ratios will be the same as previous models as well.

When we plug in the numbers we find that the total setup cost for combining facilities is \$4,496. In our new model we will have to add an additional four bathrooms at a cost of \$760.

Also, our costs for an additional water purifier, inverter, and supervisor equipment will all double. Our monthly operating costs come out to be \$1,187.92 and our variable costs come out to be \$4,620. If we multiply out monthly operating costs by twelve and add our variable costs we find that our cost to implement the orphanage is \$23,371.04 for the first year.

In our model we are assuming that the initial setup costs are just a single cost in the first year of implementation. After the first year the costs of running the facility will include the monthly operating costs and the variable costs. The annual costs of running the facility after the first year will be \$18,875.04

When we take a look at the model of the combined facility and compare it to the two separate facilities we see that we are saving money over time by combining facilities. The costs of running the boys facility is \$13,969.44 for the first year and also every year after that. The costs for the girls facility is \$12,758.80 for the first year and \$9760.80 for every year after that. Compare these costs to the costs of combining facilities and we are saving \$3,357.20 for the first year and \$4,855.20 for every year after that. The graph below gives a visual representation of these costs.



The flexibility of our model allows users to compare the cost structure of different facilities regardless of what kinds of costs are being accounted for. Our specific problem relates to orphanages in India, one of which is already setup and one of which could be set up with a rent of zero. The main reason why we are saving more money after the first year of implementing the combined facility is because we are not including implementation costs into the boys orphanage model. This also is because we are assuming the girls orphanage pays no rent.

The combined facility in Nilayam in our model has additional space to hold an extra 40 children and this will not come at the cost of more rent. Rent will most likely be the deciding factor in deciding whether to operate one facility or separate facilities. Using our model often times the variable setup costs will not be a deciding factor of whether to build one or multiple facilities because they are often a function of the number of students living in the facility. This will most likely be the case as well for the initial setup costs as because most of them are also a direct function of the number of children.

Our recommendation for the Orphanage project is to build a combined facility of both 40 girls and 37 boys. Compare this to building two separate facilities for both girls and boys and a combined facility will save over \$30,000 over the span of ten years. Our shows the immediate costs of building a combined facility and can also be used to show the costs of building many different kinds of orphanages with different cost structures.

