



Overcoming Double Counting and Under Counting Errors in Monitoring and Evaluation: Field Experience in Development Projects in Tanzania

Dr Isaack Michael Mchumi Nguliki, PhD.*

Dar Es Salaam, Tanzania

Abstract

This paper examines double counting and under counting errors in development projects and programmes using field experience in projects and programmes management in Tanzania. The paper presents factors underlying these errors in counting and generating monitoring and evaluation data. Data context in term of operational and results; spillover effect and indirect beneficiaries, treatments of graduation model and dropout scenarios are key factors driving double counting and under counting errors in monitoring and evaluation data in many development projects and programmes. Projects are expected to be vigilant with treatment and validation of indirect beneficiaries. Feasible options to mitigate, coping, and adapting challenges around double counting and under counting errors have been provided in the paper. Further, the paper shares field experience on managing of double counting and under counting errors in monitoring and evaluation data in development projects and programmes.

Keywords: Double counting errors; under counting errors; Monitoring and Evaluation.

*Dr Isaack is Monitoring & Evaluation Expert in Donor Funded Development Projects and Programmes with ten years working experience in International Organizations including United Nations.

1. Introduction

Double counting and under counting error is a common phenomenon in monitoring and evaluation data in development projects and programmes. Basically, the error entails confusion in treatment of monitoring and evaluation data between the twin context of operational and results data. Further, this error is subject to treatment of spill over effect and indirect or unintended beneficiaries. As such, the double counting and under counting error is quite tricky, thus to address this challenge, a considerable knowledge and skills in monitoring and evaluation is required. Virtually, data and figures in several project reports have this problem thus jeopardizing integrity and reliability of monitoring and evaluation outputs. Some publications highlighting data quality in monitoring and evaluation include Acevedo et al. (2010), Adato (2011), UNEG (2005), Ogbiti (2016), ASARECA (2010), IFAD (2002), UNDP (2002), IFRC (2011), WB (2010), Bamberger et al (2010), and Dereje (2015).

Double counting error happens when some data is reported more than one whereas under reporting happens when monitoring and evaluation system records less data than actual data on the ground. The two contexts underpinning issues of counting errors are operational and results data in intervention logic. Operational data on the other hand entails data outputs from project activity as provided in implementation plan while results entails data specified in indicators in the intervention logic e.g. logical framework and theory of change.

A robust monitoring and evaluation system ought to integrate feasible methods and tools to overcome double counting and under reporting errors. This paper therefore presents double counting error in Monitoring and Evaluation Data using field experience in development projects and programmes in Tanzania. The paper aims to share operational experience in overcoming counting errors through strengthening M&E tools.

2. Overcoming double counting and under counting errors

Typically, double counting errors occur in outreach indicators in repeated project activities. For example, some interventions involve training of beneficiaries. Where several trainings are conducted to same trainees therefore the training data needs to be treated into two ways. Firstly, as an operational data this refers to data related to the implementation plan outputs. Secondly, as results data this refers to the data related to the indicators in intervention logic.

As such double counting error doesn't concern operational data reporting since this data is reported without subjecting to double counting test since the data measures performance against the work plan. For example if work plan targets 250 but only 200 farmers trained therefore operational data would count exact number of farmers trained viz 200. As for results data against outreach indicators some factors like repetition needs to be integrated to ensure that farmers are counted once even if they attend different training sessions. Failure to take into consideration of repetition factor will result into double counting errors whereby in worst scenario the outreach figure exceeds entire population of the target area e.g. a project reporting results data training 5,000 farmers in a village of 2,500 population meaning that these farmers were trained twice with training outputs counted twice thus "double counting error".

Presenting example from field experience in overcoming double counting and under counting errors in a rural development project unlocking potentials in maize value chain through strategic pathways such as capacity building of farmers through training on good agronomic practices and post-harvest management; inputs and output markets. This project is prone to double counting error given its complexity as multi-year project addressing annual crop value chain involving repetition of intervention treatments in similar of fixed geographical areas and beneficiaries. Scenario one "Table

1” presents a typical treatment of double counting errors whereas scenario two “Table 2” presents a typical treatment of under counting error as explained hereafter.

Scenario One: Double Counting Error

Table 1 presents typical treatment of double counting error whereby data is spread into two categories of operational data and net results data factoring repetition. Operational data entails results without considering repetition factor whereas results data takes care of repetition factor with regard to outreach indicators e.g. number of farmers and farmer groups supported. However, double bounting error does not apply to data related to volumes of inputs and outputs and sales figures. Taking example of the first row in table 1 about total farmers supported, this indicator represent a general outreach reporting farmers supported with both full and partial intervention. Column A is about operation data brought forward from previous years the project report treatments provided to 75, 000 farmers with repetition. However, the actual farmers supported counted without repition are 23,491 “column B”. Column C presents operational data 38,228 farmers supported in the current year whereas column D presents same number for column C meaning that in the current year all farmers supported are new. Cumulative operational data is 113,288 farmers whereas the outreach indicator results data is 61,719 being number of the farmers counted without repetition. Operational data serves for the purpose of operational and budgeting accountability and reporting whereas results data serves for the purpose of reporting outreach indicators in the intervention logic.

Table 1: Treating double counting errors

No			A	B	C	D	E	F	H
			Operational Data	Results Data	Operational Data	Results Data	Operational Data	Results Data	Remark
	Description of results indicator	Unit	Previous Years	Previous Years	Current Year	Current Year	Cumulative	Cumulative	Double counting error checking
1	Total Farmers supported	Person	75,000	23,491	38,228	38,228	113,228	61,719	Applicable
2	Farmer groups supported	Number	369	246	211	42	580	288	Applicable
3	Farmers trained on Good Agriculture Practices	Person	1,485	990	38,228	38,228	39,713	39,218	Applicable
4	Farmers trained on Post-harvest management	Person	60,000	49,143	25,000	5,000	85,000	54,143	Applicable
5	Project buyers	Number	12	8	4	4	16	12	Applicable
6	Farmers supported with market access	Farmer	36,531	24,354	15,004	15,004	51,535	39,358	Applicable
7	Farmer groups supported with market access	Number	171	114	69	12	240	126	Applicable
8	Number of market access Contract signed	Number	127	127	69	69	196	196	
9	Volume signed for collective marketing	Metric ton	28,562	28,562	16,083	16,083	44,645	44,645	
10	Volume aggregated	Metric ton	34,488	34,488	44,834	44,834	79,322	79,322	
11	Volume sold to project buyers	Metric ton	10,659	10,659	13,856	13,856	24,515	24,515	
12	Volume sold to non-project buyers	Metric ton	22,489	22,489	29,235	29,235	51,724	51,724	
13	Value of aggregated sales: project & Non project buyers	US Dollar	7,744,999	7,744,999	10,068,499	10,068,499	17,813,498	17,813,498	
14	Value of sales to project buyers	US Dollar	2,318,762	2,318,762	3,014,390	3,014,390	5,333,152	5,333,152	
15	Number of input suppliers	Number	6	4	4	0	10	4	Applicable
16	Improved seeds purchased by farmers	Metric ton	231	231	218	218	450	450	
17	Fertilizer purchased by farmers	Metric ton	3,618	3,618	2,997	2,997	6,615	6,615	
18	Crop protection/ Pesticides purchased by farmers	Metric ton	24	24	14	14	38	38	
19	Financial Institutions offering input loans	Number	5	1	3	3	8	4	Applicable
20	Farmer groups with input loans	Number	6	2	69	69	75	71	Applicable
21	Farmers accessing input finance	Person	2,068	1,034	7,321	7,321	9,389	8,355	Applicable
22	Input finance value	US Dollar	1,872,681	1,872,681	2,698,567	2,698,567	4,571,248	4,571,248	
23	Farmer groups with crop loss insurance	Number	75	50	69	19	144	69	Applicable
24	Farmers with crop loss insurance	Person	9,000	4,500	7,321	2,821	16,321	7,321	Applicable

Scenario Two: Under Counting Error

Many development projects suffer from under counting or under reporting errors attributable to missing data on spill over effect or indirect beneficiaries of the intervention. For example, a market linkage intervention whereby project supports in organizing buyers for the farm produce. Projects tend to report on direct beneficiaries only e.g. farmers in farmer groups working with the project. However, it is quite possible that some farmers may include farm produce of relatives, friends and neighbours who are not members of farmer groups supported by the project. These farmers become indirect beneficiaries since they get opportunity to sell their farm produce through friends, relatives and neighbours associated with the project.

This situation relates to outcome mapping documenting unintended beneficiaries of the project. Therefore, a project needs to put in place a robust monitoring and evaluation system capable of capturing results data on indirect beneficiaries. Another source of under reporting is associated with projects that uses graduation model of intervention. For example, a five year project involving capacity building of farmers on good agronomic practices and post-harvest training the project could skip counting those farmers who dropped or graduated before project completion. For example table 2 presents farmers graduated or dropped under column A, column B presents indirect beneficiaries, column C presents total active farmers thus excluding dropped farmers, column D presents total farmers including graduated or dropped farmers but excluding indirect farmers, and column E presents total farmers including graduated/dropped and indirect farmers. Therefore, the actual results of outreach data are 487,800 farmers who benefited the project intervention directly or indirectly on full or partial basis. However, projects must establish parameters to qualify indirect beneficiaries such that spill over effect needs to be significant enough to justify beneficiary status of farmers in question. Further, monitoring and evaluation system must be equipped with robust data collection, verification, and validation tools and methods to support and validate data on indirect beneficiaries.

Table 2: Treating under counting errors

				A	B	C	D	E
Year	Maize farmers	Bean farmers	Cassava farmers	Farmers Graduated/ Dropped	indirect beneficiaries	Total Active	Total Beneficiaries (excluding indirect beneficiaries)	Total Beneficiaries (including indirect beneficiaries)
2010	25,000	-	-	-	500	25,000	25,000	25,500
2011	23,500	27,750	-	-	1,000	51,250	51,250	52,250
2012	22,990	30,392	12,407	-	1,500	65,788	65,788	67,288
2013	18,655	28,541	22,525	9,628	2,000	60,094	69,721	71,721
2014	15,555	24,823	29,183	17,480	2,500	52,081	69,561	72,061
2015	13,119	21,157	32,756	22,646	3,000	44,385	67,032	70,032
2016	11,117	17,953	34,053	25,419	3,500	37,704	63,123	66,623
2017	9,437	15,231	33,658	26,426	4,000	31,900	58,326	62,326
					TOTAL	368,202	469,800	487,800

4. Conclusion

In conclusion, this paper has presented double counting and under counting errors in monitoring and evaluation data in development projects and programmes. Author has explored from field experience angle the underlying factors of data counting errors. Data context in terms of operational and results; spill over effect and indirect beneficiaries treatment of graduation model and dropout scenarios are key factors around the two errors. Projects need to be vigilant with treatment and validation of indirect beneficiaries. Therefore, this paper contributes to empirical experience, knowledge and skills in monitoring and evaluation domain with view to advance positive results around key performance indicators (KPIs) and managing for development results (MfDRs). Therefore, author hereby recommends stakeholders in development projects to draw attention in errors related to double-counting and under-counting.

References and Bibliography

- [1] Acevedo, G. L., Rivera, K., Lima, L., Hwang, H., Challenges in Monitoring and Evaluation: An Opportunity to Institutionalize M&E Systems, 2010
- [2] Adato, M., Combining Quantitative and Qualitative Methods for Program Monitoring and Evaluation: Why Are Mixed-Method Designs Best?, 2011,
- [3] ASARECA, Monitoring and Evaluating Series: Guidelines for Project Baseline studies, 2010
- [4] Bamberger, M., Rao, V., and Woolcock, M. "Using Mixed Methods in Monitoring and Evaluation: Experiences from International Development." World Bank Policy Research Working Paper 5245, Washington, DC. 2010.
- [5] Dereje G. M. Challenges in Project Monitoring and Evaluation: A Case Study of Gilgel Gibe 1 and 2 Integrated Watershed Management Project in Ethiopia, 2016
- [6] IFAD, Managing for Impact in Rural Development: A Guide for Project Monitoring and Evaluation, 2002
- [7] IFRC, Project and Programme Monitoring and Evaluation Guide, 2011,
- [8] Kusek, J. Z. and Rist, R.C., A Handbook for Development Practitioners: Ten Steps to a Results-Based Monitoring and Evaluation System, 2004,
- [9] Ogbiti, P. 'Budgeting & Capital Project Monitoring and Evaluation in an Era of Change' Project Monitoring & Evaluation-Issues & Challenges <http://niqs.org.ng/wp-content/uploads/2016/07/PROJECT-MONITORING-AND-EVALUATION-Copy-3.pdf>, website visited on 20 February 2018
- [10] Place, F., M. Adato, and P. Hebinck. "Understanding Rural Poverty and Investment in Agriculture: An Assessment of Integrated Quantitative and Qualitative Research in Western Kenya." World Development 35 (2) 312–25. 2007
- [11] Sivagnanasothy, V., Monitoring and Evaluation System in Sri Lanka: Experiences, Challenges and the Way Forward; http://siteresources.worldbank.org/INTLACREGTOPPOVANA/Resources/Paper_Velayuthan_Sivagnanasothy.pdf, website visited on 15th February 2018
- [12] UNDP, Handbook on Monitoring and Evaluating for Results, 2002
- [13] UNEG, Standards for Evaluation in the UN System. United Nations Evaluation Group, 2005
- [14] WB, Monitoring and Evaluation: Some Tools, Methods & Approaches, 2004
- [15] WB, Monitoring and Information Management, 2010

Abbreviations

ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
IFAD	International Fund for Agricultural Development
IFRC	International Federation of Red Cross and Red Crescent Societies

KPIs	Key Performance Indicators
MfDR	Managing for Development Results
M&E	Monitoring and Evaluation
SMART	specific, measurable, achievable, realistic, time bound indicators
UN	United Nations
UNDP	United Nations Development Programme
UNEG	United Nations Evaluation Group
VfM	Value for Money
WB	The World Bank

Funding

This paper is sole funded by the author. The author hereby declares that this paper is free from conflict of interest construed by external parties that could influence the results or /and interpretation of the manuscript. Further, views expressed herein are those of the researcher and do not necessarily reflect the official opinion of any of the organisations mentioned herein.