

**Modular training workbook**

**Under activity 1.4.11: Provide inputs focused on statistics and elaboration of statistics reports for the Internal Information System in the E-TVET Secretariat to follow up the labour market access of the skills trained under the programme**

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Modular training programme for ETVET Secretariat staff and other relevant stakeholders (MoL, TVET providers, MoE, MoHE, social partners, etc.) on M&E of employment and education policies including the following topics: a) building and analysing indicators, b) writing evaluation and technical reports, c) preparing impact analysis and monitoring, d) calculating the weights for indicators

Under activity 1.4.11: Provide inputs focused on statistics and elaboration of statistics reports for the Internal Information System in the E-TVET Secretariat to follow up the labour market access of the skills trained under the programme

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**List of Abbreviations**

CAQA Centre for Accreditation and Qualification Assessment

CEDEFOP European Centre for the Development of Vocational Training

DoS Department of Statistics, Jordan

ETF European Training Fund

E-TVET Employment, Technical and Vocational Education and Training

EU European Union

GIZ Die Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

ILO International Labour Office

MoE Ministry of Education

MoHE Ministry of Higher Education

MoL Ministry of Labour

MoP Ministry for Planning

NAF National Aid Fund

NEES National Employment System under the MoL (IT system)

NETC National Employment and Training Corporation

SSC Social Security Corporation

TSG-ES Tracer Studies of Graduates and Employment Satisfaction

TVET Technical and Vocational Education and Training

VET Vocational Education and Training

VTC Vocational Training Corporation

WB World Bank

# Introduction

This material serves as a support for the training sessions delivered to the employees of the Monitoring and Evaluation Unit of the ETVET Secretariat in Jordan. The training was tailored for the needs of the participants based on previous mentoring and coaching sessions. It was developed under Activity 1.4.11: *Provide inputs focused on statistics and elaboration of statistics reports for the Internal Information System in the E-TVET Secretariat to follow up the labour market access of the skills trained under the programme* of the TA Project Technical Assistance to the Skills for Employment and Social Inclusion Programme for Jordan.

The training is organized into three Modules:

* Module 1: Writing monitoring and evaluation reports
* Module 2: Building and analysing indicators
* Module 3: Preparing impact analysis, monitoring and evaluation

This document includes examples used in the training sessions.

# Module One: Writing monitoring and evaluation reports

Policy monitoring and evaluation (M&E) reports are targeting stakeholders active in the area of policy-making, monitoring and evaluation; such as: i) high level decision makers; ii) the middle level staff of public institutions involved in policy creation or implementation; iii) beneficiaries (organisations receiving public funding); or iv) donors (potential funders). All these potential readers are looking for slightly different type of information. Keeping the reports as structured as possible, therefore, saves the time potential reader needs to spent in finding and extracting the information (s)he is looking for. Keeping some general, elementary rules of related to the structure contributes significantly to the readability and, thus, usefulness of the reports.

A universally applied rule in writing M&E reports is to maximize the support of the information provided with empirical evidence (data, documentation, etc.).

The inclusion of the information included in the reporting (and supported with evidence), should be subject to assessment considering the economy of the readers´ time and effort and the overall focus of the particular report.

The focus of policy M&E reports is usually defined by the strategic policy (document) being monitored, respectively evaluated.

## Structure of a M&E report

The usual structure of M&E reports includes the following sections:

1. Content
2. Lists of figures and tables
3. Executive summary
4. Introduction
5. Content related chapters
6. Conclusions
7. Policy recommendations

Although some flexibility in the usual structure is allowed, following this structure saves readers time and effort.

### Content of particular sections

Here we introduce some framing rules on what type of information should be found in particular sections of M&E reports.

*Executive summary*

The Executive summary summarizes the main information provided in the report. Despite that it presents the first section of the text, it should be written after the rest of the report, including the sections on Conclusions and policy recommendations, is complete. The structure of the Executive summary might copy the structure of the report. Main messages from all the other sections of the report should be touched in the Executive summary.

The main purpose of the Executive summary is plainly summarisation of the information provided in the whole report in a shorter form. Another, less explicit, purpose of the Executive summary is to attract the reader to explore the report in more detail.

Because the Executive summary is the part of the report most readers read (including the top level policy makers), sometimes it is also used to present the message of the report of crucial importance.

*Introduction*

The Introduction offers space for explaining the policy context, which motivates the report. The reader should be introduced to the strategic documents or other policy frameworks the Report refers to. Information on the periodicity of reporting, reference period, thematic and institutional scope of the report should be found here. Other relevant M&E activities can be mentioned, as well as other intervening policies (policy documents). In some cases, also the structure of the following text should be outlined and explained here to give the reader an idea of organising the content of the following text.

Conclusions

The Conclusions section summarizes the main messages of the main content parts of the report. In contrast to the Executive summary, Conclusions also allow for a more extensive explanation of the main developments during the reporting period (resp. messages of the report) and their more general implications for policy making. Predictions of future development, including the identification of potential risks can be included here as well.

Policy recommendations

Although, policy recommendations can be a part of the Conclusions section, it is a good practice in policy reporting to extract them into a separate section. This is the second most attractive section of the report; it gets the second highest number of reads. Readers, who do not have time to read the whole report looking for potentially useful information to pick on. Therefore, three rules apply when writing the policy recommendations section:

1. Conciseness – The reader does not have time, you need to attract his attention fast. Avoid any redundant text and go straight to the point.
2. Readability – Although your space is limited, you need to explain what you are recommending in plain language (avoid abbreviations or technical terms introduced in the main text of the report).
3. Accuracy – Be careful to base your recommendations based on the most recent and accurate evidence. Describe it in an accurate way.

### Paragraph structure and rules of conveying the message supported with evidence

The main body of the report should be dedicated to bring evidence on the development in the policy field. In the case of an evaluation report, evidence addressing the evaluation questions is presented here. The text should be structured into sections, defined either by policy areas (priorities of the strategy) or evaluation questions. Within these sections text should be structured into rather short paragraphs. Each paragraph should be carrying one main message and ideally supported by evidence visualised in a table or a figure.

A good practice in writing policy reports is phrasing the main message of the whole paragraph in the introductory sentence. This can be even highlighted with bold formatting.

#### Exercise 1: Write a paragraph accompanying a graph from the Annual Performance Monitoring Report

**Distribution of employed Jordanians according to age groups**

*Source: Ministry of Labour (MoL)*

**Unemployment rates according to the education level**

*Source: Ministry of Labour (MoL)*

#### Exercise 2: Write a Conclusions section of the PM Report from the following bullet points.

**Main points presented in the report are:**

*Labour market context:*

*The total number of employed Jordanians increased in 2017 to 1.48 million. Gender employment gap remains substantial, without any sign of improvement. The number of foreign workers grew to almost 341 thousand in 2017.*

*In contrast to increase in the total number of employed Jordanians, the unemployment rate is growing as well. The only region without a growth in the unemployment rate is Aqaba, which in 2017 became the region with the lowest unemployment rate. The unemployment rates grew across gender, age groups as well as educational levels.*

*Pillar one:*

*The number of programmes newly accredited by CAQA grew between years 2016 and 2017*

*Pillar two:*

*Enrolment in VET programmes declined for vocational and technical education and remains stable for vocational training programmes.*

*The number of graduates from regular TVET programmes appears to increase between 2016 and 2017, but the picture provided by the available evidence is not complete.*

*The employment of graduates from TVET programmes declined from 66 percent in 2016 to 52 percent in 2017.*

*Pillar three*

*The share of females in technical programmes, especially in higher education, is approximately one third. This can be considered as relatively high in the context of the region.*

*Pillar four:*

*E-TVET Secretariat is improving its performance monitoring procedures with the support of international projects, such as the “Technical Support for the Employability Skills and Social Integration Program” project, funded by the EU. Improved processes, especially in data collection have been launched, but data quality remains below the EU standards.*

*Pillar five:*

*The value of project funding in 2017 through the E-TVET Fund reached JOD 49,229,520.*

## Formatting text in MS Word (Styles, References, Navigation through the document)

In this section practical advice is provided on how a report can be prepared in the most commonly used MS Office. Structuring the text of the report appears to be crucial in improving the readability of M&E reports. For this, it is advised to use formatting functions in MS Word.

### Text Styles

Text entered into a MS Word text editor can be formatted using different Styles. By assigning a style to a text, you select its formatting, but also tell the editor what is the function of this particular text (Header, explanatory text, etc. )

#### Exercise 3 Use Styles and Insert Caption to produce the Table of Contents and Table of Figures

Selecting a Style using the MS Word menu: Home/Styles

Inserting a Caption using the MS Word menu: References/Captions/Insert Caption

Inserting the Table of contents using the MS Word menu: References/Table of Contents

Inserting the Table of Figures using the MS Word menu: References/ Captions/Insert Table of Figures

# Module Two: Building and analysing indicators

Moving from making policy based on opinions to evidence based policy making is an universal trend in policy making in the US, EU and other most developed countries. This movement allows for seeking the most effective policy measures and solutions, as well as international exchange of experiences. Moreover, relevant evidence produced to support existing policies also may attract additional resources into those public policies proven to yield positive effects.

## Designing policy relevant indicators

Based on the manual on creating policy relevant indicators, the use of evidence and indicators can improve policies by:

* helping to recognise a policy issue;
* providing information on policy design and choice;
* assisting with forecasting and modelling;
* monitoring policy implementation;
* evaluating policy impact[[1]](#footnote-1).

The use of policy relevant indicators assumes the so called policy cycle in creating strategic policies. This cycle captures a continuous, cyclical process in five interconnected steps:

Scheme 1: The Policy Cycle



The policy cycle begins with setting up the agenda, which is later formulated into a specific policy document or set of objectives. These are subsequently picked upon in the process of making particular decisions and their implementation. Implemented policy is afterwards being assessed and the cycle closes as the results from the assessment are used in setting up a revised agenda.

In the context of the Policy Cycle, indicators make the policy concrete. Designing them should be done closely with the knowledge of policy objectives and targets on one side and the available data on the other.

Several types of indicators are usually used:

* **Context indicators** describe the context in which policies are being implemented.They paint a picture of the environment in which policy actions are taking place. They should capture aspects of the reality potentially influencing the implementation, outputs and impact of policies.
* **Input indicators** capture the inputs into the policy implementation. **Input – what resources are committed?** The resources –money, time, staff, expertise, methods, and facilities – that an organisation commits to a programme in order to produce the intended outputs and outcomes.
* **Output indicators. Output – what do you count?:** The volume of a programme’s actions, such as products created or delivered, the number of people served, and activities and services carried out.
* **Outcome indicators. Outcomes – what do you wish to achieve?:** Meaningful changes for those you serve, generally defined in terms of expected changes in knowledge, skills, attitudes, behaviour, condition, or status.[[2]](#footnote-2)
* **Performance indicators** are outcome indicators specifically designed to capture the performance of the policy.

Outcome indicators can be used to quantify the impact of a policy. Specific procedures need to be applied in quantifying the impact. These are going to be described in Module three of this training on preparing an impact analysis, monitoring and evaluation.

## Advanced functions of MS Excel and their use in policy relevant analysis

MS Excel can be employed in an elementary statistical analysis. It can be used to produce descriptive statistics with basic statistical tests. Here we show examples of how MS Excel can be used to produce descriptive statistics, construct indicators and display evidence in tables and graphs.

#### Example 4: Using Pivot Table in MS Excel to construct simple indicators out of register data

**Data: 2018 Graduates from programmes accredited by SAQA (File: SAQA\_E4.xlsx)**

**Produce a table of the number graduates from SAQA accredited programmes in 2018 by gender and governorate.**

For the purpose of the training a spreadsheet data was exported by SAQA. The data can be further processes in MS Excel.

The table is on the program level. For each programme selected attributes are available including the number of male graduates, the number of female graduates and governorate in which the programme was delivered.

In the exercise we show how to use the Pivot table (Insert/Pivot table) tool, with its functions.

**Further exercises:**

Calculate the share of programmes with 100% success rate.

Calculate the average number of graduates per programme.

## Calculating the weights of indicators

Weights are in statistics used in situations when one unit (e.g. observation, indicator) needs to be accounted for with a different importance than other units. For example, in the case of sampling surveys, when the probability to be selected into the sample differs for various observations, sampling weights are calculated as an inverse function of the probability to be sampled.

Analogously, there are examples in policy analysis when one observation needs to be accounted for with a different weight than other. Using the data on graduates from SAQA accredited programmes we show one example of such use.

#### Example 5: The mean success (completion) rate calculation for TVET programs accredited by SAQA

**Data: 2018 Graduates from programmes accredited by SAQA (File: SAQA\_E4.xlsx)**

Our data include information at the level of programmes. This includes information on the success (completion) rate per programme. If we would like to produce one average success rate for all the SAQA accredited programmes in 2018 we would need to apply the following formula:

In the case we would be missing the information on the numbers of successfully completing participants and only have the information on the share at the programme level, we could reconstruct the total average success rate (SR) using a weighted average of the programme level success rates. Programmes would be weighted by the number of graduates. This could be done by adopting the following formula:

Where SR stands for the Success rate; NP stands for the number of participants.

The same principle applies in cases when combining multiple values of indicators referring to unequally big sub-populations into one average figure referring to the total population. In such cases, the size of the sub-population presents the measure of importance, which is captured by the weight. The measures of importance can vary between applications.

## Basics of data processing in policy analysis (producing descriptive statistics)

**Example 6: Exploring the potential demand for TVET education among the population of 15-29 years old**

Data: Sub-selection from the Jordan School-to-Work Transition Survey 2015 (File: SWTS2015\_E6.xlsx)

Task 1: Describe the educational status of young Jordanians.

Task 2: What is the share of early school leavers in the Jordanian population of 18-24 years old? Compare to the EU member states.

Explain the structure of the database published by Eurostat and how to find the definitions used.

Task 3: What is the share of NEES in the Jordanian population 15-29 years old? Compare to the EU member states.

Task 4: Propose new indicators using the extraction from the SWTS data relevant for the Jordan ETVET policy.

Explain the function of an indicator.

# Module Three: Preparing impact analysis, monitoring and evaluation

Impact is a general term used to describe the effects of a programme, policy or socioeconomic change. Impact can be positive or negative as well as foreseen or unforeseen. Impact is followed on outcomes relevant from the perspective of the policy objectives.

In assessing and evaluating the impact of a policy several techniques are at hand. These are based either on comparisons in time (before and after the policy intervention), or on the comparison between individuals - real and potential beneficiaries. In both cases the assessment is based on measuring a difference.

## Elementary principles of impact evaluation

Each evaluation starts with an evaluation question. When evaluating one particular training measure, the typical evaluation question could be:

“What is the impact of participation in the training on employment of participants?”

To answer this question, we need to be collecting information on the employment rate of participants (our outcome of interest). If we have this information for two time periods, first before the participation in the measure and second after the participation, we could calculate the difference in these two employment rates. Let us imagine a theoretical example of a training programme with 100 participants and no drop-outs. The training programme was implemented during the whole year of 2017. The outcome of interest in our case is the employment rate of participants.

Table 1: Details on an example training programme under evaluation

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2016**  **(Pre-participation)** | **2017**  **(Participation)** | **2018**  **(Post-participation)** |
| **Employment rate of participants in %** | 35 | 0 | 50 |
| **Number of participants** | 100 | 100 | 100 |

The employment rate of participants in 2017 is zero, because during this year they all participated in the trainings. In 2016, one year before the training, the employment rate of participants was 35 percent. The employment rate of participants one year after the training is 50 percent. The difference in the employment rate of participants in 2018 to the employment rate in 2016 is 15 percentage points (50-35). This can be, under some strong assumptions, considered to be the impact of the participation in this particular training programme on the employment rate of participants.

A paired t-test could be used to determine the statistical significance of the difference. As a result, we could answer our evaluation question. This way of answering the evaluation question rests on assumptions, which are not acceptable in the contemporary policy evaluation. For example it assumes there is no change in the economic conditions, which may have affected the outcome differently in the two different periods. In other words, if there was an economic downturn in 2016, with the overall employment rate in the country was being pressed down and in contrast an economic recovery in 2018 pushing the overall employment rate upwards, this could have influenced the results.

For this reason, statistical techniques more sophisticated than a t-test are usually used.

## Overview of the usual counterfactual impact evaluation techniques

The term counterfactual impact evaluation techniques roofs over a set of statistical methods applicable to answer the question what is the impact of a public policy, when compared to a counterfactual situation. The counterfactual situation is a hypothetical situation, when the training participant would not participate in the training. The quantification of the impact of a programme is based on the difference between the value of the selected outcome of the participant during the evaluation period to the counterfactual outcome the participant would achieve hadn’t he participated in the programme.

Where OP is the outcome of the participant observed during the evaluation period; for example the employment status or income of the participant 12 months after the successful participation in the programme.

While the OC is the outcome of the participant in the counterfactual situation. We are not able to observe this outcome, but there are techniques able to provide an approximation of OC, after adopting additional assumptions. This is the purpose of the techniques of the counterfactual impact evaluation (CIE). Each of the techniques adopts a different set of assumptions.

CIE the techniques are by the literature usually divided into the techniques relying on estimating the counterfactual outcome relying on the information observed for participants and eligible non-participants and those which do not rely on this information.

The most straightforward approach is to estimate the value of the counterfactual outcome using a **simple linear regression model** estimated on the population of participants and eligible non-participants. Such regression models use the outcome of interest as the dependent variable and explain it with a dummy variable referring to the participation status together with a rich set of controlling variables. The regression coefficient estimated for the participation dummy variable is a quantification of the effect of the programme.

An alternative set of techniques, also relying on the observable information for participants and eligible non-participants, is based on matching. **Matching** is trying to reconstruct an experimental setting ex-post – after the participation took place. If we have data observed for both, participants as well as eligible non-participants on the outcome of interest during the observation period, than we:

1. Calculate the mean outcome of interest for the group of participants
2. Create a quasi-control group from eligible non-participants
3. Calculate the mean outcome of interest for the quasi-control group

The various matching techniques differ in the way how they construct the quasi-control group. For example, **exact matching** only allows an eligible non-participant into the quasi control group if he exactly matches with one of the participants on a set of selected attributes. For example if he has the same gender, age and educational level. The **propensity score matching** technique matches participants to non-participants on their probability score to participate in the programme.

**The difference in differences** technique relies on the difference in the outcome of participants and non-participants in time before the participation and than the same difference computed in the period after the participation. This techniques is robust to potentially unobservable differences in the two sub-groups, but has to make additional assumption on the shared trend, jointly affecting both participants and non-participants outcomes in time before and after the participation in the programme.

**The regression discontinuity design** relies on a break in a variable which is crucial for the participation decision. A classic example is when there is a selection into the training programme based on a score from a test organized before the programme. If there is a strict threshold applied in the decision whether to allow participation this can be used to compare the outcomes of participants with the score slightly above the threshold to the non-participants with a score just slightly below the threshold necessary for the participation to be granted.

The last CIE technique mentioned here is a two-step regression analysis based on an instrumental variable. In case of this technique, two regression models are estimated jointly using the product and error term from the first equation in the second. The principle of the technique relies on the existence of an non-formal exclusion criteria potentially employable to track exogenous variance in the participation decision. For example if the programme was not available in one region or in a period of time due to budgetary constraints. Those eligible non-participants present in the time in that region were excluded from participation not because they would not be willing or able to participate, but because it was not available to them. The contrast with these observations is used to estimate the effect of the participation on the observed outcomes.

#### Example 6: Run a linear regression model to estimate the impact of the rururb variable in the SWTS dataset.

Data: Sub-selection from the Jordan School-to-Work Transition Survey 2015 (File: SWTS2015\_E6.xlsx)

# References and suggested reading:

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1. <https://ec.europa.eu/eurostat/documents/3859598/8071770/KS-GQ-17-007-EN-N.pdf/7d34c904-2d07-4e71-bd6f-8fe9ee373b60> [↑](#footnote-ref-1)
2. Definitions based on: <https://publications.europa.eu/en/publication-detail/-/publication/ff6b4d45-ec36-11e6-ad7c-01aa75ed71a1/language-en> [↑](#footnote-ref-2)