



THE PRESIDENCY
REPUBLIC OF SOUTH AFRICA

DEPARTMENT: PERFORMANCE MONITORING AND EVALUATION

DPME Evaluation Guideline No 2.2.10 Guideline on Diagnostic Evaluation

Created 20 March 2014

Addressed to	Government departments who are undertaking evaluations (programme managers and M&E staff) as well as evaluators of government programmes and policies.
Purpose	The purpose of this Guideline is to provide technical guidance on undertaking and managing a Diagnostic Evaluation
Policy reference	This guideline should be read in conjunction with the National Evaluation Policy Framework approved by Cabinet on 23 November 2011 (available on the DPME website).
Contact person for this guideline	Jabu Mathe, Evaluation and Research Unit (ERU) E-mail: jabu@po-dpme.gov.za Tel: 012 312 0158

1. Introduction

This Guideline is designed to prepare government staff to manage a diagnostic evaluation. Initial experience with the government evaluations is showing that many programmes and policies are implemented without a proper diagnostic being done, and so frequently address symptoms and not underlying causes, and the rigorous analysis to develop a programme which is likely to work has not been done. The result is major problems during implementation and in many cases the intended objectives not being met. A Guideline has been developed on Planning Implementation Programmes (Guideline 2.2.3) which requires a diagnostic to be done before a new programme or policy is designed. This Guideline provides an outline for undertaking a full diagnostic evaluation which will then provide the information on which to develop a robust plan.

The Guideline covers a definition and description of a diagnostic evaluation, key questions for diagnostic evaluations, different forms of diagnostic evaluation, common methods and approaches and key issues to be considered in managing a diagnostic evaluation. It is focused on providing an overview for government staff managing evaluations and is not designed as a manual for an evaluator on how to undertake a diagnostic evaluation. Hence it does not go into detail into the different tools that are introduced. Note the word programme is used here but the evaluation could equally apply to a policy, or plan – we use intervention to cover any of these.

2. Definition of Diagnostic Evaluation

The National Evaluation Policy Framework (NEPF) describes diagnostic evaluation as preparatory research (often called ex-ante evaluation) to ascertain the current situation prior to an intervention, and to inform intervention design. It explores the current situation, the problems and opportunities to be addressed, causes and consequences, including those that the intervention is unlikely to deliver, and the likely effectiveness of different policy options. This enables the construction of the theory of change before the intervention is

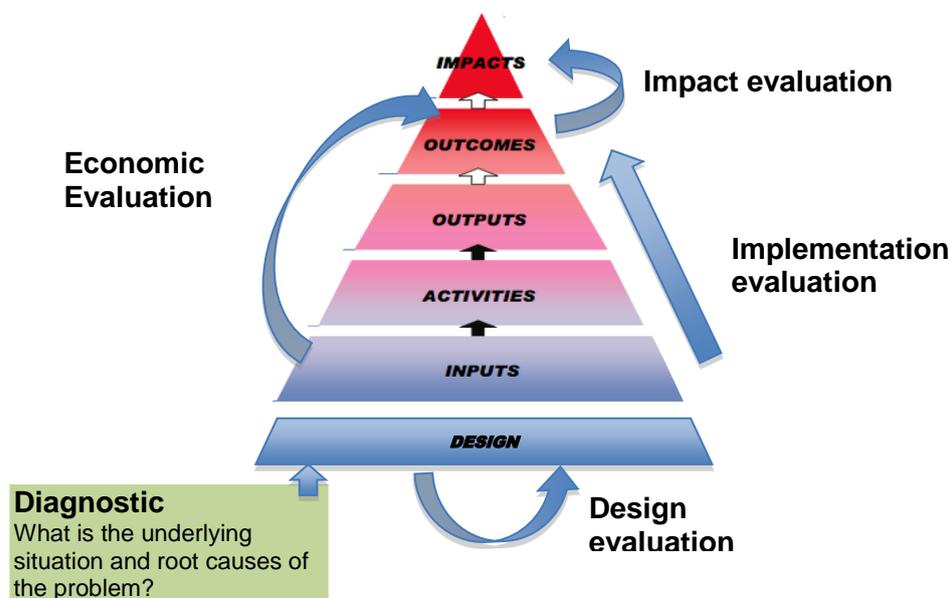
designed. Theory of Change is discussed in the Guideline 2.2.3 on Planning Implementation Programmes.

Key Point

The idea of a diagnostic evaluation borrows significantly from the medical literature: instead of diagnosing an illness and prescribing a treatment like a doctor would, the evaluator diagnoses social conditions and service needs in order to design an appropriate intervention. (Rossi, Lipsey, & Freeman, 2004)

The graphic below depicts where diagnostic evaluation is placed in the DPME framework. Diagnostic evaluation should be conducted when there is an intention to address a specific problem or opportunity, and well enough in time to direct the design (or redesign) of a policy, project, programme or plan. For example the Early Childhood Development (ECD) evaluation was conducted in 2011/12 to inform the redesign of support to ECD, and is resulting in a policy review of the Children's Act.

Figure 1: Relationship of evaluations to results-based management



3. Purpose of Diagnostic Evaluation

Diagnostic evaluation is intended to help a programme manager to design a policy, project, programme, or plan, or to revise these once they have been operating for some time.

The purpose of the diagnostic evaluation is to provide empirical evidence to a programme manager or policy maker of the root causes of a particular problem, situation, or opportunity, and to provide the evidence on which to base a strong theory of change and design for a new, or revised intervention.

A **diagnostic evaluation** is not a luxury. Without it, the programme manager runs a risk that an intervention may yield limited or negative results. For example, if the problem was incorrectly identified, or the focus is on symptoms not causes, then inappropriate mechanisms, the wrong beneficiary group, or ineffective service-delivery instruments may be chosen. In practice many programmes and policies are designed without such a diagnostic,

meaning that it is likely that their effectiveness is limited and government is not achieving the impacts it should be.

Four key purposes for diagnostic evaluation can be identified and any particular evaluation may have a combination of these:

- (1) Understand the **current situation** (including the met and unmet needs, current opportunities and threats) (for example what is the current situation with delivery of services to address nutrition, or what is the scale of the problem of nutrition, and for whom?)
- (2) Understanding the **root causes** that can contribute towards a problem (e.g. is the malnutrition problem caused by too little food, the wrong food, or problems with hygiene leading to diarrhoea and resultant malnutrition and dehydration. What are the underlying causes of each of these?);
- (3) Identifying possible **solutions** to the root causes of the problem – the relevant strategies, services, incentives. How do existing services relate to the underlying problems?;
- (4) Testing the feasibility of a short list of **options** by considering various implications such as cost and human resources.

Where this is a diagnostic to support rethinking (ie the programme is already in place), then the purposes above will be to check whether the policies and services in place are correctly addressing the underlying causes.

For each of these there are particular questions, methods and approaches.

4. Typical Questions and Common Methods

Table 1 below shows relevant questions for each of the purposes above.

5. Methodology

This section gives an overview of some of the methodologies that can be used and for what (as per Table 1).

5.1 Needs Assessment and Forecasting

One form of situation analysis is a systematic process to determine needs, or "gaps", between current conditions and desired ones for intended beneficiaries. Needs assessments are often used in three situations. First, before a programme is developed, needs **assessment** will seek to understand what the problem is and anticipate what it might be in a few years' time. Second, once a programme is implemented, this approach can focus on understanding the met and unmet need. Third, needs assessment can determine which combination of solutions need to be implemented to address the identified problem. (Rossi, Lipsey, & Freeman, 2004).

As indicated in table 1 below – a range of methods may need to be used to provide the data, depending on whether existing data is available around potential beneficiaries and their needs (in which case document review, or some sort of research synthesis may be possible), or whether new data needs to be collected. Depending on the scale of the intervention being considered, this may need a full scale survey, especially if a large amount of money is being considered. For this reason in particular, diagnostic evaluations can range from small-scale to very large exercises.

An important set of methods are participatory methods which involve a variety of tools used in Participatory Learning and Action (PLA) processes, e.g. in the Community-Based Planning manual already cited. These provide a quick method of getting a picture from different groups within a community, and which need to be verified through triangulation with other sources.

Government has access to a range of internal data sources that could be reanalysed for the purposes of a diagnostic evaluation. Some examples include programme performance information (e.g. performance measures for strategic objectives published in annual performance plans), management information systems (e.g. Education Management Information System, District Health Information System), programme monitoring and evaluation data, operational data (e.g. number of persons accessing social grants), financial data, data on social and economic indicators (e.g. literacy rates, mortality rates, unemployment rates). It is also important to understand existing data sources, to see whether the necessary information is available and if the system is adequate to provide the data needed to assess the programme's results and impacts.

Other existing external information can also be useful such as secondary analysis of surveys carried out by government or other agencies. Some examples include data from science councils, think tanks, international development agencies, academic departments, and development banks. Although these sources are potentially rich in data that could help with the analysis of met and unmet needs, they are usually set up to produce analysis in line with specific or routine information needs. When a programme manager has to conduct a diagnostic assessment, questions that fall outside of the routine information processes are of interest, which means that additional collation and analysis may be required.

Stakeholder consultation processes gather information from persons and institutions that may be affected by a specific policy, project, programme or plan or from persons and institutions that could affect the implementation of such intervention. "Stakeholders are people, groups, or institutions which are likely to be affected by a proposed intervention (either negatively or positively), or those which can affect the outcome of the intervention." (Rietbergen-McCracken & Narayan, 1998, p.68). The stakeholder consultation process is particularly helpful to identify the stakeholders' interest in, importance to an influence over the intended policy, project, programme or plan; to identify their views about the situation; to identify local institutions and processes upon which to build; and to provide a foundation and strategy for participation of stakeholders in the design and implementation of an intervention. There are several stakeholder mapping methods that can be used (eg influence-interest grid, power-impact grid, classifying stakeholders according to potential for threat and potential for cooperation., etc.).

During these consultation processes, it may be possible to collect data using techniques such as individual and group interviews, public submissions, participatory mapping, institutional mapping, problem ranking, preference ranking, wealth ranking, seasonal calendars and daily activity charts. A rich source of tools for participatory methodologies is the Facilitators Guide for Community Based Planning (Khanya-aicdd, 2005). However these approaches are heavily reliant on effective facilitation. Each step has cautions. For example, input tracking is dependent on supply side data, the interface can get confrontational, standardization is needed when scaling up, a small sample size can bias perceptions and scoring is not always applicable.

Table 1: Questions and methodology for different diagnostic questions

Purposes	Common Diagnostic Evaluation Questions	Methodology	Common Evaluation Methods and Approaches
Purpose 1: Understand the current situation	What are the needs around a particular issue (eg scale of malnutrition)	Needs Assessment and forecasting	<ul style="list-style-type: none"> • Reanalysing existing statistical data from internal and external sources • Primary research involving: <ul style="list-style-type: none"> ○ Literature review ○ Surveys ○ Interviews ○ Community mapping ○ Stakeholder consultation processes. • Comparison of SA data with that of other countries to better contextualize the magnitude of the problem (e.g. malnutrition in other countries and/or evaluation of malnutrition in South Africa)
	What is the scale and scope of the met and unmet needs?		
	What are the strengths, weaknesses, opportunities and threats in the current situation?	Situational Analysis – internal or external environments including capabilities and implementation environments	<ul style="list-style-type: none"> • Reanalysing existing statistical data from internal and external sources • Literature review • Strategic analysis methods such as SWOT analysis and PESTLE analysis (see glossary) • Community mapping
	What are the legal obligations imposed by existing legislation that may be relevant to the issue?		
Which existing policies, policy frameworks, international treaties or agreements are relevant to the issue?			
Purpose 2: Understand the root causes	What is already known about the issue or problem?	Root Cause Analysis	<ul style="list-style-type: none"> • Strategic analysis methods for root cause analysis • Reanalysing existing statistical data from internal and external sources • Literature review • Problem trees¹ • Prioritisation of root causes
	What are the root causes of the issue or problem?		
Purpose 3: Identify possible solutions to the problem	<ul style="list-style-type: none"> • What does existing South African data tell us about possible solutions? • What are the options that could be considered to deal with the problem? • What are the potential theories of change that should be considered? 	Review of previous research and evaluation on potential solutions	<ul style="list-style-type: none"> • Solution trees (derived from problem trees) • Review of literature on possible solutions • Interviews with stakeholders or workshops with mixed groups of stakeholders to generate solutions • Evaluations of implementation of these options in SA or elsewhere • Synthesis of existing research or evaluations e.g. rapid evidence

¹ It is often important to understand how the particular problem under analysis is related and compounded with other problems that might aggravate the situation. This is important particularly when joint solution to complementary problems should be sought (e.g. in malnutrition and school enrolment).

Purposes	Common Diagnostic Evaluation Questions	Methodology	Common Evaluation Methods and Approaches
	<ul style="list-style-type: none"> • What is considered good practice? • Have the proposed approaches been tried before? And in what contexts? • What scientific evidence exists of the results of implementing these options? • Are the interventions proposed consistent with cultural and other characteristics of the target population? 		assessment and systematic reviews)
Purpose 4: Test the feasibility of a short list of options	<ul style="list-style-type: none"> • What are the funding sources and costs associated with the proposed policy, project, programme or plan? • What are the Human Resource implications of the proposed policy, project, programme or plan? 	Feasibility Analysis – likely feasibility of selected options	<ul style="list-style-type: none"> • Strategic analysis methods such as scenario planning • Reanalysing existing statistical data from internal and external sources • Literature review • Efficiency analysis.

5.2 Situational Analysis

Situational analysis explores the current situation. One aspect of the situation caters for the needs and methods outlined above. Another covers institutional issues. A common framework that can be considered is to look at Political, Economic, Social, Technological, Legal, and Environmental factors (PESTLE). Depending on which elements are included it can be sometimes referred to as STEP, STEEP, PESTEL, PESTLE or LEPEST. The process underpins many other analytical techniques, such as Scenario Planning. The factors can be at macro (e.g. world-, Africa- or SA-wide) or micro (e.g. institutional or individual) level. Depending on the scope and scale of the exercise being undertaken, you may want to consider for each factor:

- Which of the below are of most importance now?
- Which are likely to be most important in a few years?
- What are the factors influencing any changes?

This is a good basis for undertaking SWOT analysis (Strengths/Weaknesses/Opportunities/Threats).

5.3 Root Cause Analysis

Root cause analysis employs a systematic approach to identify the root causes of a systemic problem or specific failure. Root cause analysis methods involve key stakeholders in a discussion to develop an easily readable and understandable analysis of the problem. Not only does this kind of analysis ensure that the most likely causes are accounted for, but it encourages programme managers to consider multiple root causes before finding a solution (Doggett, 2005).

While different root cause analysis techniques may have different steps, common steps include: (1) framing the problem, (2) identifying contributing factors and how these lead to the main problem, (3) assessing the plausibility of contributing factors, (4) generating a set of underlying root causes (5) Prioritization of root causes (or ranking according to their contribution to generate/ perpetuate the problem). The process and the final analysis are both important parts of root cause analysis.

There are various root cause analysis techniques linked to specific tools. Common tools include a problem tree, cause and effect diagram (also known as a fishbone diagram, or Ishikawa diagram), five why's diagram, interrelationship diagram, or current reality tree. These tools all have different strengths and weaknesses. What they seek to do is to unpack why a higher level of problem is occurring, by asking successively why, and unpacking the underlying root causes leading to the symptoms which are manifesting.

These are very powerful tools but need to be well facilitated to work well. They give a much deeper understanding of the cycle of cause and effect that is resulting in the problem that is being manifested. It is extremely important that before solutions are developed there is a good understanding of the root causes.

5.4 Review of previous research and evaluation on potential solutions

Reviewing previous research and evaluations has the potential to generate evidence about potential solutions or describe different theories of change for multiple potential solutions. This is developed through a process of understanding what research and other evidence already exists on what works, in which contexts these interventions work, and what factors may be enablers/disablers. It may be useful to look at evidence outside South Africa, but care must be taken as the contexts differ, and it may not be easy to apply models developed in one context to another. However, it may be possible to apply approaches, where implementation is then adapted to the relevant context.

5.5 Exploring options, relationships and scenarios through Strategic Analysis

Alternative solutions need to be developed with key stakeholders who understand in-depth policy and implementation realities, and may well have divergent views. Options, relationships and scenarios can be explored. Methods appropriate to this task do not seek a single definitive answer to a problem, but to compare alternatives and the decisions which may have to be taken for each alternative. The process of the analysis is as important as the end product of the analysis, as this can help to build commitment to the scenarios being explored (O'Brien, 2003).

Depending on the exact purpose of the strategic analysis, different methods may be applied. When the future needs to be explored, scenarios are appropriate. Since there is uncertainty about how the future will look, it is common practice to develop multiple scenarios of the future, based on divergent assumptions. To develop a scenario, there may be a synthesis of information relevant to the issue, a set of descriptions of plausible futures, and the implications of these scenarios will be elaborated. The construction of scenarios assists by developing an understanding of the inherent uncertainty in the external environment by providing a few options to test strategies or plans. (Chermack, 2011; O'Brien, 2003). Work may then be undertaken on the feasibility of these options (see below).

Micro-simulation can be used to model different policy options, as has been done in the Department of Social Development.

5.6 Feasibility, Cost-Benefit and Efficiency Analysis

Once a number of scenarios or options are identified, feasibility analysis may be helpful to look at the probability of success. A feasibility assessment may consider whether the intervention is technically feasible given the organizational and environmental implementation context or it may consider whether it is financially feasible in terms of the budget. It is usually conducted before an intervention is implemented and needs to look at future possibilities.

Efficiency analyses, like cost-benefit and cost-effectiveness analysis, forces the programme manager to think about programme costs and benefits. In a diagnostic evaluation, this kind of analysis is usually done up-front, to identify and compare the anticipated costs of different programmes, in relation to the anticipated benefits. This allows the programme manager to make an informed case for specific choices when a new policy, project, programme or plan is developed (Rossi, Lipsey, & Freeman, 2004). The appropriate use, advantages and disadvantages of different kinds of efficiency analysis are discussed in detail in "A Guideline on Economic Evaluation, DPME Guideline 2.2.14".

6. Evaluation Process

6.1 Who undertakes the evaluation

A Diagnostic Evaluation of some type should be undertaken for all programmes in government. If a full diagnostic is undertaken involving field research, this is likely to need to be undertaken by a service provider who specialises in research and evaluation. If a simpler process is undertaken it could be carried out using departmental resources.

6.2 How long should the diagnostic evaluation undertake

If an internal participatory process is carried out, this could be several weeks including meetings with stakeholders and writing up the results. If a full survey is carried out this could take 6-12 months.

6.3 Result of the diagnostic evaluation

The process of the diagnostic evaluation is very important as the product as it provides an opportunity for the decision-makers to reflect on the real reasons why a problem is occurring and commit to undertaking an intervention which is likely to have impact, rather than acting on a hunch.

At the end of the evaluation some decisions are needed. These are:

1. Does it look like the underlying problems can be addressed, and by the department concerned?
2. The key focus of an intervention is likely to be X.
3. The option which should be selected is Y.

The latter two are key inputs for the design process, as well as the data that has been generated around causal mechanisms which need to inform detailed design.

7. Critical Issues when planning and managing Diagnostic Evaluations

This section discusses typical challenges that may be encountered in addressing a diagnostic evaluation.

Diagnostic evaluation is most relevant if it is conducted **prior to the design** of a new intervention or prior to the redesign of a current intervention. Diagnostic evaluation processes should have been implemented and/or findings should be available by the time decisions are made about the design of a proposed intervention, whether a policy or plan. This is a particular challenge if there is a rush to implement for whatever reason, which may jeopardise the detailed understanding on which a robust design needs to be based. Diagnostic evaluation could be split into phases if needed.

In some cases a diagnostic may be undertaken after some time. An example is the Diagnostic Review of Early Childhood Development (ECD) which was the pilot evaluation for the national evaluation system. This sought to do a diagnostic of the overall sector, rather than evaluating specific programmes and is being used for the redesign of the Children's Act.

Depending on the information already available, the programme manager may decide to undertake a diagnostic evaluation **internally** to understand the needs and the problem, and then explore options, choose a likely option and conduct a feasibility assessment. If information is not available, and it isn't possible to conduct any of the diagnostic evaluation work internally, it may require a significant lead time to ensure that the results of the diagnostic are available prior to the departmental strategic planning and budgeting processes. However, even if the design of a programme is being implemented, it may still be worthwhile to conduct a diagnostic evaluation if there are opportunities to influence decisions about design specifics.

There can be critical **trade-offs** for different diagnostic evaluation designs. A longer intensive design that collects data from all sites may provide answers to every single evaluation question, yet it may have high costs. A short, internal evaluation may be cost effective and provide answers to all posed evaluation questions, yet lack credibility because it did not have an external evaluator. If there is a big problem of a pressure to implement then a short participatory process with handpicked stakeholders from different levels of the system can build a good picture of the problem and possible solutions. However it runs the risk of group think, especially if dissenting views are not included.

8. Typical Costs

This section provides some basic guidance for helping to determine the size of a budget. For a diagnostic evaluation. However each context will be unique and require specific budgeting discussions and decisions. The programme manager has a key role in ensuring that the scope of what is promised by evaluators, or expected by the programme manager, is realistic for the amount budgeted; as an over ambitious and under-budgeted scope of work is likely to yield a weak base of evidence and an unused report.

Budgeting for an evaluation is dependent on numerous factors. Internal diagnostic evaluations may have no costs beyond staff time and travel costs, or they may have considerable costs if they involve an external evaluation team or other resources. The cost of a diagnostic evaluation may be influenced by many variables, such as the size of the planned project or intervention, the amount of credible data already collected, the timeline to collect data, the amount of field work that needs to be done, and other contributing cost factors such as the expertise that would be needed.

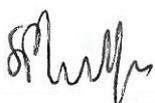
A common guidance is that between 0.1% and 5% of total programme budget should be set aside for monitoring and evaluation (M&E), or 3-10% of the annual budget, depending on the scale of the programme (a very large programme needs proportionally less). However this refers to M&E rather than diagnostic evaluation specifically; and it is likely in many programmes that routine monitoring will consume much of the M&E budget.

Broadly speaking, the following factors weigh heavily on cost:

- The scope of the information requirement and field work required, e.g. number of questions and size of sample, number of rounds of field work;
- The degree of credibility required of the information results (which influences sample size, and the methodological effort needed).
- The expertise required from the external resources - e.g. complex modelling skills or legal expertise may require senior specialists on the team.

If departments know that they require a diagnostic evaluation that addresses all of the possible diagnostic purposes, and has a significant fieldwork component that covers all provinces, then they must factor up these costs accordingly.

Signed



Dr Sean Phillips
Director-General

The Presidency: Department of Performance Monitoring and Evaluation

Date: 31 March 2014

Annex 1: Glossary

Diagnostic evaluation	This is preparatory research (often called ex-ante evaluation) to ascertain the current situation prior to an intervention and to inform intervention design.
Ex-ante evaluation	Evaluation that is performed before implementation of a development intervention i.e. based on prediction and extrapolation; a way of assessing whether a proposed project is feasible.
Influence-interest grid	This is a tool that helps you understand which stakeholders have the most influence and the impact they can make on project success.
Needs Assessment	Refers to a systematic process for determining and addressing needs or gaps between current conditions and desired conditions or wants.
PESTLE	Political, economic, social, technological, legal, and environmental factors. PESTLE trade-offs refer to choices made collectively/individually to accept having less of one thing in order to get more of something else, the results are called trade-offs.
PLA	This refers to a Participatory Learning and Action, which is an approach for learning about and engaging with communities. It combines an ever-growing toolkit of participatory and visual methods with natural interviewing techniques and is intended to facilitate a process of collective analysis and learning.
Participatory method:	The participatory method to evaluation is aimed at promoting action and community-level change. It tends to overlap more with qualitative than with quantitative methods
Power-impact grid	This is a tool that helps you to understand which stakeholders have most influence and the impact they can make on project success.

Annex 2: Bibliography

- Babbie, E. (2013). *The practice of social research (13th ed.)*. United Kingdom: Wadsworth Cengage Learning.
- Babbie, E., & Mouton, J. (2001). *The practice of social research*. Cape Town: Oxford University Press.
- Bamberger, M. J., Rugh, J., & Mabry, L. S. (2006). *RealWorld Evaluation: Working Under Budget, Time, Data, and Political Constraints*. Thousand Oaks: SAGE.
- Chermack, T. (2011). *Scenario Planning in Organizations*. San Francisco: Berret-Koehler Publishers.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research (2nd ed.)*. Thousand Oaks: SAGE.
- Doggett, A. M. (2005). Root Cause Analysis: A Framework for Tool Selection. *QMJ Vol 12, No.4*, 34 - 45.
- DPME. (2011). *National Evaluation Policy Framework*.
- DPME. (2013). M&E Course, Module 5.
- Henning, E., Van Rensburg, W., & Smit, B. (2004). *Finding your way in qualitative research*. Pretoria: Van Schaik.
- Khanya-aicdd. (2005). *Facilitators Guide for Community-Based Planning*. Retrieved from Khanya-African Institute for Community Driven Development: www.khanya.org
- Krueger, R. A., & Casey, M. A. (2000). *Focus groups: A practical guide for applied research*. Thousand Oaks: SAGE.
- Krueger, R. A., & Casey, M. A. (2000). *Focus groups: A practical guide for applied research*. Thousand Oaks: Sage.
- Middleton, J. (2003). *The ultimate strategy library: the 50 most influential strategic ideas of all time*. Oxford: Capstone.
- Neuman, W. L. (2006). *Social Research Methods. Qualitative and Quantitative Approaches*. Toronto: Pearson.
- O'Brien, F. (2003). Scenario planning - lessons for practice from teaching and learning. *European Journal of Operational Research*.
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods (3rd Ed.)*. Thousand Oaks: SAGE.
- Rietbergen-McCracken, J., & Narayan, D. (1998). *Participation and Social Assessment: Tools and Techniques*. Washington: The World Bank.
- Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). *Evaluation, A Systematic Approach 7th Ed*. Thousand Oaks: SAGE.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin.
- Trochim, W. M. (2006, October 20). *Reliability & Validity*. Retrieved June 14, 2013, from The Research Methods Knowledge Base, 2nd Edition: <http://www.socialresearchmethods.net/kb/relandval.php>
- United Nations. (2008). *Principles and recommendations for Population and Housing Censuses. Statistical Papers: Series M No. 67/Rev.2*. New York: United Nations.