

Using Baseline Studies as a Basis for Monitoring and Evaluation: A Review of the Literature

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Abstract

Baseline data is often required by any organization or agency before an intervention as a basis for benchmarking progress; not only when implementation commences, but even prior to starting to gain knowledge of the situation at hand, and as a pillar for mid-term, end-term and impact evaluations. Baseline studies are pivotal as part of the pre-intervention foundational activities, because they help in testing hypotheses and can be a point of reference in the formative stages of a project in case the changes are bigger than what was assumed. Baseline studies have been very useful in project design and are an integral component of Monitoring and Evaluation (M&E) frameworks. In impact evaluations, baseline studies provide a basis for comparing the change observed over time with the situation that existed before the intervention or program. Because of donor preconditions, most implementers carry out baseline studies as a donor requirement and not as part of the standard M&E practice. This paper provides an overview of baseline studies as a valuable tool to inform the M&E processes and how baseline data has been utilized in M&E of different interventions. It concludes that baseline studies, if conducted well and data from them utilized effectively are very handy and useful in informing M&E processes.

Key words: **Baseline studies, Monitoring, Evaluation, Indicators, Utilization**

Introduction

Globalization has mounted pressure on governments and organizations across the globe to be more responsive to demands of internal and external stakeholders for accountability, transparency which are pillars of good governance as a prerequisite to greater development effectiveness, for delivery of tangible results. Several stakeholders, including governments, citizens, the private sector, non-government organizations (NGOs), civil society, international organizations, and donor communities are now focused on increased performance of policies, programs and projects, which calls for enhancing Results-Based Monitoring and Evaluation (RBME).

Worth noting is that in the past few decades, many national and international development organizations and agencies, as well as national government departments and agencies, have adopted Results-Based Monitoring and Evaluation (RBME) systems. RBME is a powerful management tool that can be used to help managers and policy makers in organizations and governments to track the outcomes and impact of a given policy, program or project (Kussek & Rist, 2004). Kussek and Rist (2004) identified 10 steps to designing, building and sustaining an RBME system and these are: conducting a readiness assessment; agreeing on outcomes to monitor and evaluate; selecting key indicators to monitor outcomes; collecting baseline data on selected indicators; planning for improvements, i.e. setting targets; monitoring for results, i.e. routine monitoring system; evaluating for results, i.e. conducting evaluations; reporting monitoring and evaluation findings; utilization of monitoring and evaluation findings; and sustaining the Monitoring and Evaluation system within the organization.

According to Kussek and Rist (2004), baseline studies take the fourth step in designing, building and sustaining an RBME system. Availability of baseline data is critical for performance evaluation since it is impossible to measure changes without reliable data on the situation before the intervention began (Bamberger, 2010). Imas and Rist (2009, p. 119) argues: 'the measurement of progress (or lack of it) towards outcomes begins with the description and measurement of initial conditions and therefore, collecting baseline data means taking the first measurement of indicators to find out where we are today'. This step is very important in the process of building a Results-Based Monitoring and Evaluation (RBME) system since it provides valuable data on indicators at the initial stages of any intervention. This data will be useful in judging whether an intervention is making progress or not during implementation, but also enable evaluators to assess the outcomes and impact based on the difference between baseline and end-line data.

Baseline data enable evaluators and planners to measure outcomes and the impact of policies, programs or projects and, indeed, in almost all programs and projects in many developing nations; baseline studies are part and parcel of the initial processes in many organizations either as a requirement by the donor or as standard best Monitoring and Evaluation (M&E) practice. It is also important to note that baseline data facilitates management decision-making on whether to implement the proposed intervention or not. This is because baseline data would confirm whether the problem to be addressed by the intervention really exists, and also inform on its magnitude in case it does.

The baseline data would also give management an idea of whether the selected indicators and related targets are realistic or not. This enables the project management team to make decisions of whether to make changes to the objectives and indicator targets if baseline data favors the intervention or to discontinue/ stop implementation or even design a completely new intervention if baseline data shows the problem in question is not significant. Baseline studies are budgeted for in most of the programs or project budgets. As to whether the data from these studies are utilized effectively is another aspect to examine.

This paper attempts to provide an overview of baseline studies as an M&E tool, its applicability in M&E, and the rationale and theoretical explanations behind baselines. It also examines the utilization of baseline data in M&E, emerging issues, and what needs to be done to make baselines useful in M&E. The data used for this review has been mainly from key practitioners and organizations that conduct baseline studies as well as utilizing the data for monitoring and evaluations. The key practitioners cited are Michael Bamberger, Kusek Jody Zall, Ray Rist, Michael Patton and Linda Morra Imas. The other sources are organizational manuals and handbooks contextualized within their sectors of operations.

Methodology

This paper was based on a review of literature that involves the use of secondary data to explain any phenomenon and is an appropriate and reliable approach to scientific research (Amin, 2004). The review was carried out based on the constructionist theoretical thinking. This thinking, especially by scholars such as Grotty (1998) emphasizes that knowledge is actively constructed by human beings rather than being passively received by them (Jane Ritchie, 2013).

The researchers adopted document review method and collected several papers and other literature on baseline data collection, analysis and utilization for Monitoring and Evaluation. The researchers used Google scholar search engine and other websites to identify journal articles, reports, and manuals on the subject which they reviewed to inform the current study.

The analysis was done using content analysis. Berg and Lune (2012, p. 240) define content analysis as “a careful, detailed, systematic examination and interpretation of a particular body of material in an effort to identify patterns, themes, biases, and meanings”. The researchers followed the stage model of qualitative content analysis developed by Berg and Lune (2012) that includes: determining analytic categories for each research question, reading through the data to establish categories, determining systematic criteria of selection for sorting data, sorting data, seeking thematic patterns and making conclusions based on the patterns and themes. Based on this analysis method, the researchers were able to bring forward the key issues on the value of baseline studies in M&E including the theoretical explanations of the concept, the value of baseline studies in all M&E processes, applicability of baseline studies in M&E, and key findings or emerging issues.

Results and Discussion

Theoretical explanation of baseline studies

What is a baseline?

The concept baseline has been defined by several writers and therefore with several meanings though they all agree in principle. The researchers explore some of the various definitions of the concept as follows.

In the guidelines for project baseline studies developed by the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) the need to have evidence of results in facilitating evaluation of programs or projects which requires a comparison of the situation before the start of implementation with the situation afterwards, and control for other factors that may influence the changes that are observed during implementation was recognized. According to them, baseline data therefore is basic information on indicators gathered before a program or project begins. This data is later used to provide a comparison for assessing the net effect of the program or project (ASARECA, 2010).

In the guidelines to conducting baseline studies by Forum for Women and Development (FOKUS) it is argued that, in order to see if the situation has improved as a result of the project, it is necessary to know the basic facts about the situation prior to project start (FOKUS, 2010). According to them, through a baseline study, the situation that exists prior to the project start is recorded and this is compared with the situation after conclusion of the project or program. Without a baseline study, it is difficult to measure the results after the project has been implemented. In the guidebook on baseline basics published by the International Federation of Red Cross and Red Crescent Societies (IFRC) baseline is defined as the measurement of key conditions (indicators) before a project begins, from which change and progress can be assessed. According to them, baseline data provides a historical point of reference to inform

program planning such as target setting; and monitor as well as evaluate change for program implementation and impact assessment (IFRC, 2013) .

According to Australian AID, a baseline study is one that provides information required to enable robust conclusions to be eventually made about the impact of the activity. According to them, a baseline study gathers key information early in an activity so that later judgments can be made about the quality and development results achieved of the activity (Australian-AID, 2005). In the guidelines for conducting baseline studies for Center for Disease Control (CDC) baseline data is defined as the initial measurement data collected prior to the program intervention. According to the authors, the baseline serves as a point of reference and helps to assess the effects of the program and compares what happens before and after the program has been implemented (CDC, 2014).

According to the US Government's Feed for the Future global hunger and Food Security Initiative guidance on baselines a baseline is the first piece of data that should be collected for a performance indicator to establish a specific value or values for future data to monitor performance (USAID, 2012). The objective of baseline data collection, according to them, is to: establish the starting point for indicators; reveal the nature, magnitude and severity of a situation; ascertain appropriate amounts of intervention that will be required; and determine or set targets.

Why baseline studies?

Without baseline data, it can be very difficult to plan, monitor, and evaluate future performance. Baseline data helps to set achievable and realistic indicator targets for each level of results in a project design (log frame) and then determine and adjust progress towards these targets and their respective results (IFRC, 2013). The authors also outline other reasons for conducting baseline studies including: to inform project management decision-making, providing a reference point to determine progress and adjust project implementation to best serve people in need; to assess measurability of the selected indicators and fine-tune the systems for future measurement; and to uphold accountability, informing impact evaluation to compare and measure what difference the project is making.

Other reasons are: to promote stakeholder participation, providing a catalyst for discussion and motivation among community members and project partners on the most appropriate means of action; to shape expectations and communication strategies by assisting, sharpening communication objectives and focusing content of media materials; to convince and provide justification to policy-makers and donors for a project intervention; and to support resource mobilization for and celebration of accomplished project results compared to baseline conditions. If conducted properly, baseline results can be generalized and used to inform service delivery for communities with similar characteristics.

IFRC (2013) clearly identified two stages when a baseline can be conducted and these are: before the project starts and after the project is launched. According to them, a baseline ideally should be conducted after the initial needs assessment and project design but prior to the start of the project. This enables the project team to assess pre-project conditions and set

specific targets for the indicators identified to measure the results. They, however, argued that in exceptional cases, baseline data might be required to inform project development according to donor requirements to facilitate investment decision making. In this case the baseline can be conducted even before project design.

The other stage is after project start. Despite the fact that a pre-project baseline study is ideal, it might not have been possible to conduct the baseline study before the project starts, for example, in emergency operations implementers might be forced to deliver project services prior to conducting a reliable baseline. In this case, baseline data can be collected a few weeks or months after the project operations have already started. At the same time, because the award process often does not immediately find staff and others in place, it takes time for the team to form. The time-lag between delivery of project activities and baseline study, however, need not to be big. Otherwise, more likely a big time-lag may have a measurable effect on indicators leading to under estimation, since implementation would have narrowed the performance gap.

Planning for a baseline study

The USG Feed for the Future program and IFRC have elaborate approaches on how to effectively plan a baseline study. Practitioners could adopt any of these or a combination of these approaches in planning effectively their baseline studies. The USG Feed for the Future program provides several principles that should guide baseline data collection, analysis and utilization. These include: good planning, i.e. upfront planning which includes identifying who collects what data and when for the baseline; exploring a variety of data sources, i.e. triangulation of data sources enhances the quality of baseline data and therefore primary and secondary sources, database information from national and international sources, NGOs and earlier studies need to be explored; and ensuring appropriate disaggregation of data, i.e. disaggregated by sex, gender, and other relevant groups that are essential for tracking progress of activities and interventions.

The other principles are: quality assurance i.e. baseline data needs to be collected, analyzed, and reported ensuring data quality standards; validity, reliability, accuracy, relevance etc.; and feedback and learning, i.e. baseline information collection needs to be viewed as critical for knowledge management, sharing and learning so as to ensure proper utilization.

IFRC on the other hand outlines several steps in planning a baseline survey including: First is identifying the purpose and scope of the baseline study which involves determining the rationale for the study, identifying key stakeholders and their information needs, timing of the study, deciding on the geographical and demographic scope, making critical assumptions, and looking at the available resources for the study. This step can be very useful in developing Terms of Reference (TORs) for the baseline study. The other step is planning for data collection (methodology) and management which involves identifying the baseline indicators and assumptions from the project log frame, deciding on the kind of data to collect on the selected indicators as well as the sources of that data. It also involves deciding on data collection methods and how the methods and sources will be triangulated. At this stage, the evaluator needs also to determine the sampling strategy, prepare and pilot data collection tools, come up with a data management plan and how data will be disaggregated. The team for data collection and the entire data collection process has to be determined.

The other steps are: Planning for data analysis that involves identifying the purpose for analysis, deciding on data analysis methods, management process and technology as well as tools. The evaluator needs to have a clear plan for data analysis taking into account the purpose, timing, methods, and people responsible for data analysis; and planning for information reporting and utilization which is a very critical step in baseline study planning, because reporting of data determines how data will be utilized to inform and motivate project implementation and later measurement of project progress as well as achievement of results.

Reporting baseline data can take several forms, i.e. written reports, oral presentation of findings, effective beneficiary communication, audio-visual presentations, etc. The format and content have to be specific and appropriate for the particular audience. At this stage, the evaluator needs to have a comprehensive dissemination plan, since the dissemination strategy will determine levels of awareness and generate further discussions and feedback from the stakeholders.

The last step in the IFRC approach is planning for human resources and capacity building. The quality of baseline data depends on the competence and commitment of the team doing data collection, analysis, and reporting. It is important to have a committed team with the required capacity to conduct the study.

Strategies for collecting baseline data

Collecting baseline data can be done using several strategies and in this section, we present some of the common strategies that practitioners have used in their programs casting a critical eye on each of them. Bamberger (2010) identified several strategies for estimating initial conditions of programs or projects. He proposed the techniques outlined below.

First is the *document review* which looks at existing data as key sources of baseline data on beneficiary population before the intervention begins. Most often, data on populations, agriculture, industry, education, environment, health, demography etc., may be available from national and foreign governments, NGOs, and private organizations. Countries often collect this data through population censuses, periodic household studies, performance reviews, special evaluation studies, and academic research studies by universities. All these are sources of data that can be helpful in providing baseline data for programs and projects. However, one needs to be extra careful about secondary data, especially with respect to validity and reliability of these sources. Issues of sampling and non-sampling errors, measurement and analysis errors, lack of completeness of data and lack of data quality standards etc. could compromise the quality of your baseline information.

Another commonly used strategy for collecting baseline data is the *questionnaire survey method*. The survey method provides quantitative or numerical description of trends, attitudes or opinions of a population by studying a sample of that population. From the sample results, the researcher generalizes or makes claims about the population (Creswell, 2009). This strategy will often involve developing a comprehensive tool with several questions covering all the issues that the evaluator would want to collect data on. The tool is then administered to a sample of respondents either using an interviewer or self-administered. This strategy is capable of collecting data across several issues though not in-depth.

The other strategy is the *use of administrative data* from the intervention. The monitoring system in an organization collects routine performance and administrative data on interventions that could be used to estimate baseline conditions for the target population. Planning and feasibility studies, monitoring reports and administrative records can be very useful in providing baseline data. Again, it is important to be careful when using administrative data since it is never available in a right format for analysis and therefore many not be useful for baseline in some cases.

Another strategy that has been used in practice is the use of *the recall*. This technique involves asking individuals or groups to provide information about their socio-economic conditions of their community at a particular point in time. The technique has been used in poverty analysis, demography, and income expenditure studies to collect information on behavior or economic status. Recalls can also be used to estimate changes in welfare conditions of households. Like any other qualitative method, recalls are susceptible to bias due to memory or distortion. Often unintentional distortion may occur when people romanticize the past or intentional distortion where respondents adjust their responses to what they think the researcher wants to hear. This therefore means that if one chooses to use a recall, one has to be extra careful given the above weaknesses of the strategy.

The other common strategy used in collecting baseline data is the *key informant interviews*. The strategy involves interviewing key informants or knowledgeable and experienced individuals in relation to a particular condition or issue of interest. Key informants can provide factual information but also particular point of view about an issue. Usually it is advisable to select key informants with differing perspectives to enhance richness in the data. This strategy can be used on an individual or group of respondents. In case of groups, interviews can be conducted to obtain information on socio-economic characteristics, attitudes, and behaviors of groups that share common experiences. The groups usually are made of 6-11 members per group and they have to be mutually exclusive. If properly conducted, group interviews are very rich in data and they are economical and fast in collecting baseline data.

Participatory assessment techniques yet another strategy that is used in collecting baseline data. This technique or method promotes participation of communities and other stakeholders in reporting about their conditions, problems, and changes over time. The community groups often are engaged in providing feedback on their experiences and estimates of key variables like quality of services, access, and timeliness in service delivery etc. This technique has been widely used in poor rural and urban-related interventions where communities are characterized by low levels of literacy or other difficulties. Evaluators can use community mapping, charts, tables, timelines, and trend analysis as well as transect walks in collecting baseline data. Participatory assessment techniques are associated with several advantages including; providing opportunities to respondents to express themselves freely; ability to generate consensus; cost-effectiveness in data collection and analysis; as well as creating synergies among participating groups. The drawbacks are that a few elites or influential members may dominate the group; there may be facilitator bias, etc.

Applicability of baselines in Monitoring and Evaluation

Baseline evaluations have been used in many programs and projects to help in program design but also as a basis for measuring program outcomes and impacts. In many organizations and agencies, baseline evaluations are a requirement by the donor and therefore part and parcel of compliance to the donor requirements. Literature provides several examples of programs and sectors where baseline evaluations have been applied. The researchers look on a few.

Education programs

Here researchers cite the baseline study on basic education in the Republic of Moldova from the perspective of child-friendly schools in 2008. This baseline study aimed at evaluating primary and secondary school education in the Republic of Moldova in terms of the five dimensions of child-friendly schools and facilitated formulation of recommendations for potential public policies in the area of education, oriented towards promoting and expanding child-friendly schools in the country (Barbarosie, Gremalschie, & Jigau, 2009). This implies that baseline data from this study was very helpful in coming up with effective policies and interventions that would promote child-friendly schools in that country.

Another example of a program in the education sector where baseline studies have been utilized to inform program management including M&E is Action AID's Action Children Rights in Education (ACRE) program. In this case, a baseline study was undertaken in Kalangala and Nebbi districts of Uganda to inform their 'empowering girls to say no to early marriage initiative'. The results showed that there was progressive decline in enrolment in upper classes especially for girls leading to low completion rate and the major cause was early marriages. Based on these findings, the ACRE project team developed interventions to tackle discrimination against girls and promote their right to education through supporting school-based clubs for children in several schools (ActionAid-International, 2013).

Governance and National Development Planning

In this sector, we cite the Uganda National Governance Baseline Survey (UNGBS) undertaken by the Uganda Bureau of Statistics in partnership with Makerere University, with support from UNDP Uganda to illustrate the applicability of baseline data in program management including M&E. The study aimed at generating baseline data on governance indicators within several themes like: human rights; access to justice; access to information; democracy and decentralization; political representation and participation; transparency and accountability. The findings of this baseline study were very handy in informing the development of indicators on governance in the National Development Plan II and consequently would inform the review of the same plan (UBOS, 2014).

Health programs

In the health sector, the researchers refer to the baseline survey for the School Health and Nutrition project in Luweero and Nakaseke districts by the Uganda Program for Human and Holistic Development. As part of Monitoring and Evaluation, this baseline survey was aimed at determining current indices that were to be compared with the end

of project achievements. The baseline survey was conducted by a local consultancy firm called Service for Generation (SFG) international. The baseline survey produced results on several indicators of school health and nutrition, which included: prevalence of malaria cases; prevalence of anemia; school attendance rate; percentage of children sleeping under insecticide-treated mosquito nets; and percentage of pupils who know about abstinence (UPHOLD, 2005).

Other indicators included: percentage of pupils who wash hands after using toilets at school with soap or ash; percentage of schools with functioning latrines for girls and boys; percentage of schools with functional School Management Committees (SMCs) mobilized for school health and nutrition; and percentage of parents of pupils who talked with them about delaying sex in the past month. Baseline data collected on these indicators were helpful in the final program evaluation which had been scheduled to be undertaken after two years (UPHOLD, 2005).

Water and Sanitation

In this sector, the researchers cite the WASH baseline study 2013 by OXFAM in Liberia. The study was aimed at collecting baseline data on the following: the current levels of community access to and practices related to water, sanitation, and hygiene facilities; people's knowledge, attitude and practices that will allow the development of programs; Behavioral Change and Communication for Development activities; and disaggregated data and information on program indicators in both rural and urban contexts.

The study was designed to provide a basis for measuring WASH indicators for the Discretionary Grant Information System (DGIS) and Department for International Development (DfID) projects. It is indicated that data and information generated by this baseline study, presented key points of reference for different WASH activities intended for the DGIS and DfID projects from the planning for WASH facilities to developing strategies for hygiene promotion (OXFAM, 2013).

Public Policing and Management

In this sector, the researchers cite the Local Public Confidence baseline survey 2010 by the Cleveland Police Authority (CPA) in England. This baseline survey was conducted via telephone interviews undertaken with a random sample of 2,400 local residents. The aim of the baseline survey was to assist the police force in understanding the level of public confidence in local policing across Cleveland area and map out ways of improving public confidence and successfully deliver future policing services to all neighborhoods across the local area (CPA, 2010).

Key findings/emerging issues

Baseline Evaluation is one of the key components of a functional M&E system and therefore a necessary evil in RBME. Without collecting baseline data on indicators, it is impossible to measure changes in program performance and outcomes.

Baseline studies significantly inform program planning such as target setting and provides historical point of reference to monitor and evaluate change in program implementation and impact assessment. They inform management decision-making, help determine progress and assess measurability of indicators. They also enhance improved service delivery providing justification for interventions as well as resource mobilization for projects.

Baseline studies should ideally be conducted before the project/program launch. However, in case this is not possible, say, due to emergencies, one can conduct them immediately after project/ program launch.

Good planning for the baseline survey is necessary to enhance its quality and issues of triangulation of data sources, disaggregating data appropriately, data quality assurance and making baseline data critical for feedback and learning need to be emphasized.

There are several strategies the researchers can adopt for collecting baseline data including document review, questionnaire survey method, administrative data for the intervention, and use of the recall, key informant interviews, group interview techniques and participatory assessment techniques and counterfactual locations. It is advisable that the evaluators triangulate the strategies and take care in using existing or secondary data to avoid errors and lack of data quality.

Baseline studies are mostly seen as a donor requirement by many implementing partners and therefore done for the donors as part of compliance to the grant terms and conditions. However, it is important to note that baseline data is not only of value to the donors but also management and implementing teams of programs, which implies that utilization of baseline data by all stakeholders needs to be promoted in all programs. In almost all management models used by public, private and voluntary management units, there will be a need for initial data on indicators as well as a feedback component to assess performance and outcomes.

The widely used logic model (Logical Framework) and indeed the theory of change which is being widely adopted in all these sectors, cannot be used without baseline data. The logical framework model, for instance, provides a 4x4 matrix that shows the vertical logic (Inputs, activities, outputs and outcomes/impact) as well as the horizontal logic (Indicators, Means of Verification and Assumptions). All these will make use of baseline data to inform especially the vertical logic and indicator development in the horizontal logic.

The theory of change likewise requires that a serious contextual analysis is done to provide information that will support the proposed change to happen. The contextual information can only be got through a baseline study. These models and frameworks feed into other management planning and evaluation frameworks like the Work Break Down structure, Results Based Management (RBM) model and strategic planning frameworks. This implies the crucial significance of baseline studies in effective management and M&E.

Recommendations

Based on the review and key findings as well as emerging issues, we make the following recommendations:

First, is that baseline studies need to be part and parcel of every program or project design, since they are very essential for planning, monitoring and evaluation of any program.

Secondly, implementing agencies and organizations need to make available adequate funding and resources for conducting baseline studies, since they have a serious bearing on the quality of programs designed but also the ability to effectively evaluate high-level program results (outcomes and impacts).

Thirdly, there is a need to organize and run capacity building programs for all those involved in program design, implementation and M&E to appreciate the value of baseline data and acquire skills and knowledge in conducting high-quality baseline studies for their programs.

Lastly, deliberate efforts need to be made to ensure effective utilization of baseline data among all stakeholders in programs during planning, project design and refinement as well as M&E in organizations and agencies.

Conclusion

It is obvious that throughout this paper, we have argued that quality baseline data is a key ingredient in any Monitoring and Evaluation as well as program management processes. Without this much-needed data, the program management team would not be able to make informed evidence-based decisions on whether to undertake programs or projects, set good quality indicator targets as well as assess how well the program or project has performed and, of course, the outcomes/impacts made.

Despite the significance of baseline data as shown above, many program management teams fail to effectively utilize this data though many actually collect it as a donor requirement. We believe that with the theoretical understanding, the when, why and how of baseline studies as well as the applicability and recommendations provided in this paper, many practitioners will re-think their program management and M&E practices to effectively collect and utilize baseline data in their programs.

We, therefore, argue that practitioners should focus on ensuring that quality baseline data is collected by competent and well trained staff (through capacity building);and they should utilize the data effectively to inform planning, management and M&E practices.

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