

Monitoring and evaluation: Capacity-building within the public sector General outline

The purpose of M&E capacity building

To ensure:

- That the users of M&E data have an understanding of the ways in which these tools can be used effectively for informed decision-making and for introducing improvements into future policies, strategic and operational plans in the public sector.
- That the users of M&E data have an understanding of the ways in which these tools can be used effectively for informed decision-making and for introducing improvements into future strategic and operational plans.
- That M&E managers in the public sector are able to set up an M&E system (set of components constituting a whole and uniform way of understanding phenomena), manage that system, and produce the results required for M&E from it.
- That the users of M&E data have an understanding of the ways in which these tools can be used effectively for informed decision-making and for introducing improvements into future strategic and operational plans.

Specific goals

An M&E user should be able to:

Assess information collected through the M&E process, and use this information as a tool for the modification of ongoing interventions, as and when necessary, and to improve future interventions through the planning process.

An M&E manager should be able to:

Link various related components of work in the public sector together, for example, the inputs, processes, activities, outputs,

outcomes, and impacts that constitute projects, programmes, and services, so that they form an integrated whole or system. The M&E manager should also be able to manage such a system and enable practitioners to produce data from it for decision-making.

An M&E practitioner within government should be able to:
Apply an evidence-based approach to gather and analyse data on the work being done in government. Data gathering should be based on scientific methods, using indicators and other reliable measurements. Such data should give a clear indication of how well government is doing regarding particular interventions, as well as its overall services, projects and programmes.

Definitions

M&E capacity-building for the public sector should be based on the following understandings of terms and concepts:

An M&E system

A system is a set of components, for example indicators, activities, processes or projects comprising an entirety, where each component interacts with or is related to at least one other component within the entire structure, and where they all serve a common objective.

Interventions

An intervention is defined as a *programme, project or service*, implemented at all levels of government, which aims to benefit specific target groups or the population as a whole. Immunisation services offered by the health authorities, a project to build a school in a location where there are none, or a programme to eliminate corruption in the civil service, are examples of interventions. M&E takes place in relation to planned interventions.

The determination of the need for an intervention should be based on an analysis of the existing situation, for example, the use of existing benchmarking or baseline data, or an actual baseline study, which could be qualitative or quantitative.

Monitoring

Monitoring is an integral part of day-to-day operational management to assess progress against objectives.

- It involves the tracking of inputs, processes, activities, outputs and outcomes against indicators, and the modification of these processes and activities as and when necessary.
- The aim of monitoring should be to support effective management through reports on actual performance against what was planned or expected.
- Monitoring tools are essentially used for the early identification of problems and the solving of these problems as and when they occur.
- Monitoring is based on information collected before and during the operations.
- Information required for monitoring may be entered into and analysed from a project management system (PMS) or a management information system (MIS) or any other similar tool.
- The accuracy of the information collected for monitoring purposes, and ways to assess the accuracy of the information are important aspects of monitoring.
- Monitoring usually precedes, leads up to and forms the basis for evaluation, that findings from monitoring may be used as part of evaluation, but evaluation tools may also be used for monitoring.

Evaluation

Evaluation is a decision-making tool to be incorporated into the planning cycle and the performance management of government.

- Evaluation is a scientifically-based assessment of strengths and weaknesses of the design, implementation and the results of completed or ongoing projects, programmes, or methods of work to deliver services at specified points in time.
- Its aim is to help to improve these interventions.
- The main objective of evaluation is to supply information on lessons learnt from work already done to influence future planning.
- Evaluation is a systematic process with key indicators or criteria against which to evaluate the work done.

- Inputs, activities, outputs outcomes and impacts are components of the evaluation process. Ways to evaluate inputs, activities, outputs outcomes and impacts are essential components of M&E.
- Various phases of an intervention may need to be evaluated, for example evaluation of a project at a particular ‘milestone’, at the end of a financial year, or at the end of the entire project. Impact evaluation may need to take place at a specified period in time after a project has ended.

Links between monitoring and evaluation

Monitoring usually precedes, leads up to and forms the basis for evaluation. Findings from monitoring may be used as part of evaluation. Evaluation tools may also be used for further monitoring, and the same baseline data and/or benchmarks may be used for both processes

Basic and applied research in relation to evaluation

Basic research is concerned with studying the relationship between variables, while applied research usually attempts to apply the methods and findings of basic research to a given situation a specific context. Evaluation is a branch of applied research that attempts to ascribe cause-effect relationships within a specific context. Cause-effect relationships are based on assumptions. This speculative aspect of evaluation should be recognised in any capacity-building exercise concerning M&E.

Indicators

Indicators are defined as measurements of performance. There are essential tools for both monitoring and evaluation, not only for particular interventions, but also in the government-wide monitoring and evaluation system. Capacity-building exercises and training should stress the link between indicators and the goals of the intervention, the development of measurable indicators, and their use in both monitoring and evaluation. Indicators should be stressed as a necessary tool in all interventions.

Curriculum Group 1

Monitoring and Evaluation (M&E): Orientation course

Generic skills

Duration:

- An introduction to M&E: 10 working days; followed by
- A practical exercise in using data for evaluation while the learner returns to work (there could be a two-week period allowed for this exercise); followed by
- A two day discussion and consolidation workshop.
- An alternative approach could be to ask the learners beforehand to come prepared with the specific intervention they are going to use during the course, and to complete the exercise during the course.

NOTE: *Aspects of this generic course can be presented as an awareness workshop (1 – 3 days) or as an introductory course (1 week). It may be split into different themes for different competencies, depending on the specific requirements of the learners.*

Target groups:

Senior and middle managers, project managers, parliamentarians and other users of information for decision-making and planning in government

The purpose of the M&E generic orientation course:

The purpose of the course is to ensure that the users of M&E data within the public sector have an understanding of the ways in which these tools can be used effectively in decision-making, while taking the specific requirements and methods of working in the public sector into account.

Specific goals

A manager in the public sector and other users of M&E information within government for decision-making should be able to:

- Assess the accuracy, reliability and usefulness of the information collected during M&E processes.
- Reflect on how well government is doing in relation to a particular intervention through interpreting M&E findings and through using M&E as a planning tool, by linking results from this exercise to new goal-setting.
- Make decisions about priorities and plans for future programmes, projects and service improvements by using M&E findings.
- Incorporate M&E as an essential component of the work done by government in the planning and budgeting cycles.
- Contribute to public service accountability and transparency by basing decisions on information gained through M&E processes.
- Use M&E as a tool for performance and results-based management.

Approach

- M&E in government is based on indicators and other measurable criteria. The approach used in capacity-building for M&E users should thus be based on identifying indicators and measuring the progress of services, projects and programmes (interventions) in relation to these indicators.

Essential background reading

There are two documents that are essential reading before attending the course.

- *“Policy framework for the government-wide monitoring and evaluation system”*; compiled by the government-wide monitoring and evaluation task team.
- The document compiled by National Treasury, as part of the government-wide monitoring and evaluation series, entitled: *“Framework for managing programme performance information”* should be prescribed as essential reading material before attending the course. It may be found on www.treasury.gov.za.

Part 1: The introduction to M&E

Administration of a questionnaire to determine existing M&E knowledge, followed by presentations and discussions of the following, as minimum requirements:

Information sources for M&E

The course should introduce the learners to the different sources of information that may be used for M&E, including:

- Introduction to ways in which to evaluate the quality of data sources, including: methods of data collection; sample design, if applicable; underlying assumptions of the method used; questionnaire design, if applicable; reliability and validity.
- The use of data from existing data bases, for example administrative records in each department, the population register, schools data bases, etc.
- The use of data from existing surveys, particularly those of Stats SA (as the official statistical agency of the country), and the use of social, economic and demographic statistics, for example the data from the 2001 population census, the annual general household surveys, the six-monthly labour force surveys, and the surveys conducted among businesses to describe the economic situation in the country.
- The use of data generated for a specific purpose, for example using information from surveys conducted to measure knowledge of, attitudes towards and actual practices (KAP) in relation to smoking.
- Using information gained from social science research designs, for example “before – after” research using experimental and control groups.
- Using the findings of qualitative research methods such as focus group discussions, case studies, in-depth interviews, and rural appraisals.

Content of learning

The following aspects of M&E should be stressed in the orientation course. In addition, *a hypothetical example of a labour intensive road-building project*, as possibly forming part of the extended public works programme of government, will be used to illustrate the ways in which the curriculum could be applied.

Understanding the context in which the intervention takes place:

- Participants should be made aware of the importance of background information.

- Awareness should also be created regarding ways to take context into account: for example, reasons and methods for undertaking a needs analysis, or collecting baseline information, or conducting rapid rural assessments. The use of baseline data, or else the use of findings from conducting baseline research, in order to obtain benchmarks for M&E processes should be stressed.
- Awareness should also be created regarding the importance of having an initial starting point from which to build indicators, and against which to measure the results of the intervention.

In the road-building example, an understanding of the life circumstances of living conditions of the community, including the poor condition of the existing single gravel road leaving the village in question to the nearest town, and the effects this has on the ability of the community to leave the village, could be assessed through interviews with community leaders and other people. The data of the 2001 population census could be used to determine the age and sex composition of the village dwellers, the unemployment rate, and the access of households to essential services such as clean water and sanitation.

Setting priorities and identifying indicators

The course should relate the development of indicators to setting priorities.

- The concept of an indicator as a measure of each of the following should be stressed: inputs, activities, outputs and outcomes.
- Emphasis should be placed on the ability of an indicator to be able to measure what it sets out to measure. Examples of measurable and non-measurable indicators should be given.

A focus group discussion with community members could determine whether a tarred road would be an important way of improving the quality of life of the community, as against other infrastructure provision, for example electrification of all dwelling units.

Indicators of inputs, activities, outputs, outcomes and impacts could be discussed. One indicator could be selected that highlights the aim of the project, as the main indicator. For example, an 'outcomes' indicator could be selected as the main indicator. The number of working-age people who have found employment in the nearest town

after the road has been built could be an example of such an indicator. Another outcomes indicator could be getting agricultural produce of the community to the local town more speedily, resulting in fresher quality of the produce when sold, and higher prices.

Measuring inputs (what we use to do the work: Treasury)

- Participants should be made aware of the links between M&E and inputs that are estimated during the budgeting process including the Medium Term Expenditure Framework (MTEF). Practical examples should be given of the links between M&E and budgeting.
- The links between M&E and inputs into the other strategic and operational planning and implementation processes undertaken in government should also be made clear. For example, the links between M&E and setting priorities, and between M&E and determining the non-financial assets and human resources required for specific services or projects, should be stressed. It would be useful to ask learners to think of practical examples in their own work situation to illustrate these links.
- The design of a logical framework analysis and/or the use of other planning tools should be introduced. Exercises on the compilation of a work plan based on logframe analysis or other planning tools, where M&E is clearly situated within this plan, should be incorporated into the course, based on the learners' experiences.

In the hypothetical road-building project, what is required to do the job, including finances, personnel, materials, etc., the number of temporary jobs, and the skills acquired by those working on the road-building for possible future employment or self-employment, could be determined.

Identifying processes and activities (What we do: Treasury)

Processes refer to the flow of work and the inter-linkages between activities, whereas activities refer to the actual tasks that constitute the intervention.

- The main emphasis here is on how M&E should be incorporated into operational plans and the actual operations, or the way in which (or how) the work is being done, using

flow charts, GANTT charts or other process mapping or project management tools that are presently being used in each department.

- The assignment of responsibilities for specific tasks, as built into performance contracts, and ways of using monitoring to ensure that these responsibilities are carried out, is an important component of the orientation course.
- Ways in which to monitor adherence to time lines should also be stressed during the course.
- Ways of measuring or assessing how well an activity is actually being carried out and the quality of data collected as part of each activity should also be stressed.
- Examples of ways of recognising problems, and modifying the operations to solve these problems should be built into the course.
- Using various tools such as management information system as a monitoring tool should also be included.

In the road-building example, a flow chart linked to a list of activities, an information system of the number of worker, assigned to each activity, the timelines for each activity and quality measures should be planned. The information system would form the main tool for monitoring the activities and the quality of the road. If any changes are required, these could be implemented as and when necessary from the information.

Measuring outputs (What we produce or deliver: Treasury)

The course providers should stress that outputs are the products of the intervention: e.g. the number of RDP houses built over a given time period. They should also stress that:

- Outputs indicate how well interventions are being carried out in relation to specific targets.
- Collecting information on outputs has been part of management in government for a long time.
- The quality of output information, and how to assess this quality should be discussed during the course.
- Government officials should now go further than merely looking at outputs in relation to inputs, processes and activities.

For road building, output measures could include the amount of

time it took to build the road, the quality of the road surface, including water drainage, etc., expenditure and whether there was any over- or under-expenditure, according to the budget, assessment of skills acquired, and the usefulness of these skills.

Measuring outcomes (What we wish to achieve: Treasury)

Outcomes are the effects of the intervention on beneficiaries. The course should stress the following:

- Outcomes cannot be seen in isolation, but should be related to the question of what has changed since the intervention.
- Thus a comparison between baseline situation and the changed situation should be stressed as part of the process of measuring outcomes.
- Outcomes should also be compared to outputs. For example, were the outputs of benefit to the people for whom they were intended?

For example, in the road-building exercise the ‘outcomes’ indicator selected at the start of the exercise as the main indicator could now be measured. The number of working-age people who have found employment in the nearest town after the road has been built could be estimated.

Measuring impact (What we aim to change: Treasury)

When talking about impact, we are looking at estimates of the effects of the intervention over time. The course should stress that:

- There can be intended and unintended consequences of an intervention.
- An important question to explore as part of the course is “what would have happened without the intervention?”
- “Impact evaluation is the systematic identification of the effects – positive or negative, intended or not – on individual (s,) households, institutions, and the environment caused, by a given development activity such as a program or project” (World Bank, 2004).
- While it may not always be possible, in a complex society, to ascribe a particular impact to a specific intervention, concepts related to probability and inferential statistics, such as sampling and non-sampling error, statistical significance of findings, estimations within confidence limits, etc. should be given attention.

Intended consequences could be the increased mobility of the villagers in relation to obtaining employment. Unintended consequences of the road-building exercise could be negative, for example increased traffic and increased number of road accidents,

but they could also be positive, for example more tourism occurs, and opportunities for bed-and-breakfast facilities, other accommodation services and eco-tourism open up.

Other definitions and measures to be considered in the course

- **Efficiency**, how productively inputs are translated into outputs.
- **Effectiveness**, including quality and significance of outcomes, cost-benefit analysis etc.
- **Sustainability**, including identification of ways to institutionalise and sustain successful parts of the programme.
- **Transportability**, or can the intervention be successfully implemented in other areas?
- **Meta-evaluation** or how good was the evaluation?
- **Synthesis** or what was attempted and actually done, what was accomplished, what lessons were learned, etc.

The cyclical nature of M&E

The course should stress that M&E is an ongoing process that feeds into other government processes in order to improve service delivery. The outputs, outcomes and impacts of one intervention feed as inputs into the following intervention.

- New needs should be identified and the baseline or existing situation should be modified as and when new data become available.

M&E findings should feed into new planning process, in terms of setting new goals and objectives, setting new baselines, developing new indicators, etc. M&E is an integral part of planning, not an add-on process.

For managers planning future strategy, this could be the most important aspect of the course. For example, how could the lessons learned from the example of the road-building exercise actually be used in future plans for a more general road-building programme in all rural areas of the country as part of the extended public works programme of government? How could the data that have been collected be used for these new plans? How would M&E be used in future planning?

Part 2: The exercise to put M&E learning into practice

Each participant should select an existing intervention that has occurred in his or her area of work.

- How were the priorities set?
- What indicators, if any were used?
- What information sources were used? What additional sources could have been used?
- What were the inputs, activities, outputs, outcomes and impacts measured?
- What was the quality of the work done? How could quality be improved?
- What lessons could be learnt from this intervention to feed into future plans?

A written report and a presentation should be available to discuss in Part 3 of the course.

Part 3: Discussion and consolidation of M&E learning

Each participant presents their exercise to the group. Each intervention is discussed in terms of what the individuals have learnt as part of the course.

The original questionnaire administered at the beginning of the exercise is re-administered, to determine the extent of new M&E learning.

Curriculum Group 2 Managing Monitoring and Evaluation Processes Course for M&E managers

Duration:

- Five working days; followed by
- A practical exercise in using data for evaluation while the learner returns to work (there could be a two-day period allowed for this exercise); followed by
- A two day discussion and consolidation workshop.
- An alternative approach could be to ask the learners beforehand to come prepared with a programme which needs to be evaluated.

Target groups:

M&E programme and project managers and others who are responsible for managing monitoring and evaluation in government should attend this course.

The purpose of the course on managing the M&E process:

The purpose of the course is to ensure that managers of M&E programmes and projects within the public sector have an understanding of the ways in which these tools are being used by M&E practitioners.

Specific goals

An M&E manager in the public sector should be able to:

- Understand the components of an M&E system;
- Set up an M&E system;
- Manage an M&E system;
- Draft terms of reference for an evaluation exercise;
- Manage M&E practitioners and consultants;
- Reflect on how well government is doing in relation to a particular intervention through interpreting M&E findings;
- Use M&E as a planning tool, by linking results from this exercise to new goal-setting.
- Make decisions about priorities and plans for future programmes, projects and service improvements by using M&E findings.
- Use M&E as a tool for performance and results-based management.

Approach

- M&E in government is based on indicators and other measurable criteria. The approach should thus be based on identifying indicators and understanding methods of measuring the progress of services, projects and programmes (interventions) in relation to these indicators.

There are common features between the curriculums for this group and the one discussed previously, but there are also unique features. The common features are repeated in summary format for the sake of completeness.

Essential background reading

There are three documents that are essential reading before attending the course.

- *“Policy framework for the government-wide monitoring and evaluation system”*; compiled by the government-wide monitoring and evaluation task team.
- The document compiled by National Treasury, as part of the government-wide monitoring and evaluation series, entitled: *“Framework for managing programme performance information”* should be prescribed as essential reading material before attending the course. It may be found on www.treasury.gov.za <<http://www.treasury.gov.za>>.
- *“Development indicators: mid-term review”*, Policy Coordination and Advisory Services, The Presidency

Information sources for M&E

The course should introduce the learners to the different sources of information that may be used for M&E, including:

- Introduction to ways in which to evaluate the quality of data sources, including: methods of data collection; sample design, if applicable; underlying assumptions of the method used; questionnaire design, if applicable; reliability and validity.
- The use of data from existing data bases, for example administrative records in each department, the population register, schools data bases, etc.
- The use of data from existing surveys, particularly those of Stats SA (as the official statistical agency of the country), and the use of social, economic and demographic statistics, for example the data from the 2001 population census, the annual general household surveys, the six-monthly labour force surveys, and the surveys conducted among businesses to describe the economic situation in the country.
- The use of data generated for a specific purpose, for example using information from surveys conducted to measure knowledge of, attitudes towards and actual practices (KAP) in relation to smoking.
- Using information gained from social science research designs, for example “before – after” research using experimental and control groups.
- Using the findings of qualitative research methods such as focus group discussions, case studies, in-depth interviews, and rural appraisals.

Content of learning

The following aspects of M&E should be stressed in in the course for M&E managers.

Understanding the context in which the intervention takes place:

- Participants should be made aware of the importance of background information.
- Awareness should also be created regarding ways to take context into account: for example, reasons and methods for undertaking a needs analysis, or collecting baseline information, or conducting rapid rural assessments. The use of baseline data, or else the use of findings from conducting baseline research, in order to obtain benchmarks for M&E processes should be stressed.
- Awareness should also be created regarding the importance of having an initial starting point from which to build indicators, and against which to measure the results of the intervention.

Setting priorities and identifying indicators

The course should relate the development of indicators to setting priorities.

- The concept of an indicator as a measure of each of the following should be stressed: *inputs, activities, outputs, outcomes and impacts*.
- Emphasis should be placed on the ability of an indicator to be able to measure what it sets out to measure. Examples of measurable and non-measurable indicators should be given.

Setting up and managing M&E systems

The course should stress that *a system is a set of components*, for example indicators, activities, processes or projects, real or abstract, comprising an entirety, *where each component interacts with or is related to at least one other component* and they all serve a common objective.

The following should be included:

- Ways to set up an M&E system;
- Ways to manage an M&E system;

- Ways to manage M&E specialists or practitioners in the department;
- Drawing up terms of reference for M&E outsourcing; and
- Managing M&E consultants.

Understanding the government-wide monitoring and evaluation system

- Indicators in the government-wide monitoring and evaluation system (GWMES) and their use.
- Aligning the M&E system of the specific department with the GWMES.

Part 2: The exercise to put M&E learning into practice

Each participant should select an existing programme that his or her area of work.

- An M&E system should be set up to monitor and evaluate the programme, including appropriate indicators.
- The way in which the system will be managed should be described.

A written report and a presentation should be available to discuss in Part 3 of the course.

Part 3: Discussion and consolidation of M&E learning

Each participant presents their exercise to the group. Each intervention is discussed in terms of what the individuals have learnt as part of the course.

Curriculum Group 3 Monitoring and Evaluation (M&E): Specific themes for M&E practitioners

Introduction

A theme is a grouping of subject matter with common features. The curriculum is presented as themes rather than modules, to allow presenters to group the constituents of each theme in alternative ways, in relation to each organisation's specific teaching plans and methods.

Duration:

- The generic course for users, as indicated previously, should be a precondition for completing these M&E themes for practitioners. This curriculum probes more deeply into the various components outlined in the generic course.
- Each theme, including suggested exercises, should last the equivalent of 15 working days or three weeks.
- The suggested practical exercises should be completed during the time the learner attends the lectures related to the theme.
- Themes may also be presented through distance education or as e-learning programmes.
- Most themes are designed for initial courses in M&E. But some of them are relevant for more specialised aspects of M&E or for intermediate and advanced courses.

NOTE: *Aspects of each theme can be presented as part of a practitioner's workshop (1 – 3 days) or as an introduction to a specific aspect of M&E (3 days). Each theme may be split into different sub-themes for different competencies, depending on the specific requirements of the learners. The themes may also be combined into larger learning components.*

Target groups:

Monitoring and evaluation practitioners at all levels in government may acquire new skills or improve existing skills through studying M&E in terms of these themes.

The purpose of these M&E themes:

The purpose of these themes is to ensure that M&E practitioners are qualified and competent to do their job, taking the specific requirements and methods of working in the public sector into

account.

The completion of at least 12 themes, together with a dissertation, should be seen as leading to a qualification that is the equivalent of a Master's Degree in M&E.

Specific goals

An M&E practitioner in the public sector should be able to:

- Use M&E as an integrated part of the planning process in government, and apply it to the planning cycle.
- Collect accurate, reliable and useful information during M&E processes.
- Prepare reports that reflect on how well government is doing in relation to a particular intervention through interpreting M&E findings.
- Indicate how decisions about priorities and plans for future programmes, projects and service improvements can be made by using M&E findings.
- Assist managers and decision-makers to incorporate M&E as an essential component of the work done by government in the planning and budgeting cycles.
- Contribute to public service accountability and transparency by supplying users with high quality information gained through M&E processes.
- Ensure that M&E information can be used as a tool for performance and results-based management.

Approach

- M&E in government is based on indicators and other measurable criteria. The approach used in capacity-building for M&E practitioners should thus be based on identifying indicators and measuring the progress of services, projects and programmes (interventions) in relation to these indicators.

Specific themes

Theme 1: Using indicators as an M&E tool

Aim: To enable M&E practitioners to use existing indicators and to develop appropriate new indicators for different types and levels

of monitoring and evaluation

Essential reading: The document compiled by National Treasury, as part of the government-wide monitoring and evaluation series, entitled: “*Framework for managing programme performance information*” should be prescribed as essential reading material before attending the course. It may be found on www.treasury.gov.za <<http://www.treasury.gov.za/>> .

- The theme should include a discussion of what an indicator is. It should stress that an indicator should be:
 - measurable (for example, concepts such as improving happiness should be discussed in relation to the fact that they are NOT directly measurable, but they have to be broken down into components and operationalised into measurable units);
 - reliable (for example, aspects of reliability such as internal consistency and test-retest reliability should be discussed);
 - well-defined (examples of ambiguous and clear definitions should be given),
 - verifiable (the discussion of this concept should include such aspects as comparability, repeatability and validity);
 - cost-effective (including a discussion of the concepts of costs as against benefits),
 - appropriate (for example, the discussion should point out that definitions need to be designed to measure what they should be measuring); and
 - relevant (for example the theme should point out that an indicator should measure what is important to the beneficiaries).
- Examples should be given of indicators that match and that do not match these criteria. (For example halving poverty by 2015 is not an indicator but a goal. Ways of relating such goals to actual indicators to measure the goal, such as the number and the proportion of children aged four years who are undernourished, could be discussed).
- The theme should focus on **setting priorities** and developing indicators in relation to setting priorities. (For example, creating employment through expanded public works programmes could be set as a priority in relation to reducing

poverty. Indicators in relation to employment-creation policies, strategies and operations, such as the number and proportion of people who find gainful employment after participating in an expanded public works programme, could be discussed).

- The theme should describe the way in which an indicator can be used in relation to:
 - Different levels of M&E (policy, strategy and implementation);
 - Different steps within an intervention (process indicators);
 - Identifying strengths and weaknesses within an intervention.
- The theme should highlight different types of indicators to be used for assessing different stages of an intervention, including:
 - inputs (for example average costs in educating a child for a year);
 - processes and activities (for example assessing a teacher's performance);
 - outputs (for example, number and proportion of children who successfully complete grade 3);
 - outcomes (for example, the number and proportion, among those who successfully complete grade 12 in a given year, who are studying further); and
 - impacts (for example the unemployment rate of a given peer group who have completed grade 12) should be stressed.
- The differences between direct and proxy indicators should also be stressed. For example, a direct indicator of the tourist industry could be the increased contribution to GDP over time made by hotel accommodation, while a proxy indicator could be increase in the contribution of retail trade to GDP in specific times of the year of when a high rate of tourism occurs.
- The use of the following types of indicators should also be included in the theme:
 - cost or price indicators;
 - distribution indicators (related to the capacity to deliver in relation to an intervention);

- quantity indicators (related to numbers, ratios and other measures, for example the number and percentage of children aged 8 years attending school);
 - quality indicators (related to the quality of an intervention against pre-determined standards);
 - indicators of timeliness, adequacy (is enough being done to address the problem?) and accessibility (is the intervention reaching the intended beneficiaries?); and
 - indicators of economy; efficiency; effectiveness and equity.
- Attention should be given to the role of indicators in the government-wide monitoring and evaluation system.

Example of a practical exercise:

- Identifying an intervention within the department or component where the learner works;
- Developing a set of indicators in relation to the goals and priorities of the department or component;
- Suggesting ways in which to apply these indicators to measure the results of the intervention.

Theme 2: Using M&E in relation to policy formulation

Aim: To enable M&E practitioners and users to apply M&E findings in developing new policies and modifying existing policies

- The theme should include a discussion of what is meant by policy, and differences between policy, strategy, and operations.
- Evidence-based policy formulation should be stressed, with emphasis on the use of scientific methods for informed decision-making (for example, the theme could indicate that housing policy should take internal migration patterns into account by examining answers to migration questions in Stats SA's population census and household survey data sets).

- The theme should contain definitions and concepts of policy as applicable to national, provincial and local government.
- It should also focus on the links between policy, strategy and implementation and cyclical nature of the different levels of planning.
- The theme should stress how M&E can be used in policy modification and development by using baseline and benchmark data. The theme should highlight:
 - Types of baseline and benchmark data that can be used, including quantitative and qualitative data;
 - Quality of baseline data, including methods of checking that the principles of reliability and validity have been adhered to, for example, comparisons across data sets and checking on design issues such as research design, sample design (if applicable), and questionnaire design.
 - Critically assessing data analysis and interpretation processes.
 - Linking baseline data with indicators.
- Use of data collected at a later stage, initially within a year after an intervention to assess outcomes
 - Ways in which to compare outcome data with baseline or benchmark information.
 - Using indicators in relation to outcome data.
 - Ways in which to check the quality of outcomes information and to critically assess the data analysis and interpretation processes.
 - Data collected within the longer term to assess impacts.
 - Examining the data to gain a better understanding of intended and unintended results of the intervention.

Example of a practical exercise:

- Identifying a specific policy used in the department or component of government where the learner works.
- Examining the policy in relation to comparisons of information that was collected before and after its implementation.
- Examining the strengths and weaknesses of the existing data and information.

- Suggesting modifications to the policy based on the data comparison.

Theme 3: Legislation relevant to M&E in government

Aim: To enable M&E practitioners and users to apply M&E principles to legislation affecting public service interventions

Essential reading: The Public Service Act of 1994, as amended; The Public Finance Management Act of 1999.

The theme should stress the following:

- The meaning of governance, and the role of government in a democratic context, and how M&E can enhance good governance;
- M&E in relation the following UNESCO-defined characteristics of democratic governance:
 - ***Participation***, which includes measuring: how both men and women have a voice in government; direct participation in government; participation through legitimate intermediate institutions or representatives; and freedom of association and expression, within an organized civil society.
 - ***Rule of law***, which includes applying M&E in relation to: legal frameworks that are enforced impartially; protection of human rights, particularly those of minorities; an independent judiciary, and impartial police force.
 - ***Transparency***, which includes applying M&E to ensure that decisions taken and their enforcement are done in line with existing legal framework, and that information is freely available and directly accessible to those affected by decisions and their enforcement.
 - ***Responsiveness*** M&E should be used to measure the extent to which government serves all people through the implementation of its policies, which take place within a reasonable timeframe, and which takes the historical, cultural and social contexts of the country into account.
 - ***Equity and inclusiveness***, M&E should be used to assess the extent to which all people feel that they have a stake in governance and have opportunities to improve or maintain their well-being.
 - ***Effectiveness and efficiency***, M&E practitioners have a direct responsibility in ensuring that government produces

results that meet the needs of society, making the best use of available resources in a sustainable manner.

- **Accountability**, M&E should be able to operationalise and measure the extent of adherence to standards in relation to concepts such as accountability and transparency.
- The following specific Acts should be studied in terms of their relevance to M&E, and how M&E can be applied to enhance their implementation:
 - The Public Service Act of 1994, as amended
 - The Public Finance Management Act of 1999, and
 - The Municipal Finance Management Act of 2003.
- The theme should also focus on specific Acts governing various departments, for example the Statistics Act of 1999, in relation to their relevance for M&E.

Example of a practical exercise:

- Identifying a specific Act that applies to the department where the learner is working;
- Suggesting how M&E can be used to measure the implementation of the Act.

Theme 4: Quantitative research techniques in relation to M&E

Aim: To enable M&E practitioners to design, assess the quality of, and to use various quantitative research methods as M&E measuring instruments

The theme should include the following:

- Basic descriptive statistics; including nominal, ordinal and interval measures; measures of central tendencies and distributions around these central tendencies.
- Probability theory and normal distribution curves;

- Discussions of the relationships between variables; the difficulties faced in ascribing cause-effect relationships on the basis of scientific studies of relationships between variables, and the implications of these difficulties for M&E practitioners;
- Principles of quantitative research, including generalisability from a sample to the population in question;
- Formulating research problems and questions, and developing hypotheses, while linking goals of an intervention, and the indicators used in M&E to measure the attainment of the goal with actual hypothesis testing;
- Formulating measurable operational definitions, directly linked to M&E indicators;
- Understanding the types of variables used in social science measurements, including: independent and dependent variables; observable and intervening variables;
- Principles of research design, including ways to control extraneous variance and to maximise experimental variance, and measures of error variance;
- Laboratory and field experimental and quasi-experimental designs; using matched and randomised pairs; before – after designs, experimental – control group designs;
- Ex post-facto research;

Example of a practical exercise:

- Identify a specific intervention to provide a service in a particular area where the learner is working, for example improving literacy among adults.
- Design a before-after study to assess effectiveness of the intervention.
- Conduct the study, and report on the results.

Theme 5: Survey research techniques in relation to M&E

Aim: To enable M&E practitioners to design, assess the quality of, and to use surveys as an M&E measuring instrument

The theme should include the following:

- Basic descriptive statistics; including nominal, ordinal and interval measures; measures of central tendencies and distributions around these central tendencies.
- Probability theory, randomness, and normal distribution curves.
- Principles of quantitative research, including generalisability from a sample to the population in question;
- Methods of drawing samples, including:
 - Defining the universe from which to draw a sample;
 - The nature and importance of probability sampling;
 - The nature and principles of simple random sampling;
 - Systematic random sampling;
 - Area probability, and probability proportional to size (PPS) sampling;
 - Stratified random sampling; and
 - Complex, multi-stage and cluster sampling.
- Understanding sampling and non-sampling errors.
- Developing tabulation plans, based on the aims of the survey.
- Data collection methods including postal surveys, telephone interviews, face-to-face interviews, use of faxes, e-mails and the internet for information-gathering:
- Household survey fieldwork, including the use of maps and GIS to identify selected primary sampling units such as an enumeration area, identifying the boundaries of the primary sampling unit, listing of dwelling units within it, and identifying secondary sampling units such as a dwelling.
- Questionnaire design principles, including:
 - Targeting the vocabulary to the population to be surveyed;
 - Avoiding ambiguity, vagueness and overlapping categories;
 - Avoiding leading questions, and questions that can give negative and double negative answers; and
 - Ranking, rating and scaling methods.
- Principles and measurement of reliability and validity.
- Data processing and editing principles, including range and consistency checks.

Example of a practical exercise:

- Identify a specific intervention to provide a service in a particular area, for example, the supply of electricity to all dwellings in an informal settlement.
- Design a household survey to measure present access to and use of this service.
- Conduct the survey, capture and tabulate the results.

Theme 6: Qualitative research techniques in relation to M&E

Aim: To enable M&E practitioners to conduct and use qualitative research as an M&E measuring instrument

The theme should include the advantages and disadvantages, benefits and limitations, of the following types of research in relation to M&E:

- ***Case study research:*** The theme should stress that case study research is designed to gain a better understanding of complex issues by investigating them within their real-life contexts. It may also be seen as a useful exploratory research instrument on which to base hypotheses. The combination of different research methods in case studies, for example interviews, direct observations and participatory approaches in one design, should be given attention. Case studies may involve single or multiple-cases, but a multiple design follows replication rather than sampling principles. Generalization of results of case studies, from either single or multiple designs, is made to *theory* and not to populations.
- ***Participant-observation:*** The theme should examine participant observation as a process of actively engaging in the M&E study in question, while at the same time observing the events, actions or reactions taking place. Levels of participation in relation to observation should be examined. For example, participation can be complete where the researcher actively influences the direction of the group; or the researcher can play a “participant as observer” role where s/he participates but does not try to influence the direction of the group, or the researcher can also take a back seat albeit as a group member. Methods of drawing up an observation schedule should be an important component of the theme.
- ***Participatory rural appraisal and other participatory appraisal approaches to research:*** The theme should examine participatory rural appraisal as part of a group of participatory approaches and methods that emphasize local knowledge and enable local people to make their own appraisal, analysis, and plans as part of M&E. Techniques of rural appraisal should be viewed as

equally applicable in urban settings. The participatory appraisal approach can be employed at every stage of M&E in a programme or project cycle or an intervention.

- **Direct observation:** As part of the theme, direct observation should be distinguished from participant observation, in that the researcher doesn't typically try to become a participant, but s/he does strive to be as unobtrusive as possible, while examining the situation as an observer, from a more detached perspective. The researcher is watching rather than taking part. S/he is observing certain sampled situations.
- **Focus group discussions:** This theme should stress that focus group research is based on facilitating an organized discussion with a group of individuals who are selected to participate, on the basis of pre-determined criteria relevant to the issue being studied. Discussion is used as a tool to bring out multiple meanings, more complex insights and understandings through the language that is used by the discussants. Different discussants interpret topics of discussions in different ways, and interaction is the key to successful focus groups.
- **Interviews with key informants:** The theme should examine this technique as one where domain experts are asked questions by an interviewer in order to gain specific knowledge. The differences between unstructured, semi-structured and structured interviews should be emphasised. The type, detail and validity of data gathered should be studied in relation to the type of information required, the type of interview and the experience of the interviewer.
- **Content analysis:** Learners should be taught as part of this theme that content analysis is a technique for gathering and analyzing the content of text. The content may include words, phrases, sentences, paragraphs, pictures, symbols, or ideas. It can be done quantitatively (for example, counting the number of responses in a particular category) as well as qualitatively (for example, explaining the meaning of responses), and computer programs can be used to assist the researcher. Methods of sorting the content into themes and developing a coding system around these themes should be stressed, including frequency (amount of content), direction (who the content is directed to), intensity (power of content), and space (size of content). The principle of ensuring inter-coder reliability should be explained.

Example of a practical exercise:

- Identify a specific intervention to provide a service in a particular area, for example, the supply of water to dwellings in an informal settlement.
- Design a qualitative research method to determine attitudes towards the provision of this service.
- Conduct the qualitative research, then analyse and interpret the results.

Theme 7: Using public sector data-bases in relation to M&E

Aim: To enable M&E practitioners to develop data sets and to use existing public sector data bases as M&E measuring instruments

The theme should include the construction, use of, advantages and disadvantages, benefits and limitations, of the following data sources compiled by various government departments in relation to M&E:

- Examining the quality of data contained in a data base to be used for M&E, in relation to specific criteria (for example, formulating and carrying out a series of range and consistency checks on a given data set).
- Knowing the content and understanding the construction of different data bases kept by various national and provincial government departments (for example, knowing how the population register has been constructed and what information it contains).
- Using information systems developed by different departments or components and M&E tools (for example health information systems).
- Relating the content of various sources of information contained in government data sets to specific M&E requirements (for example using variables in the population register such as age and sex to obtain baseline data prior to an educational intervention).
- Use of registers, for example the population register; the register of births and deaths to extract relevant M&E information in relation to a particular intervention (for example, using death registration information to evaluate the outcomes of a public health intervention);
- Use of transversal public sector data bases, such as PERSAL, LOGIS, BAS and Vulindlela, to extract information relevant to a specific M&E task (for example, using PERSAL for monitoring aspects of performance of staff on a specific project).

- Use of reports such as quarterly and annual reports produced by a department as an M&E tool.
- Use of existing data bases created by specific departments for their particular requirements, for example SOCPEN, EMIS, to extract M&E information (for example comparing SOCPEN to the population register to determine the extent of coverage of pensions);
- Use of household survey and census data to extract information relevant to a particular intervention (for example, using the information contained in the 1996 and 2001 population censuses to evaluate changes in access of households to clean water over time).
- Use of existing administrative data (for example, using clinic record data for M&E in relation to a project designed to improve primary health care).
- Developing a data base for monitoring an intervention (for example, developing a management information system [MIS] for a specific project).

Example of a practical exercise:

- Identify a specific intervention to provide a service in a particular area, for example, the supply of refuse removal services to dwellings in an informal settlement.
- Extract information from existing data bases such as the 1996 population census to determine the extent of the initial need for this service.
- Extract information from existing data bases such as the population census of 2001 to determine the extent to which the need for this service has been met.

Theme 8: Using the logical framework approach and other evaluation techniques in relation to M&E

Aim: To enable M&E practitioners to develop data sets and to use existing public sector data bases as M&E measuring instruments

Logical framework analysis

The theme should include the construction, use of, advantages and disadvantages, benefits and limitations, of the analysis using a logical framework, in relation to M&E.

- The principles of the logframe approach, including:
 - the analysis of problems, and the development of a problem tree,
 - the identification policies and strategies that address the problem,
 - the identification of goals, and objectives, in relation to addressing the problem,
 - the setting of priorities in relation to the problem, and
 - the identification of measurable inputs, processes, activities, outputs, outcomes and impacts in relation to the problem.

- The learners should be taught how to construct a logical framework matrix, including the following minimum information in the columns of the matrix:
 - *Narrative Summary* <<http://www.kar-dht.org/logframe.html#Sum#Sum>> : This defines the project structure, including goals, objectives or purpose, inputs, activities, outputs, outcomes and impacts.
 - *Verifiable Indicators* <<http://www.kar-dht.org/logframe.html#Sum#Sum>> : Any indicators used should be susceptible to measurement, or qualitative assessment, or both.
 - *Means of Verification*: This column should set out how, and from what sources of information, each of the indicators in the previous column will be quantified or assessed. The availability and reliability of data, and the practicability and cost of collecting them, should be discussed.
 - *Important Assumptions* <<http://www.kar-dht.org/logframe.html#Sum#Sum>> : This column should record the important assumptions on which the success of the project depends, and the *risks* that have been considered.

Other techniques: While there may be many more techniques, the following are the minimum that should be included in this theme:

- Evaluation in terms of the domains of “Units, Treatments, Observations and Settings” (UTOS), as proposed by Lee J Cronbach, including the concepts of:
 - External and construct validity;

- Generalisability of findings to populations; and
- Causal modelling.
- The principles of “Utilization Focused Evaluation” (UFE), as formulated by Michael Quinn Patton, including:
 - Identifying final intended primary users and then other users;
 - Encouraging the users to commit to the evaluation;
 - Involving the users in decisions regarding design, methods and measurement of the evaluation; and
 - Involving users in interpreting the findings and making judgements.

- The principles of “Content, Input, Process and Product” (CIPP) evaluation, as formulated by Daniel Stufflebeam, including:
 - Context or identifying needs and objectives in a given situation;
 - Input or the strategy and design of the intervention;
 - Process or examining the current intervention, the steps that constitute it and the links between them; and
 - Product or the measurement of the outcome

- The “Modus Operandi” (MO) or causal chain technique of Michael Scriven, including:
 - Determining appropriate criteria on which to base M&E judgements;
 - The use of comparisons in making value judgements;
 - The identification of alternatives, including compiling an exhaustive list of potential causes, and narrowing them down to those which best fit into a causal chain of events.

Example of a practical exercise:

- Identify a specific intervention applicable to particular area in which the learner works,
 - Apply the principles of the logical framework approach to this intervention.
 - Develop a logframe matrix fro this intervention.
 - Choose one other evaluation technique and analyse the same intervention in relation to this technique.
 - Compare the similarities and differences between the two.
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Theme 9: Methods of tracking information in relation to M&E

Aim: To enable M&E practitioners to track the progress of an intervention

The theme is based on the tools generally used for project management. It should include the construction and use of specific instruments to measure ongoing processes and activities of an intervention, as and when they occur, including:

- Identifying and defining the processes and activities that constitute the intervention;
- Developing and using flowcharts and other tools that allow the processes and activities of an intervention to be clearly mapped out;
- Allocating physical, financial and human resources to each activity that constitutes the intervention;
- Identifying risks and dependencies for each activity in the process;
- Developing methods of recording incidents that affect the intervention, as and when they occur;
- Setting criteria, standards and targets for achievement related to each activity.
- Developing a method for measuring performance of each member of staff during the intervention;
- Using project planning tools and monitoring tools such as but not only Gantt charts;
- Tracking expenditure and other financial information; and
- Developing and using computer-based management information systems.

Specific tools: While there may be many tools that could be used for tracking the progress of an intervention, the following are the minimum that should be included in this theme:

- The theory and use of the supply chain management model as applied within the public sector: The theme should stress that

supply chain management encompasses the planning, coordination and management of all activities that constitute an intervention, and the coordination of the delivery of all parties, including suppliers, intermediaries, third-party service providers, and end users.

- The theory and use of quality management principles such as total quality management (TQM) and systematic quality management (SQM): This approach should be presented in relation to the following principles:
 - User orientation: User requirements should be the point of departure for defining quality in the public sector;
 - Process orientation: Improvements require control of and changes in processes;
 - Documentation and data: Changes must be based on data about processes; and
 - Participation by all involved in the intervention.

Example of a practical exercise:

- Identify a specific intervention applicable to particular area in which the learner works,
- Develop a flowchart that indicates all the processes and activities that constitute the intervention.
- Allocate resources to each activity in the process.
- Choose a tracking tool for use in this particular intervention.
- Indicate the advantages and disadvantages of this tracking tool.

Theme 10: Data capture, processing, cleaning, storing, warehousing and retrieving

Aim: To enable M&E practitioners to capture, process, edit, store and retrieve data for M&E use

The theme should include the following:

- Ways to capture data, including keying in the information; double entry; automated data capture; optical and intelligent character reading; and the development of automated dictionaries for coding information;

- Ways of establishing a data processing system with usable information as the end product of the system;
- Ways of tracking questionnaires or other instruments containing data through the data processing system;
- Ways to control data quality during data capture and processing, including checking the a sample of information being captured, building in automated checking programmes at different stages of data capture, use of range and consistency checks, analysing samples of information during data processing;
- Ways of managing version control (for example, ensuring that updated data sets replace older versions);
- Principles, types, advantages and disadvantages of data cleaning and editing.
- Principles of data storage and warehousing, including:
 - Standards and definitions;
 - Developing metadata; and
 - Data warehouse systems.
- Methods of data retrieval;
- Use of software products such as SAS or SPSS for data analysis.

Example of a practical exercise:

- Refer to the metadata of a particular data set such as one of Stats SA's bi-annual Labour Force Surveys and comment on its quality.
 - Apply a statistical software package to analyse pre-captured data, for example, a group of variables on one of Stats SA's bi-annual Labour Force Surveys.
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Theme 11: Statistical analysis of research used for M&E purposes

Aim: To enable M&E practitioners to apply statistical techniques when analysing and interpreting data

The theme should include the following:

- Principles of probability as the foundation of statistics;

- Descriptive and inferential statistics;
- Discussion of dependent and independent variables;
- Understanding frequency distributions, measures of central tendency and variability.
- Examining the components of variance;
- Understanding the principles and levels of statistical significance;
- Principles of allocating raising factors and weights to samples drawn for surveys;
- Discussion of sampling and non-sampling error and error variance;
- Calculating measures of central tendency and distributions, including standard deviations, confidence limits, and standard errors;
- Univariate analysis, including analysis of categorical and continuous data;
- Measures of relations between variables;
- Analyses of differences between variables; and
- Multivariate analysis techniques.

Example of a practical exercise:

- Use two consecutive Stats SA data sets, for example the 2004 and the 2005 general household survey, and select a continuous and a discrete variable that may be used as a dependent variable.
 - Apply at least two appropriate statistical techniques to analyse the relationships between these variables.
-

Theme 12: Report writing

Aim: To enable M&E practitioners to write clear reports on their findings

The theme should build capacity to do the following:

- Principles for identifying the main users of the report as the target audience; and writing for that audience;
- Principles for linking the report directly to the aims and objectives of the particular M&E exercise;

- Ways of planning a report, for example developing a mind-map, or a flow chart or other instruments to ensure inclusion of all important points in the report, or drawing up a table of contents as a guide to report writing;
- Identifying and describing all the underlying assumptions and the limitations of the particular M&E process;
- Identifying the most important M&E findings and using them as the basis for the report.
- Having a logical flow throughout the report, and having clear ways in which to organise the material.
- Writing clearly and concisely by having basic rules for writing, for example, avoiding the use of jargon and clearly explaining acronyms.
- Avoiding repetition;
- Checking the report for consistency.
- Careful use of headings and sub-headings and ensuring that they actually apply to the contents under it.
- Checking of grammar, spelling, punctuation,
- Reference systems and preparing a list of references:
- Principles for writing an executive summary

Example of a practical exercise:

- Write a brief M&E report for a future planning session.
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Theme 13: Data presentation: Tables, graphs and maps

Aim: To enable M&E practitioners to prepare tables and graphs in relation to reporting M&E findings

The theme should include the following:

- Principles of drawing up a tabulation plan, and linking tabulation plans to the aims and objectives of the M&E exercise;
- Linking the tabulation plan to the questionnaire or applicable measuring instrument;
- Linking tabulation plans to the statistical techniques to be used to analyse the data;

- Understanding the principles of tabulation, including nesting and cross tabulations;
- Having a logical flow in the data to be included in the tables;
- Reading information presented in tables in an appropriate manner, as applied to columns, rows and cells and interpreting data tables;
- Calculating column, row, and cell ratios, proportions, percentages.
- Understanding the principles regarding using appropriate denominators for a particular analysis. For example, a denominator in a given table could be the proportion of people within a particular population group who fall within a specific income category [within the group of “African people”, what proportion are in “income category 1”?], or it be the proportion of people within a particular income group who are African [within the group called “income category 1”, what proportion are in “African people”?]: each of these would yield different proportions;
- Representing data graphically, including pie charts, bar diagrams, line diagrams, scatter plots and area diagrams and representing data graphically in three dimensions;
- Checking on the accuracy of the data contained in the tables;
- Identifying and describing the underlying assumptions and the limitations in specific tables and graphs;
- Understanding a geographical information system;
- Including data into a geographical information system;
- Methods of acknowledgement of data sources;
- Developing power point presentations.

Example of a practical exercise:

- Write a brief M&E narrative report with graphic illustrations using Stats SA tables in the public domain.
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Theme 14: Theories of and approaches to M&E

Aim: To enable M&E practitioners to have an in-depth

understanding of various approaches to M&E; to be able to make choices on appropriate M&E methods for specific interventions

The theme should include the following theories as a minimum:

- The theory of Lee J Cronbach;
- Michael Scriven;
- Robert Stake;
- Daniel Stufflebeam;
- Michael Quinn Patton;
- David Fetterman;
- World Bank Independent Evaluation Group's approach to evaluation;
- M&E in relation to the United Nation's Millennium Development Goals

Example of a practical exercise:

- Select one M&E theory, and describe its strengths and weaknesses.
 - Compare this theory to at least one other M&E theory.
 - Discuss how you could use this theory in your particular work situation
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Theme 15: Advanced statistical methods, including longitudinal analysis, panel surveys, trend analysis, and time series analysis

Aim: To enable M&E practitioners to use a variety of statistical techniques as M&E tools

The theme should include the following as a minimum:

- Analysis of longitudinal data;
- Analysis of panel data;
- Trend analysis;
- Time series analysis;
- Econometric modelling;
- Principal components and other methods of factor analysis;

- Log-linear analysis and LOGIT models; and
- Correspondence analysis.

Example of a practical exercise:

- Use available Stats SA data for applying the various techniques described above.
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Theme 16: Evaluation methods where there is no baseline

Aim: To enable M&E practitioners to use a variety of statistical techniques as M&E tools

The theme should include the following as a minimum:

- Quantitative methods for retrospective studies;
- Case-control method, as used in epidemiology, applied to evaluation;
- Qualitative methods for retrospective studies;
- Other types of ex post facto studies;
- Data modelling;

Example of a practical exercise:

- Identify and develop a method for an ex post facto study relevant to your department or component where there are no baseline data.
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Theme 16: Impact assessment

Aim: To enable M&E practitioners to use a variety of statistical techniques as M&E tools

The theme should include the following as a minimum:

- *Fiscal impacts*: The theme should stress that fiscal impact analysis involves assessing the public service costs and revenues associated with an intervention;
- *Environmental impacts*: The theme should stress that development often leads to environmental impacts including, but not limited to, loss of open space, impacts on groundwater and surface water quantity and quality (e.g., drinking water supplies), changes in air quality, increases in impervious cover (e.g., paved roads, parking lots), alteration of wildlife habitat and changes in landscape aesthetics. To the extent that a proposed development affects natural resources in a community, an environmental impact assessment is designed to identify the level of impact and assist the community in ensuring that development plans avoid and/or mitigate associated environmental impacts.
- *Socio-economic impacts*: Socio-economic impact assessment focuses on evaluating the impacts development has on community social and economic well-being. This analysis relies on both quantitative and qualitative measures of impacts.
- *Development impacts*: The theme should point out that these are generally evaluated in terms of changes in community demographics, housing, employment and income, market effects, public services, and aesthetic qualities of the community.

Example of a practical exercise:

- Identify and develop a relevant impact analysis for your department or component.

M&E internships

The suggestion is made that an M&E internship programme for government employees in M&E should be instituted, since this may be the best way of learning to apply knowledge acquired in training to the actual situation.