

A Practitioners'
Manual on Monitoring
and Evaluation of
Development Projects

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By

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LIST OF ABBREVIATIONS

AHS	Annual Health Survey
AI	Appreciative Inquiry
AIP	Annual Implementation Plan
ANC	Antenatal Care
APL	Above Poverty Line
ASCII	American Standard Code for Information Interexchange
BPL	Below Poverty Line
BPY	<i>Beti Padhao Yojana</i>
CAPI	Computer-Assisted Personal Interviewing
CASI	Computer-Assisted Survey Interviewing
CATI	Computer-Assisted Telephone Interviewing
CAWI	Computer-Assisted Web Interviewing
CBA	Cost Benefit Analysis
CCDB	Christian Commission for Development in Bangladesh
CEA	Cost Effectiveness Analysis
CHC	Community Health Centre
CSPPro	Census and Survey Processing System
CSR	Corporate Social Responsibility
DID	Difference in Differences
FE	Fixed Effect
FGD	Focused Group Discussion
FLW	Frontline Health Worker
GAD	Gender and Development
Hb	Haemoglobin
HH	Household
HU	Hermeneutic Unit
IDI	In-depth Interview
IE	Inclusive Education
IFA	Iron Folic Acid
IGA	Income Generating Activities

IHHL	Individual Household Latrines
IOCE	International Organisation for Cooperation in Evaluation
IV	Instrumental Variable
JSY	<i>Janani Suraksha Yojana</i>
LFA	Logical Framework Approach
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MEL	Monitoring, Evaluation and Learning
MIS	Management Information System
MLE	Monitoring Learning and Evaluation
MMR	Maternal Mortality Rate
MSC	Most Significant Change
NGO	Non-Governmental Organisation
ODBC	Open Database Connectivity
ODF	Open Defecation Free
PAPI	Paper- Assisted Personal Interviewing
PAS	Project Annual Survey
PDA	Personal Digital Assistant
PHC	Primary Health Centre
PMF	Performance Measurement Framework
PMP	Performance Monitoring Plan
PPM	Project Planning Matrix
PSM	Propensity Score Matching
RCT	Randomised Controlled Trial
RD	Regression Discontinuity
RMNCH	Reproductive, Maternal, Newborn and Child Health
RWE	Real World Evaluation
SBA	Skilled Birth Attendants
SC	Significant Change
SPSS	Statistical Package for Social Science
TE	Transformative Evaluation
ToC	Theory of Change
UFE	Utilisation Focused Evaluation

VHC	Village Health Committee
WHO	World Health Organization
ZOPP	Zielorientierte Projektplanung
GOPP	Goal Oriented Project Planning

PREFACE

This book is an effort to provide handholding support to professionals working in areas of monitoring and evaluation (M&E), programme management or other related domains in the development sector.

A Practitioner's Manual on Monitoring and Evaluation of Development Projects attempts to take development professionals through the life cycle of the M&E process and explain its fundamentals and concepts. Practical examples have been used throughout the manual to assist professionals to visualise and internalise the key concepts and processes that need to be followed for monitoring and evaluating development interventions.

Chapter 1 of the manual aims at developing a fundamental understanding of projects which is a prerequisite for understanding how to monitor and evaluate the same. Next, the steps of the project cycle are explained sequentially, after which the critical concepts like project objective and goal and the difference between these terms are clarified.

Chapter 2, which focuses on understanding how to design projects, begins with a discussion on the results chain or the series of end to end causal pathways that need to be formulated to understand how the short-term and the long-term project results are to be achieved. This is followed by enumerating the key tools that are used in designing projects, after which the reader is taken step by step through the logical framework analysis, a popular tool used in designing projects, illustrated with an example.

Chapter 3 explains the key concepts, the fundamentals of M&E and also the key differences between them. The key typologies and different types of M&E are explained, in addition to the critical concept of indicators and how to design good indicators.

Chapter 4 takes the readers through the process of developing a Performance Monitoring Plan (PMP) which acts as an overarching framework for monitoring and evaluating a development project. PMP is helpful in monitoring the performance of the project and the achievement of its

intended results. Subsequently, the key activities that should be done to ensure the data quality are explained.

Chapter 5 describes different approaches to monitoring including progress, process and participatory monitoring. It also explains the most significant change (MSC) tool used to monitor projects without using indicators.

Chapter 6 delineates in detail the various evaluation designs by explaining the fundamental concepts of evaluation as well as elucidating the different types of evaluation designs by using practical examples. Randomised Controlled Trial (RCT), Cluster RCT and Pipeline design are explained under experimental designs, followed by different designs like Difference in Differences (DID), Propensity Score Matching (PSM), Regression Discontinuity (RD), Instrumental Variable (IV) and Reflexive Comparison, all of which fall under the category of Quasi-Experimental designs. The non-experimental evaluation designs are explained next, followed by different types of impact evaluation designs compared through a matrix to understand when any of these evaluation designs should be used and the advantages and disadvantages of using the same. Chapter 6 ends with an exercise which has different situations in which the practitioner is required to choose an evaluation design which will be suitable for each situation.

Chapter 7 explains the fundamental concepts of the different approaches which can be adopted for evaluating projects based on the context and the objective of a developmental project. It should be remembered that these approaches are at the macro level philosophy of evaluations and they will use the evaluation designs explained above as part of their methodology.

Chapter 8 delineates data basics and how the data may be analysed usefully for monitoring and evaluating a project. Univariate and multivariate analysis are covered as part of the data analysis. Basic quantitative data analysis using MS Excel and SPSS software has been demonstrated using screenshots. The fundamentals of qualitative data analysis and the popular software that can be used to conduct the same have also been touched upon.

In Chapter 9, practitioners are taken through a step by step process of executing the Monitoring Learning and Evaluation (MLE) function. This chapter focuses on the operational dimension of executing the MLE process. Concepts discussed in the earlier chapters are summarised through an operational lens. Steps like pilot testing, developing data

collection and quality assurance protocols, getting ethical approvals, developing a learning framework etc., are covered in this chapter.

To summarise, this book will act as a hands-on manual for professionals working in the development sector to understand the fundamentals of M&E from the point of view of a practitioner. Attempt has been made to sequence the book in such a way that it covers all the key concepts related to M&E in a simple, lucid and coherent manner. However, it is quite possible that despite our best efforts, certain shortcomings may have remained and we look forward to removing these in the future versions. We will be grateful to our readers for their valuable suggestions and feedback.

CHAPTER ONE

UNDERSTANDING PROJECTS

The mainstay of work in the development sector is in the form of projects, which are targeted at various areas like health, education, sanitation, livelihoods, child rights, climate change etc., depending on the mandate and the objective of project implementation and funding organisation. In this chapter, the fundamental concepts related to projects are explored and a project-based approach is discussed, which is imperative for an in depth understanding of M&E.

On completion of the chapter the reader will be able to:

- ✍ Describe what is a project
- ✍ Understand and explain the elements of a project cycle
- ✍ Define the project objective and goal

1.1 Defining a Project

As we embark upon our journey to understand how to monitor and evaluate projects, it is important to first understand the fundamentals and underlying concepts of projects and project management. At the outset of every project, it is envisaged that several activities will be performed over the course of the project's implementation. These activities constitute the work that will be done during the project and they form the mainstay of the action that will take place.

Every project has a *specific objective* and it is envisioned that through these activities the project will achieve its objective. The example of a five-year project of making its target villages open defecation free (ODF) is used to illustrate this point. To achieve this objective, the project engages in several activities like construction of household (HH) and community toilets, conducting awareness campaigns to motivate people not to defecate in the open, educating people about the technologies that should be used for toilet construction etc. The types of activities performed

as part of the project vary depending on the project objective and the implementing organisation's capacity. These activities form the key work that is done as part of the project implementation.

Another important aspect of every project is that it has a specific start date and a specific end date i.e., *a specific time period* within which it has to be executed. The project is expected to achieve its desired objective within this specific time period, which in the example quoted above, is a duration of five years. Last but not the least, it is very critical to understand that each project is allocated a *limited set of resources*. Resources, which may be financial, human and physical, are allocated to a project so that its activities may be implemented and its objectives achieved within a specific time period. Accordingly, the example project is also allotted a fixed budget, human resources and fixed physical resources with which its activities may be implemented and its objective achieved in a specific period of time.

Hence, a project may be defined as:

“A set of activities implemented within a specific period of time and with specific resources to achieve a specific objective.”

1.2 Project Cycle

Usually, social development interventions are formulated and implemented in the form of a project and follow a cycle or a sequence which is known as the *project cycle*. From its inception to its closure, every project has its unique cycle of operation though the fundamental project cycle remains the same. Therefore, it is essential to understand the project cycle in order to better conceptualise, design, plan and implement it and also to monitor and evaluate it effectively.

From the beginning till the end of the project, the project cycle comprises of various phases or stages. All the stages in the project cycle are delineated and implemented successively in a phased manner. Each of these stages are defined by their objective, information requirements, responsibilities and key outputs. The various stages of a generic project cycle are:



Figure 1.1: Project Cycle

Stage I: Situation Analysis

It is a well-known fact that a project does not exist in vacuum. It is formulated to respond to a negative situation or condition. The stage of identifying and understanding this existing negative situation which needs to be responded to through intervention is called *situation analysis*. This stage consists of understanding the prevalent situation and identifying the cause(s) of this situation. Situation analysis is useful in the later stages when the strategy and subsequently, the specific activities to target these causes are defined. A good situation analysis serves as an entry point for the project by throwing light on what needs to be done to address the negative conditions in each context. For example, in the sanitation project referred to earlier, the situation of open defecation (OD) and toilet usage in the target area are assessed, apart from identifying the key reasons why people are defecating in the open.

Stage II: Gap Analysis

A project always works towards achieving its desired objective. By the time it is completed, the project envisages reaching the intended or desired situation as opposed to the situation from where it had started. The project works towards bridging the “gap” that exists between the present and the desired situation. *Gap analysis* is thus done to identify the gap between the current situation and the desired situation. In the example, the project aims to make the target area ODF from the current situation, where it is assumed that 35 per cent of the target population defecates in the open. If in terms of actual numbers, 35 per cent works out to one lakh families, the gap is 35 per cent or one lakh families. Therefore, the intensity of project activities, the requirement of resources and the implementation plan are made keeping in mind that the target population the project must reach is one lakh families.

Stage III: Project Planning

Project planning follows the gap that needs to be bridged through the project that has been identified. During the *project planning* stage, objectives are defined, strategies by which to achieve this objective are formulated, activities are identified, timeline based targets are set and resources are allocated to the project. A detailed implementation plan with the activity schedule and milestone timelines is also prepared as part of the project planning. During this phase, a project monitoring plan (PMP) is also devised to assess its achievement.

Discussing the project planning phase in reference to the example, the first step is to define the project objective, which should be specific and realistic. For this project, the objective is to make the project area ODF in the next five years. The second step is to identify the activities that are undertaken as part of the project to achieve its intended objective. The project can undertake activities like building HH and community toilets, creating awareness in the community about the ill effects of OD, tracking people who defecate in the open and counselling them, and providing information and technical support for building the right type of toilet etc. After identifying the activities, targets are set, i.e., the number of HH and community toilets that could be built within each year, and the number of communication campaigns that need to be undertaken to motivate people to not defecate in the open. This is followed by deployment of resources for the project, primarily in the form of finances available for implementation of the project. The money is utilised to recruit human resources (project

staff) based on the defined roles and responsibilities. Physical and infrastructure resources like office, equipment etc., required for the project are also purchased. Timeline targets are set for communication campaigns and constructing toilets in a phased manner.

Stage IV: Implementation and Monitoring

The next stage is project *implementation* during which the formulated plan is executed. *Monitoring* of project activities is done concurrent to their implementation to ensure that the project is on track and as per the formulated plan. Monitoring helps to identify deviations, if any, from the project plan and also to introduce mid-course corrections. While executing a project, its quality, time, cost and risk management needs to be considered to ensure that it is successfully implemented within its predefined resources and timeline.

To take the case of the ODF project, the various activities that were identified in the planning stage are executed during this stage. The project staff is recruited and deployed, awareness campaigns are conducted about the ill effects of OD, and subsidy is provided for toilet construction etc. These activities are also simultaneously monitored to assess whether the toilets are being constructed as planned, both in terms of quantity and quality and whether the communication campaigns are being conducted as planned etc.

Stage V: Evaluation

After project activities are completed, many stake holders like project implementers, policy makers, the government, and the external audience, among others, want to know whether there is any change in the 'situation'. The stake holders also want to know whether this change is due to the project intervention or other external factors. An *evaluation*, helps to systematically assess the impact, effectiveness and the contribution of the project. Mid-term evaluations are helpful because they provide timely learning which helps in course correction. Post project evaluations help in getting insights that are helpful in formulation of other similar projects. Various techniques or designs are thus adopted for different projects in different situations. These evaluation designs are explained in detail in the following chapters.

Taking the current example of the ODF project, an evaluation should be conducted to know if the rate of OD has reduced in the project area. Also,

in case it has reduced, would it be right to say that it has reduced due to the activities undertaken by the project?

To consider another example of a project which aims to increase the rate of institutional delivery, and examining its project cycle through the M&E lens, the first question at the start of the project would be to inquire about the proportion of women who had opted for institutional delivery. At the end of the project, the same question is asked once again regarding the proportion of women that had institutional deliveries. Also, whether it could be confidently asserted that the institutional delivery rate had increased only because of the project activities and not because of any other external factor. The change from the initial status (e.g., 65%) is measured and whether the desired situation (say 80%) has been reached or by what margin the gap has reduced.

After the various stages of the project cycle are examined, the practitioner needs to assess the stage at which M&E needs to be conducted and the specific M&E activities that should be performed at each stage of the project cycle.

1.3 Project Goal and Objective

One of the most critical and fundamental steps in designing a project is to define its objective and goal. Many people often get confused and use these terms interchangeably without realising that they are two different though interrelated concepts. Poorly defined goals and objectives cause ambiguity in project planning and implementation. Therefore, it is essential for any project to lucidly define its *goal* and *objective* and make sure that the entire project planning and implementation is aligned towards achieving them.

Objective

The *objective* of a project is the specific condition that the project targets to achieve and that too by itself. An objective is derived from a goal, has the same intention as a goal, but it is more specific, quantifiable and verifiable than the goal (SMART, Characteristics of Good Objectives, 2016). Usually, the project tries to address the inverted image of the core problem. For example, if the core problem in a specific village is the 'high rate of OD', then its corresponding objective would be to 'reduce the rate of OD from 35 per cent to zero per cent in a period of five years'.

The SMART criteria is widely used to judge project objectives. A project objective is said to be SMART if it fulfils the following criteria

- Specific
- Measurable
- Attainable
- Realistic
- Time-bound

Using the SMART criteria to examine the objective to 'reduce the rate of OD from 35 per cent to zero per cent in a period of five years:

- Specific: The objective is said to be specific as it specifically targets the issue of OD.
- Measurable: It can be safely stated that this objective is measurable using the indicator 'rate of OD'. The data for this indicator can be collected using the HH survey data collection tool.
- Attainable: To assess if the target of reducing the OD rate from the current 35 per cent to zero per cent, for one lakh families is attainable or not the availability of resources, time in hand and other relevant factors are considered.
- Realistic: While setting an objective, the project team and other experts analyse whether the project would realistically be able to achieve its objective, keeping in mind the resources available for the project and the external factors related to the project.
- Time bound: It needs to be ensured that the project has defined timelines. In the case of the current example, the project is expected to achieve its objective in a time frame of five years.

If the project objective fulfils all the five criteria as part of the SMART framework, it is said to be a good objective. Another question which may be considered is whether a project should have a single objective or multiple objectives? By its definition, an objective is supposed to be precise, specific and definite. A project should thus simply have a single objective. In common parlance, the term 'project objectives' is often used. However, this term is incorrect and this usage is against the spirit of a 'project-based approach'. A project is essentially about the breaking down of a large problem into its smaller constituent parts, such that each problem is addressed one at a time in a single project. It is not about tackling all problems at once by trying to find a general solution for the various aspects of the problem. A project which has more than one

objective is likely to lose focus, while it renders the objective open to ambiguity and subjectivity.

Therefore, a well-designed project should ideally have one objective which is clearly articulated.

Goal

By now the practitioner knows that the planned activities have to lead to fulfilment of the project objective. The objective also has a higher purpose which extends beyond the precincts of the project. This higher purpose is the *goal* which the project aims to contribute towards. Each project, by achieving its objective contributes towards a larger goal. Thus, it can be rightly said that while a project 'achieves' its objective, it 'contributes' towards the goal. In other words, the goal is the macro-level change that the project contributes to at the micro-level.

Thus, the objective of our example project, 'reducing the rate of OD from 35 per cent to zero per cent in a period of five years', at the same time contributes to the higher goal of 'improving the sanitation conditions in rural India'. Another current example would be of a project which aims to contribute towards the goal of improving the standard of living of the rural poor. Increasing the HH income of the rural poor, improving their access to social schemes, improving the sanitation conditions, improving their health, providing safe drinking water, increasing the HH assets etc., could be a few of the project objectives which would contribute towards the above mentioned larger goal. Thus, a goal is the intended change we seek; it is expansive in its scope and all-encompassing in its vision. In this way, many projects may refer to and contribute towards a single goal while achieving their respective objectives.

Hence, it is of paramount importance to define the objective and goal lucidly to ensure clarity in project planning and implementation.

CHAPTER TWO

DESIGNING PROJECTS

Having understood what is project and project cycle, it is important to understand what *project designing* is in order to ensure effective and useful M&E. M&E per se is not an activity that starts at the time the project is nearing completion. Monitoring starts from the day the project is rolled out, therefore, the M&E system needs to be conceived during the project design itself.

At the completion of the chapter, the practitioner will be able to:

- ✍ Develop the Results Chain for a project
- ✍ List and briefly describe Project Designing tools
- ✍ Describe Logical Framework Analysis for designing projects
- ✍ Describe the Logical Framework Analysis and Project Planning Matrix

2.1 Results Chain

During the project designing phase, it is essential to specify all activities and objectives that are to be achieved through the project. The *results chain* helps to manage projects, and at the same time, to understand the causal linkage between project intervention and its desired impact rather than managing the project based solely on activities. It helps to formulate a roadmap to the envisioned change, while highlighting the necessary conditions and assumptions required for ushering in a change in each situation (Foundations of Success, 2007).

Operations are based on the 'if-and-then' logic. For example, *if* we put fuel in a car's fuel tank, *then* only can we drive and go somewhere in it. This 'if-and-then' logic is the means-to-an-end relation or a cause-and-effect connection between the system components. So, what implication does this system model have for projects?

Every project, as we know, has its own rationale of intervention, one that clearly addresses the nuts-and-bolts of the problem of 'what', 'when', 'why', 'how', 'who' and 'where'. The clearer a project is about the logic of change underpinning its project activities or processes, the better it can deliver the results or achieve the objective it has in mind.

A results chain thus describes the causal pathways of the activities translating into expected results i.e., the outputs, outcomes and impacts of a project. The results chain helps to track the progress of the project from its more immediate results (outputs), to a result more proximate to the achievement of the objective (outcome) and finally to a long-lasting result or goal (impact). A basic results chain has the following components:



Figure 2.1: Results Chain

Inputs: This includes the resources that are available or allocated for the project. Input resources may be natural, human, and financial, depending upon the nature of the project. For example, funds allocated, human resources deployed, laptops allotted etc.

Activities: Activities are actions undertaken using the resources. In simpler terms, this is the work performed that converts inputs into outputs. For example, the training of frontline health workers (FLWs) on the counselling of women, building of separate toilets for girls in schools etc.

Outputs: Outputs are the immediate effect of the activities of a project. Outputs are also defined as the short-term results and often form the deliverables of the project. For example, counselling of mothers on institutional delivery is the output achieved from the activity training of FLWs on counselling. Also, the increased attendance rate of girls is an output of the activity of building separate toilets for girls in schools.

Outcomes: The mid-term results likely to be achieved from outputs are called outcomes. Outcomes are generally the objective which the project aims to achieve. For example, 'increase in the rate of institutional delivery' is an outcome achieved through the output of 'effective

counselling of women on institutional delivery’. Also, ‘increased female literacy’ is an outcome achieved through the output of ‘increased female attendance rate’.

Impact: The final desired goal or the macro level goal that the project envisages to achieve is defined as its impact. Impact is what the project aims to contribute towards rather than trying to claim that it is what it would achieve by itself. For example, ‘decreasing the Maternal Mortality Rate (MMR)’ is the impact which the project aims to contribute to by providing the outcome, which is, ‘increase in the rate of institutional delivery’. Also, ‘increase in the empowerment level of women’ is the impact which the project aims to achieve through its outcome of ‘increased female literacy rate’.

Governing the interrelationships between inputs, activities, outputs, outcome and impact are several assumptions or enabling pre-conditions that are necessary for the delivery of project results and achievement of the project objective. They provide the necessary if not sufficient preconditions without which the project cannot hope to achieve its results. These assumptions are the causal inferences that govern the change processes in a project and lay the groundwork based on which correlations between the results, chain of inputs, outputs, outcome and impact are sought to be made explicit (Dharmendra Chandurkar, 2014).

Although generic in character, this framework can be fine-tuned to understand and unpack the non-linear, multi-contextual and multi-layered nature of change that defines and determines the landscape of a project. In general, it captures the project's broad canvas of change in one sweep, while it sheds light on the causal relationship among the various levels of change termed as outputs, outcome and impact.

Examples of the results chain are presented below in Figures 2.2 and 2.3 respectively.

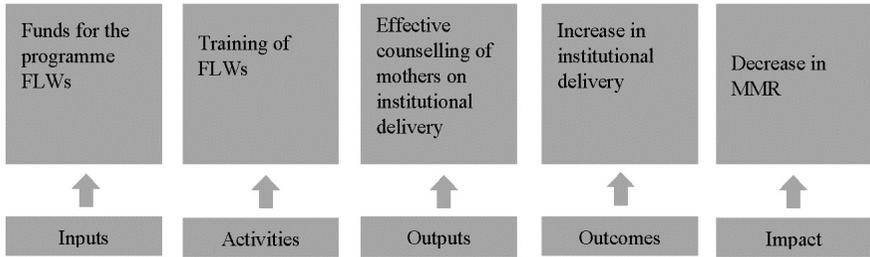


Figure 2.2: Results Chain - Example 1

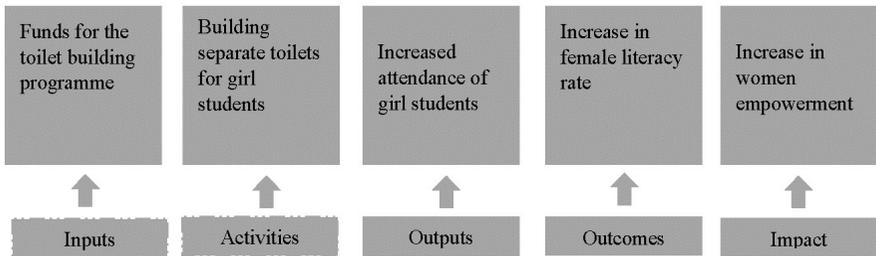


Figure 2.3: Results Chain - Example 2

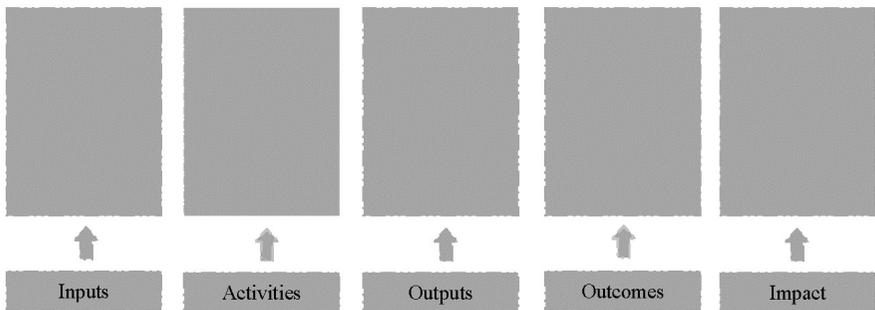


Figure 2.4: Results Chain - Example 3

Exercise: Can you think of other examples of results chain? Fill the results chain given below with your example.

Usually, in a project, there are multiple results that are envisioned and therefore the project has multiple chains. The example of a project with multiple results chain is presented below:

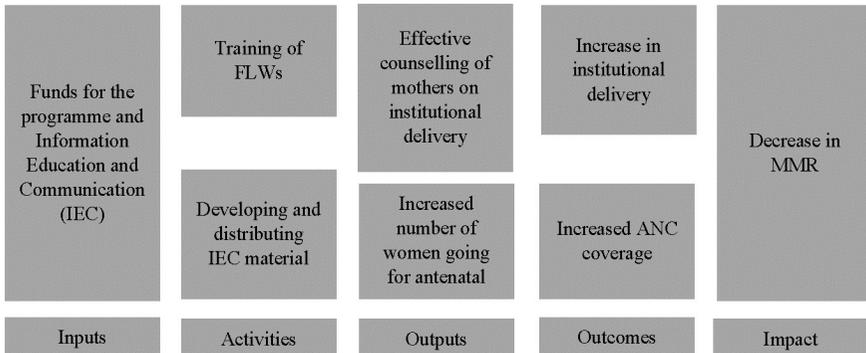


Figure 2.5: Results Chain - Example 4

2.2 Project Designing Tools

Various tools are used to structure and facilitate the process of project designing. In the development sector, the most commonly used tools are the Logical Framework Approach, Zielorientierte Projektplanung/Goal Oriented Project Planning (ZOPP/GOPP) and the Result Framework.

Logical Framework Approach or LFA is a simple project design tool that can help to organise and structure our thinking while designing a project. As the name suggests, it is a logical approach for designing an efficient and effective project. On the one hand, it facilitates optimal resource allocation, while on the other hand, it sets performance measures and standards that provide a framework for M&E. All this helps in efficient project management.

ZOPP or GOPP is an adapted form of LFA that is suitable for the development sector. It also uses the same logical approach of LFA, but it is more flexible in accommodating the qualitative and subjective nature of issues inherent in the development sector.

Result Framework is more output oriented, as it focuses on the ‘things that would be on ground’ after completion of the project. These are basically the results that we want to achieve and the underlying

assumption is that achievement of these results would lead to achievement of the envisaged objective.

All the above are tools for facilitating project development and each one has got its strengths and limitations. LFA is discussed in the following sub-chapter in greater detail.

2.3 Logical Framework Analysis

LFA is an analytical and project management tool which is widely used by funding agencies, international nongovernmental organisations (NGOs) and many government agencies for the designing and management of development projects. It was developed in the late 1960s to assist USAID to improve its project planning and evaluation systems (Republic of Serbia, 2011). LFA supports objective oriented planning and management. It can be used to perform systematic and structured analysis of a project or programme. This analytical process consists of a set of tools or techniques which can be used in managing development projects. Logframe matrix is the documented product at the end of conducting the logical framework analysis. On one hand, it facilitates optimal resource allocation, while on the other hand, it sets performance measures and standards that provide for a framework for M&E. It also takes into account the assumptions and risks envisaged while implementing the project (NORAD, 1999).

The steps that are followed in conducting an LFA are explained below. An example is used to reinforce the reader's understanding of this concept.