

DevTreks –social budgeting that improves lives and livelihoods

## **Monitoring and Evaluation Analysis 1**

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**Author: Kevin Boyle, President, DevTreks**

**Version: DevTreks 1.6.8**

### **A. Introduction**

This reference documents how to complete Monitoring and Evaluation (M&E) analyses using M&E Calculator 1. The DevTreks reference, *Monitoring and Evaluation 1: Food Nutrition* introduces the background logic for M&E analysis in DevTreks. The *Monitoring and Evaluation 1* reference explains how this calculator works.

### **B. Data**

Fictitious data for Malnutrition Improvement projects were used in this reference (real data couldn't be found).

The Calculators and Analyzers explained in this reference can be found at the following URIs:

- **M&E Calculators**

[https://www.devtreks.org/hometreks/preview/farmworkers/linkedviewgroup/M and E Calculators/53/none/](https://www.devtreks.org/hometreks/preview/farmworkers/linkedviewgroup/M%20and%20E%20Calculators/53/none/)

- **M&E 1 Analyzers**

[https://www.devtreks.org/hometreks/preview/farmworkers/linkedviewgroup/M and E 1 Analyzers/52/none/](https://www.devtreks.org/hometreks/preview/farmworkers/linkedviewgroup/M%20and%20E%201%20Analyzers/52/none/)

### **C. Work Breakdown Structure (WBS)**

DevTreks recommends using standard Work Breakdown Structures to structure data. The WBS labels are used to aggregate and analyze data for all clubs throughout a network. Although some

malnutrition codes can be found in the World Health Organization’s International Classification of Diseases (ICD10), a complete WBS for malnutrition interventions does not exist (to the author’s knowledge). Each of the M&E element sections below include the WBS used with the data. All of the data used in this reference, including the indicators, were aggregated using these labels. Although the examples below show the same labels being used by both an M&E element and its associated indicators, the two labels can be different.

#### **D. Analyzers**

Separate M&E analyzers are available for each M&E element, including Inputs, Outputs, Operations, Components, Outcomes, Operating Budgets, and Capital Budgets. The *Calculator and Analyzer 1* reference documents how all DevTreks’ Analyzers work. The *Analysis Type* property of M&E Analyzers is used to specify the type of analysis to run. Each analysis will display up to 10 aggregated indicators for each separate M&E element. The number of displayed indicators is somewhat arbitrary and may be changed in future releases.

#### **E. M&E Indicator Analyses**

M&E analyses are carried out in two stages. The first stage aggregates base elements using standard Analyzer aggregators, such as Label or Group Id (3\*). The second stage then aggregates the indicators associated with each base element. Unlike NPV and LCA analysis, the number of observations is not based on the number of aggregated base elements, but the number of distinct indicators in the aggregated base elements.

#### **Analysis Result Properties**

The results of running analyses are displayed using the following basic properties for all base elements (3\*):

**M and E Type:** The stage of the monitoring and evaluation analysis. Options include baseline, actual, realtime, post. Each M&E Analyzer includes a selection list for setting this property.

**Total Name:** name of the total indicator

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**Total Label:** WBS indicator label used to aggregate indicators

**Total Q1:** total indicator quantity 1

**Total Q1 Unit:** unit of the Q1 indicator quantity

**Total Q2:** total quantity indicator quantity 2

**Total Q2 Unit:** unit of the Q2 indicator

**Total:** total of the Q1 (+, -, \*, /) Q2 results

**Total Unit:** unit of the total indicator

## **F. Multipliers**

Base element multipliers, such as an Operation Amount, Time Period Amount, or Input Times, do not change the quantity of indicators in any analysis.

## **G. M&E Analyzers**

The current version supports the following analyses:

### **1. Statistics 1 Analysis**

This type of analysis uses the Totals calculations to measure basic statistical properties of aggregated indicators. Total, Median, Mean, Variance, and Standard Deviation statistics are generated for all of the indicators that have the same Label property. Only indicators with an Indicator Type property set to Actual are used in the aggregation.

The following Output Statistics Analysis displays basic statistics associated with output indicators. These statistics measure the proportion of families with malnourished children receiving food nutrient packages. Q1 is the number of families receiving a minimal quantity of food nutrient packages. Q2 is the total number of families in the targeted group. The statistics for the output series aggregates 8 observations consisting of 2 separate Output Series with 4

quarterly indicators. All 8 indicators have the same Label. Year 2012 included 1 Benchmark indicator and 4 Actual quarterly indicators. 2013 included 4 Actual quarterly indicators. Note that the analysis takes certain indicator properties, such as name and description, come from the first indicator only (admittedly a little misleading, but a standard convention used throughout DevTreks).

The 2013 Output Series (and 2014, 2015 ...) name will be shown in the analysis, even though its indicators were added to the 2012 results, to make it clear that its indicators are included in the analysis.

**Output Series : 2012 Number of food nutrient packages distributed**

**Indicator Totals**

Indicator 1 Name : <b>Q1 food nutrient packages delivered</b>	Type : actual
Label : 0122A	Unit : percent families
Date : 2012-03-15T00:00:00	
Total : 4.800	Observations : 8.000
Mean : 0.600	Median : 0.600
Variance : 0.046	Std Dev : 0.214
Q1 Total : 120000.000	Q1 Unit : families
Q1 Mean : 15000.000	Q1 Median : 15000.000
Q1 Variance : 28571428.571	Q1 Std Dev : 5345.225
Q2 Total : 200000.000	Q2 Unit : population families
Q2 Mean : 25000.000	Q2 Median : 25000.000
Q2 Variance : 0.000	Q2 Std Dev : 0.000

**Description :** This indicator measures the Q1 proportion of families with malnourished children that received the minimal number of food nutrient packages each week.

**Output Series : 2013 Number of food nutrient packages distributed**

The following Capital Budget Statistical analysis combines the Inputs, Components, Outputs, Outcomes, and Time Periods for 1 Capital Budget containing 2 Time Periods. A Labels aggregator was chosen for the aggregation and the base elements in both years contained the same Labels. The 2013 indicators are being included in the 2012 statistical analysis. If the Labels aggregator had not been chosen, the subsequent analysis would have been harder to interpret.

devtreks.cloudapp.net/hometreks/search/farmworkers/outcome/none/0

Aggregate Using: None **Labels** Types Groups

What If Tag: none

Description: v150a

Capital Investment Group : M and E 1 Malnutrition Projects

Capital Investment : Malnutrition Project 02

**Indicator Totals**

M and E Type: final

Time Period : 2012 Malnutrition Progress

**Indicator Totals**

**Indicator 1**

Indicator 1 Name : <b>Q1 Population Food Secure Status</b>	Type : actual
Label : TP123	Unit : proportion families
Date : 03/15/2012	
Total : 3.771	Observations : 8.000
Mean : 0.471	Median : 0.470
Variance : 0.045	Std Dev : 0.212
Q1 Total : 404000.000	Q1 Unit : families
Q1 Mean : 50500.000	Q1 Median : 50500.000
Q1 Variance : 563428571.429	Q1 Std Dev : 23736.650
Q2 Total : 846000.000	Q2 Unit : total families
Q2 Mean : 105750.000	Q2 Median : 107500.000
Q2 Variance : 14214285.714	Q2 Std Dev : 3770.184

**Description :** This indicator measures the Q1 proportion of families who are food secure

← → ↻ devtreks.cloudapp.net/hometreks/search/farmworkers/outcome/none/0, 5

**Outcome : 2012 Families no malnourished children**

**Indicator Totals**

**Indicator 1**

Indicator 1 Name : <b>Q1 families with no malnourishment</b>	Type : actual
Label : OC123	Unit : proportion families
Date : 04/01/2012	
Total : 0.770	Observations : 8.000
Mean : 0.096	Median : 0.090
Variance : 0.002	Std Dev : 0.044
Q1 Total : 7700.000	Q1 Unit : families
Q1 Mean : 962.500	Q1 Median : 900.000
Q1 Variance : 191250.000	Q1 Std Dev : 437.321
Q2 Total : 80000.000	Q2 Unit : total families
Q2 Mean : 10000.000	Q2 Median : 10000.000
Q2 Variance : 0.000	Q2 Std Dev : 0.000

**Description :** This indicator measures the proportion of families who have no children suffering from malnutrition.

**Output : 2012 Number of children examined for malnutrition, Project 01**

**Indicator Totals**

**Indicator 1**

Indicator 1 Name : <b>Q1 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : proportion children
Date : 03/15/2012	
Total : 1.909	Observations : 8.000
Mean : 0.239	Median : 0.120
Variance : 0.063	Std Dev : 0.252
Q1 Total : 192900.000	Q1 Unit : children
Q1 Mean : 24112.500	Q1 Median : 12350.000
Q1 Variance : 624989821.429	Q1 Std Dev : 24999.796
Q2 Total : 825000.000	Q2 Unit : children population
Q2 Mean : 103125.000	Q2 Median : 102500.000
Q2 Variance : 12053571.429	Q2 Std Dev : 3471.825

**Component : 2012 Malnutrition Project 01 Food Delivery**

**Indicator Totals**

**Indicator 1**

Indicator 1 Name : **Q1 Actual Food Delivered to Clinics** Type : actual  
 Label : I122 Unit : dollars  
 Date : 03/30/2013  
 Total : 7652500.000 Observations : 4.000  
 Mean : 1913125.000 Median : 1868750.000  
 Variance : 652501562500.000 Std Dev : 807775.688  
 Q1 Total : 12300.000 Q1 Unit : ton  
 Q1 Mean : 3075.000 Q1 Median : 2850.000  
 Q1 Variance : 1309166.667 Q1 Std Dev : 1144.188  
 Q2 Total : 2450.000 Q2 Unit : dollars  
 Q2 Mean : 612.500 Q2 Median : 625.000  
 Q2 Variance : 3958.333 Q2 Std Dev : 62.915  
**Description** : This indicator measures ..

**Input : 2012 Food Package**

**Indicator Totals**

**Indicator 1**

Indicator 1 Name : **Q1 Food Packages Purchased** Type : actual  
 Label : I122 Unit : total package cost  
 Date : 03/15/2012  
 Total : 31262.000 Observations : 7.000  
 Mean : 4466.000 Median : 3192.000  
 Variance : 7364653.667 Std Dev : 2713.790  
 Q1 Total : 20950.000 Q1 Unit : packages  
 Q1 Mean : 2992.857 Q1 Median : 2100.000  
 Q1 Variance : 3453690.476 Q1 Std Dev : 1858.411  
 Q2 Total : 10.520 Q2 Unit : dollars  
 Q2 Mean : 1.503 Q2 Median : 1.500  
 Q2 Variance : 0.001 Q2 Std Dev : 0.030

## 2. Change 1 Analysis

This type of analysis uses indicators that support Change by Year and Change by Id calculations to measure total and percent changes in aggregated indicators.

**Benchmark Total** is the initial amount of the indicator being measured that has an Indicator Type property of Benchmark (regardless of the year).

**Actual Total** (or Q1, Q2) is a summation of all of the indicators that have an Indicator Type set to Actual for the same year except for the Benchmark.

**Total Change** (or Q1, Q2) is measured as Actual Total Year  $x$  – Actual Total Year  $x - 1$  (with the first calculation subtracting zero).

**Percent Total Change** (or Q1, Q2) is measured (Total Change Year  $x$  / Actual Total Year  $x - 1$ ) \* 100.

**Benchmark Percent Change** (or Q1, Q2) is measured as ((Actual Total Year  $x$  – Benchmark Total) / Benchmark Total) \* 100.

**Average Cost** is measured as Actual Total / Q1 Total (i.e. Total Cost / Total Quantity).

**Marginal Cost** is measured as Total Change / Q1 Change (i.e. Incremental Change in Total Cost / Incremental Change in Total Quantity).

**Price Elasticity** is measured as  $((x_{\text{minus}1} \cdot \text{TotalQ1} - \text{current} \cdot \text{TotalQ1}) / (x_{\text{minus}1} \cdot \text{TotalQ1} + \text{current} \cdot \text{TotalQ1}) / 2) / ((x_{\text{minus}1} \cdot \text{TotalQ2} - \text{current} \cdot \text{TotalQ2}) / (x_{\text{minus}1} \cdot \text{TotalQ2} + \text{current} \cdot \text{TotalQ2}) / 2)$ . Q1 is interpreted as a Quantity and Q2 is interpreted as a Price.

If any divisor is zero, the calculated number will be zero as well. Although the terms “Cost” and “Price” are used in these properties because those are common measurements for these types of numbers, the measurements are useful for numbers that are not prices or costs as well.

The following image uses the same exact data as the Statistics 1 analysis but now analyzes annual indicator changes. The 2012 Output Series data is measuring changes between 2012 Benchmark and 2012 aggregated Actual Indicators. The 2013 *Output Series* data is measuring changes between the 2012 Benchmark and aggregated Actual Indicators and the 2013 aggregated Actual Indicators. Note that although up to four indicators are being aggregated in each series, properties such as name and description come from the first indicator only. Also note that the 2013 decreased Percent Total Change in the proportion of families receiving food nutrition packages could mean that malnutrition conditions are improving. The only way to know is to read the story that must accompany these analyses and that explains their content.

The screenshot shows a web browser window with the URL `devtreks.cloudapp.net/hometreks/search/farmworkers/input/none/0/none`. The main content area displays two indicator cards.

**Indicator 1 (Q1 food nutrient packages delivered)**  
 Type : actual  
 Label : 0122A Unit : proportion families  
 Date : 03/15/2012  
 Actual Total : 3.342 Total Change : 3.342  
 Benchmark Total : 0.200 Benchmark Percent Change : 1571.000  
 Percent Total Change : 0.000  
 Q1 Total : 336000.000 Q1 Unit : families  
 Benchmark Q1 : 20000.000 Q1 Change : 336000.000  
 Percent Q1 Change : 0.000 Benchmark Q1 Percent Change : 1580.000  
 Q2 Total : 402000.000 Q2 Unit : population families  
 Benchmark Q2 : 100000.000 Q2 Change : 402000.000  
 Percent Q2 Change : 0.000 Benchmark Q2 Percent Change : 302.000  
 Average Cost : 0.000 Marginal Cost : 0.000  
 Price Elasticity : 1.000  
**Description :** This indicator measures the Q1 proportion of families with malnourished children that received the minimal number of food nutrient packages each week.

**Output Series : 2013 Number of food nutrient packages distributed**

**Indicator Totals**

**Indicator 1 (Q5 food nutrient packages delivered)**  
 Type : actual  
 Label : 0122A Unit : proportion families  
 Date : 03/15/2013  
 Actual Total : 1.940 Total Change : -1.402  
 Benchmark Total : 0.200 Benchmark Percent Change : 870.000  
 Percent Total Change : -41.951  
 Q1 Total : 194000.000 Q1 Unit : families  
 Benchmark Q1 : 20000.000 Q1 Change : -142000.000  
 Percent Q1 Change : -42.262 Benchmark Q1 Percent Change : 870.000  
 Q2 Total : 400000.000 Q2 Unit : population families  
 Benchmark Q2 : 100000.000 Q2 Change : -2000.000  
 Percent Q2 Change : -0.498 Benchmark Q2 Percent Change : 300.000  
 Average Cost : 0.000 Marginal Cost : 0.000  
 Price Elasticity : 107.438  
**Description :** This indicator measures the Q5 proportion of families with malnourished children that

Operating Budget and Capital Budget analysis will display Input and Output elements as shown above (Q1 to Q4 in an aggregated 2012 element and Q5 to Q8 in an aggregated 2013 element). The following image shows that other elements, such as Outcome and Components, are displayed in the same element:

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Outcomes

**Outcome : 2012 Families no malnourished children**

### Indicator Totals

Indicator 1 Name : <b>Q1 families with no malnourishment</b>	Type : actual
Label : OC123	Unit : proportion families
Actual Total : 1.400	Date : 2012-03-15T00:00:00
Benchmark Total : 0.100	Total Change : 1.400
Percent Total Change : 0.000	Benchmark Percent Change : 1300.000
Q1 Total : 14000.000	Q1 Unit : families
Benchmark Q1 : 1000.000	Q1 Change : 14000.000
Percent Q1 Change : 0.000	Benchmark Q1 Percent Change : 1300.000
Q2 Total : 40000.000	Q2 Unit : total families
Benchmark Q2 : 10000.000	Q2 Change : 40000.000
Percent Q2 Change : 0.000	Benchmark Q2 Percent Change : 300.000
<b>Description</b> : This indicator measures the Q1 proportion of families who have no children suffering from malnutrition.	
Indicator 1 Name : <b>Q5 families with no malnourishment</b>	Type : actual
Label : OC123	Unit : proportion families
Actual Total : 2.400	Date : 2013-03-15T00:00:00
Benchmark Total : 0.100	Total Change : 1.000
Percent Total Change : 71.429	Benchmark Percent Change : 2300.000
Q1 Total : 24000.000	Q1 Unit : families
Benchmark Q1 : 1000.000	Q1 Change : 10000.000
Percent Q1 Change : 71.429	Benchmark Q1 Percent Change : 2300.000
Q2 Total : 40000.000	Q2 Unit : total families
Benchmark Q2 : 10000.000	Q2 Change : 0.000
Percent Q2 Change : 0.000	Benchmark Q2 Percent Change : 300.000
<b>Description</b> : This indicator measures the Q5 proportion of families who have no children suffering from malnutrition.	

**Output : 2012 Number of children examined for malnutrition, Project 01**

### Indicator Totals

Indicator 1 Name : <b>Q1 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : percent children
Actual Total : 0.200	Date : 2012-03-15T00:00:00
Benchmark Total : 0.010	Total Change : 0.200
Percent Total Change : 0.000	Benchmark Percent Change : 1900.000
Q1 Total : 2000.000	Q1 Unit : children
Benchmark Q1 : 100.000	Q1 Change : 2000.000
Percent Q1 Change : 0.000	Benchmark Q1 Percent Change : 1900.000
Q2 Total : 40000.000	Q2 Unit : children population

The following Input Change by Id Analysis carries out legitimate Marginal Cost Analysis because the Q1 and Q2 indicator properties were entered using a standard Quantity (Q1) and Price (Q2) relation (refer to the M&E 1 reference for further details about this type of analysis).

devtreks.cloudapp.net/hometreks/search/farmworkers/input/none/0/no

Percent Q2 Change : 20.000      Benchmark Q2 Percent Change : 0.000  
 Average Cost : 1810.824      Marginal Cost : 49145.672  
 Price Elasticity : 0.000  
**Description :** Q1 measures the number of cancers detected, Q2 measures the diagnosis price per cancer detected, Weight is a general multiplier, and Total measures the totals costs per treatment.

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**Indicator 4**

Indicator 1 Name : **4 Test Marg Cost Cancers Detected**      Type : actual  
 Label : I130A      Unit : total cost  
 Actual Total : 148116.934      Date : 06/23/1975  
 Benchmark Total : 0.000      Total Change : 17918.688  
 Percent Total Change : 13.763      Benchmark Percent Change : 0.000  
 Q1 Total : 71.939      Q1 Unit : cancers detected  
 Benchmark Q1 : 0.000      Q1 Change : 0.039  
 Percent Q1 Change : 0.054      Benchmark Q1 Percent Change : 0.000  
 Q2 Total : 7.000      Q2 Unit : price per cancer detected  
 Benchmark Q2 : 0.000      Q2 Change : 1.000  
 Percent Q2 Change : 16.667      Benchmark Q2 Percent Change : 0.000  
 Average Cost : 2058.924      Marginal Cost : 459453.538  
 Price Elasticity : 0.000  
**Description :** Q1 measures the number of cancers detected, Q2 measures the diagnosis price per cancer detected, Weight is a general multiplier, and Total measures the totals costs per treatment.

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**Indicator 5**

Indicator 1 Name : **5 Test Marg Cost Cancers Detected**      Type : actual  
 Label : I130A      Unit : total cost  
 Actual Total : 163141.435      Date : 06/23/1975  
 Benchmark Total : 0.000      Total Change : 15024.501  
 Percent Total Change : 10.144      Benchmark Percent Change : 0.000  
 Q1 Total : 71.942      Q1 Unit : cancers detected  
 Benchmark Q1 : 0.000      Q1 Change : 0.003  
 Percent Q1 Change : 0.004      Benchmark Q1 Percent Change : 0.000  
 Q2 Total : 8.000      Q2 Unit : price per cancer detected  
 Benchmark Q2 : 0.000      Q2 Change : 1.000  
 Percent Q2 Change : 14.286      Benchmark Q2 Percent Change : 0.000  
 Average Cost : 2267.680      Marginal Cost : 5008167.000  
 Price Elasticity : 0.000  
**Description :** Q1 measures the number of cancers detected, Q2 measures the diagnosis

### 3. Progress 1 Analysis

This type of analysis uses indicators that support Progress calculations to measure the actual progress achieved for Full Target and Partial Target indicators. Actual indicators must have a date that is less than the corresponding partial target date, and greater than or equal to a previous partial target date. The properties in this analysis include:

**Actual Total** is a summation of all of the indicators within a partial period that have an Indicator Type property of Actual.

**Benchmark Total** is the initial amount of the indicator being measured (using a Benchmark option for the Indicator Type property).

**Benchmark Percent** equals  $\text{Actual Total} / \text{Benchmark Total}$ .

**Partial Target Total** is the partial target amount of the indicator being measured for a partial target period.

**Partial Target Percent** equals  $\text{Actual Total} / \text{Partial Target Total}$ .

**Full Target Total** is the full target amount of the indicator being measured.

**Full Target Percent** equals  $\text{Actual Total} / \text{Full Target Total}$ .

If any divisor is zero, the calculated number will be zero as well.

The following *Progress / Outcome Analysis* displays the progress achieved for two M&E element indicators over two quarterly periods:

Outcome : Consumption of Nutritious Meals	
<b>Indicator Totals</b>	
Indicator 1 Name : <b>Q1 Partial Target Percent Population Eating Healthy</b> Label : OC120 Actual Total : 25.00 Benchmark Total : 20.00 Partial Target Total : 20.00 Partial Target Percent : 125.00 Full Target Total : 75.00 <b>Description</b> : The Q1 partial target percentage of the targeted population engaged in targeted eating meals that meet food nutrition target is 20%,	Type : partialtarget Actual Unit : percent eating healthy Actual Date : 2013-06-10T00:00:00 Benchmark Percent : 125.00 Partial Target Date : 2013-06-12T00:00:00 Full Target Percent : 33.33
Indicator 2 Name : <b>Q2 Partial Target Percent Population Eating Healthy</b> Label : OC120 Actual Total : 45.00 Benchmark Total : 20.00 Partial Target Total : 40.00 Partial Target Percent : 112.50 Full Target Total : 75.00 <b>Description</b> : The Q2 partial target percentage of the targeted population engaged in targeted eating meals that meet food nutrition target is 40%,	Type : partialtarget Actual Unit : percent eating healthy Actual Date : 2013-09-10T00:00:00 Benchmark Percent : 225.00 Partial Target Date : 2013-09-12T00:00:00 Full Target Percent : 60.00
<b>Output : 2013 Nutrition Training Workshops</b>	
<b>Indicator Totals</b>	
Indicator 1 Name : <b>Q1 Partial Target Passing Nutrition Grades</b> Label : O121 Actual Total : 20.00 Benchmark Total : 15.00 Partial Target Total : 25.00 Partial Target Percent : 80.00 Full Target Total : 70.00 <b>Description</b> : Quarter 1's partial target for	Type : partialtarget Actual Unit : percent passing score Actual Date : 2013-06-10T00:00:00 Benchmark Percent : 133.33 Partial Target Date : 2013-06-12T00:00:00 Full Target Percent : 28.57

The following Operating Budget Progress Analysis examines the progress achieved for 2 quarters in 2 Time Periods:

devtreks.cloudapp.net/hometreks/search/farmworkers/outcome/none/0/none

Budget Group									
M and E 1 Malnutrition Projects									
Budget									
Malnutrition 1 Project 01									
Monitoring and Evaluation Type: final									
Time Period Indicator Totals									
2013, Malnutrition Improvement Progress									
Type	Actual Total	Actual Date	Benchmark Total	Benchmark Percent	Partial Target Date	Partial Target Total	Partial Target Percent	Full Target Total	Full Target Percent
<b>Q1 Partial Target Nutrition-Related Health Improvements</b>									
T120 percent									
partialtarget	27.000	03/30/2013	20.000	135.000	04/01/2013	35.000	77.143	75.000	36.000
The Q1 partial target percentage of the targeted population who do not experience food nutrition-related health problems is 35%.									
<b>Q2 Partial Target Nutrition-Related Health Improvements</b>									
T120 percent									
partialtarget	43.000	06/30/2013	20.000	215.000	07/01/2013	50.000	86.000	75.000	57.333
The Q2 partial target percentage of the targeted population who do not experience food nutrition-related health problems is 50%.									
Outcomes									
Outcome									
<b>Consumption of Nutritious Meals</b>									
Type	Actual Total	Actual Date	Benchmark Total	Benchmark Percent	Partial Target Date	Partial Target Total	Partial Target Percent	Full Target Total	Full Target Percent
<b>Q1 Partial Target Percent Population Eating Healthy</b>									
OC120 percent eating healthy									
partialtarget	25.000	06/10/2013	20.000	125.000	06/12/2013	20.000	125.000	75.000	33.333

4. **Other Analyses:** Future references will include additional types of analyses.

#### H. M&E Analysis and Economic Analysis

Although M&E Analyses can be completed independently of their encompassing economic evaluation numbers, we recommend that both M&E analyses and economic analyses (refer to the General Analyzers section of DevTreks’ home page) be used together. The *Performance*

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*Analysis 1* reference demonstrates how to use various Performance Measures, such as Incremental Cost Effectiveness Ratio and Cost per Unit Indicator, to support decisions that combine monitoring and evaluation data with benefit and cost data.

## **I. Comparative Analysis**

DevTreks supports basic M&E comparative analysis. Each indicator being compared in an analysis must have the Indicator.Alternative option set to an appropriate option (one, two, three, four, or five). The exact same type of Analyses explained in previous sections will be carried out, but, before running the analysis, the Indicators will be subdivided further by the Alternative. This generation of analyses displays the results of each Alternative but does not carry out any mathematical operations between the Alternatives. Even though the math carried out in comparative analysis is simple (addition, subtraction, multiplication, or division), the amount of data generated can make interpretation difficult. A good strategy is to always include a summary story with each analysis.

The comparative analyses supported in DevTreks include:

### **1. Statistics 1 Comparative Analysis**

The following image displays the results of running a comparative analysis for a *Statistics 1 Analysis*. The analysis compares three alternatives, each consisting of 8 indicators that have been aggregated from two different Output Series (2012 and 2013).

Indicator 1 Name : <b>Altern one : Q1 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : percent children
Date : 2012-03-15T00:00:00	
Total : 0.600	Observations : 8.000
Mean : 0.075	Median : 0.075
Variance : 0.001	Std Dev : 0.027
Q1 Total : 6000.000	Q1 Unit : children
Q1 Mean : 750.000	Q1 Median : 750.000
Q1 Variance : 71428.571	Q1 Std Dev : 267.261
Q2 Total : 80000.000	Q2 Unit : children population
Q2 Mean : 10000.000	Q2 Median : 10000.000
Q2 Variance : 0.000	Q2 Std Dev : 0.000
<b>Description</b> : This indicator measures the Q1 proportion of malnourished children examined during the malnutrition improvement program.	

**Output Series : 2012 Number of children examined for malnutrition, Project 02**

Indicator Totals	
Indicator 1 Name : <b>Altern two : Q1 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : percent children
Date : 2012-03-15T00:00:00	
Total : 0.800	Observations : 8.000
Mean : 0.100	Median : 0.100
Variance : 0.001	Std Dev : 0.027
Q1 Total : 8000.000	Q1 Unit : children
Q1 Mean : 1000.000	Q1 Median : 1000.000
Q1 Variance : 71428.571	Q1 Std Dev : 267.261
Q2 Total : 80000.000	Q2 Unit : children population
Q2 Mean : 10000.000	Q2 Median : 10000.000
Q2 Variance : 0.000	Q2 Std Dev : 0.000
<b>Description</b> : This indicator measures the Q1 proportion of malnourished children examined during the malnutrition improvement program.	

**Output Series : 2012 Number of children examined for malnutrition, Project 03**

Indicator Totals	
Indicator 1 Name : <b>Altern three : Q1 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : percent children
Date : 2012-03-15T00:00:00	

## 2. Change 1 Comparative Analysis

The following image displays the same data as found in the comparative *Statistics 1 Comparative Analysis*, but an *Annual Change 1 Analysis* has been run. The analysis compares three alternatives over two years, each consisting of 4 indicators found in separate Output Series (2012 and 2013). The 2012 Output Series are measuring changes between a 2012 Benchmark Indicator and aggregated 2012 Actual Indicators. The 2013 Output Series are measuring changes between their related 2012 Output Series Alternative and 2013 aggregated Actual Indicators.

**Output Series : 2012 Number of children examined for malnutrition, Project 03**

**Indicator Totals**

Indicator 1 Name : <b>Altern three : Q1 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : percent children
Actual Total : 0.400	Date : 2012-03-15T00:00:00
Benchmark Total : 0.100	Total Change : 0.400
Percent Total Change : 0.000	Benchmark Percent Change : 300.000
Q1 Total : 4000.000	Q1 Unit : children
Benchmark Q1 : 1000.000	Q1 Change : 4000.000
Percent Q1 Change : 0.000	Benchmark Q1 Percent Change : 300.000
Q2 Total : 40000.000	Q2 Unit : children population
Benchmark Q2 : 10000.000	Q2 Change : 40000.000
Percent Q2 Change : 0.000	Benchmark Q2 Percent Change : 300.000

**Description :** This indicator measures the Q1 proportion of malnourished children examined during the malnutrition improvement program.

**Output Series : 2013 Number of children examined for malnutrition, Project 01**

**Indicator Totals**

Indicator 1 Name : <b>Altern one : Q5 malnourished children examined</b>	Type : actual
Label : 0123A	Unit : percent children
Actual Total : 0.400	Date : 2013-03-15T00:00:00
Benchmark Total : 0.010	Total Change : 0.200
Percent Total Change : 100.000	Benchmark Percent Change : 3900.000
Q1 Total : 4000.000	Q1 Unit : children
Benchmark Q1 : 100.000	Q1 Change : 2000.000
Percent Q1 Change : 100.000	Benchmark Q1 Percent Change : 3900.000
Q2 Total : 40000.000	Q2 Unit : children population
Benchmark Q2 : 10000.000	Q2 Change : 0.000
Percent Q2 Change : 0.000	Benchmark Q2 Percent Change : 300.000

**Description :** This indicator measures the Q5 proportion of malnourished children examined during the malnutrition improvement program.

**Output Series : 2013 Number of children examined for malnutrition, Project 02**

**Indicator Totals**

**3. Progress 1 Comparative Analysis**

A future update of this reference will include a sample data set demonstrating the use of this analysis.

**J. Sample Data Sets**

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This section demonstrates how a data set for an M&E analysis might be structured. The data set uses a *Progress 1* analysis. Examples of *Statistical*, *Annual Change*, and *Marginal Cost* analyses can be found in nearby M&E elements (i.e. a Project 02 Malnourishment Capital Budget is a sibling of the Malnutrition Project 1 Capital Budget URI below).

## **Data**

This section contains links to sample data sets that display the results of running these M&E analyzers. Keep in mind that these data sets were structured and used to test the analyzers. The data is fictitious and no weight should be assigned to the absolute numbers –pay attention to the aggregation techniques only. Many of these data sets were not all upgraded to their latest version on the cloud site. As testing takes place on some elements, changes are made to indicators to further test an analysis (i.e. Change by Alt). Those changes may not be reflected in analyses that were run before the changes were made (i.e. Totals). The data can be examined at the following URIs (1\*):

- **Input Service URI**

<https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Inputs/2651/none/>

- **Output Service URI**

<https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Outputs/2656/none/>

- **Operation Service URI**

<https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Operations/2654/none/>

- **Component Service URI**

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[https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Components/2650/none/](https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M%20and%20E%20Malnutrition%20Components/2650/none/)

- **Outcome Service URI**

[https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Outcomes/2655/none/](https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M%20and%20E%20Malnutrition%20Outcomes/2655/none/)

- **Operating Budget Service URI**

[https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Op Budgets/2653/none/](https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M%20and%20E%20Malnutrition%20Op%20Budgets/2653/none/)

- **Capital Budget Service URI**

[https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M and E Malnutrition Investments/2652/none/](https://www.devtreks.org/hometreks/select/farmworkers/servicebase/M%20and%20E%20Malnutrition%20Investments/2652/none/)

## **WBS Examples**

The following WBS is an example of how to classify Inputs:

**Type:** T120. Food Nutrition

**Group:** IG120. M and E Malnutrition Education Group

**Input:** I120. 2013 Nutrition Training Manual Development

**Input Series:** I120. 2013 Nutrition Training Manual Development

**Indicator 1:** I120. Training Material Development Labor

**Input:** I121. 2013 Nutrition Training Workshop

**Input Series:** I121. 2013 Nutrition Training Workshop

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**Indicator 1: I121. Training Labor**

The following WBS is an example of how to classify Outputs:

**Type:** T120. Food Nutrition

**Group:** 0G120. M and E Nutrition Training and Practice

**Output:** O121. 2013 Nutrition Training Workshops

**Output Series:** O121. 2013 Nutrition Training Workshops

**Indicator 1:** O121. Passing Nutrition Grades

**Output:** O120. 2013 Nutritious Meals Consumed

**Output Series:** O120. 2013 Nutritious Meals Consumed

**Indicator 1:** O120. Daily Nutrition Target Days per Month

The following WBS is an example of how to classify Operations or Components:

**Type:** T120. Food Nutrition

**Group:** OPG120. M and E Malnutrition Training

**Operation 1:** OP121. 2013 Conduct Training Workshops

**Indicator 1:** OP121. Workshops Held

**Input 1:** I121. 2013 Nutrition Training Workshop

**Indicator 1:** I121. Training Labor

**Operation 2:** OP120. 2013 Develop Nutrient Training Materials

**Indicator 1:** OP120. Training Materials Completed

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**Input 1: I120** 2013 Nutrition Training Manual Development

**Indicator 1: I120.** Training Material Development Labor

The following WBS is an example of how to classify Outcomes:

**Type: T120.** Food Nutrition

**Group: OCG120.** Nutrition Education and Practices

**Outcome 1: OC120.** Consumption of Nutritious Meals

**Indicator 1: OC120.** Percent Population Eating Healthy

**Output 1: O121.** 2013 Nutrition Training Workshops

**Indicator 1: O121.** Passing Nutrition Grades

**Output 2: O120.** 2013 Nutritious Meals Consumed

**Indicator 1: O120.** Daily Nutrition Target Days per Month

The following WBS is an example of how to classify Operating or Capital Budgets:

**Type: T120.** Food Nutrition

**Group: BG120.** M and E Malnutrition Projects

**Budget 1: B120.** Malnutrition Project 1. The goal of this project is to reduce malnutrition in a targeted population. Children in the targeted population suffer from malnutrition.

**Time Period 1: TP120.** 2013 Malnutrition Improvement Progress

**Indicator 1: TP120.** Nutrition-Related Health Improvements

**Indicator 2: 120A.** Female Children

**Indicator 3: 120B. Male Children**

**Outcome 1: OC120. Consumption of Nutritious Meals**

**Indicator 1: OC120. Percent Population Eating Healthy**

**Output 1: O121. 2013 Nutrition Training Workshops**

**Indicator 1: O121. Passing Nutrition Grades**

**Output 2: O120. 2013 Nutritious Meals Consumed**

**Indicator 1: O120. Daily Nutrition Target Days per Month**

**Operation 1: OP121. 2013 Conduct Training Workshops**

**Indicator 1: OP121. Workshops Held**

**Input 1: I121. 2013 Nutrition Training Workshop**

**Indicator 1: I121. Training Labor**

**Operation 2: OP120. 2013 Develop Nutrient Training Materials**

**Indicator 1: OP120. Training Materials Completed**

**Input 1: I120 2013 Nutrition Training Manual Development**

**Indicator 1: I120. Training Material Development Labor**

**Summary**

Clubs using DevTreks can carry out the basic monitoring and evaluation of projects, programs, and technologies. Clubs can solicit help with projects that are struggling and share structured knowledge explaining success and failure. Networks can build knowledge banks that explain why projects, programs, and technologies succeed or fail and pass that knowledge down to future

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generations. The result may be more effective social improvement programs and people who improve their lives and livelihoods.

## **Footnotes**

1. DevTreks focuses on software development, not content development. We don't run calculations for every URI in a data set, just enough to carry out software tests. The monitoring and evaluation numbers generated by these analyzers were tested within the limitations of existing data sets. Those data sets have limited M&E data, but were successfully tested using Version 1.5.0's 88 M&E 1 and 2 calculators and analyzers. They'll continue to be tested using new data sets and combinations of base elements, prices, amounts, dates, amortization periods, and multipliers. We recommend running all analyses using the Full, rather than Mobile, view. The Full view generates html faster than the Mobile view. Once the Full view has been saved, click on the Mobile view to save that view.

## **References**

References can be found in the *Monitoring and Evaluation 1: Food Nutrition* reference.

## **References Note**

We try to use references that are open access or that do not charge fees.

## **Improvements, Errors, and New Features**

Please notify DevTreks (devtrekkers@gmail.com) if you find errors or can recommend improvements.

## **Video tutorials explaining this reference can be found at:**

<https://www.devtreks.org/commontreks/preview/commons/resourcepack/M and E Analysis 1/518/none/>