



The Spindle

connecting innovators for development

Efficiency analysis in sanitation and hygiene projects

SDG 6 calls for access to adequate and equitable sanitation and hygiene for all by 2030., Most sanitation projects have a strong market-oriented approach and are based on three assumptions:

- On the demand side, people's behaviours need to be changed towards adopting improved sanitation practices
- On the supply side, a well-functioning private sector-based supply chain for sanitation products and services is a prerequisite for effective and sustainable coverage
- An enabling environment providing regulation and funding is needed to support these changes

This case explains how to analyse efficiency in sanitation and hygiene projects.

The Partos Efficiency Lab, November 2017

This case is one of a series of ten that was produced in the framework of the Partos Efficiency Lab. See back cover for more information.

Project at-a-glance

- Project type: Sanitation and hygiene
- Geographic intervention area: Region in a country South Asia
- Project budget: EUR 950,000
- Budgeted for end-of-project evaluation: EUR 12,000
- Project Duration: 3 years

Project objective

In the project area 40% of the people do not have adequate access to sanitation facilities, products and services. This situation affects the quality of life of the people concerned and it is one of the causes of the high mortality rate among under-fives.

Therefore, the objective of this project is to achieve that 380.000 people in the project area (approximately 80.000 households) who currently suffer from inadequate sanitation, will have acquired:

- adequate and sustainable access to improved sanitation facilities, products and services;
- the knowledge, skills and behaviours to use these in an appropriate manner

Project approach

This impact will be achieved through three outcomes:

Local suppliers of sanitation facilities, products and services offer better quality and increase coverage

Currently, there are local entrepreneurs involved in the supply of sanitation products and services, but the quality is sub-standard and they lack capacity to reach out to the target group of this project. The sanitation products and services include i.a. menstruation materials, water filters or chlorine tablets, affordable soap, adult diapers for incontinence, materials for cleaning latrines, basic medication or first aid materials, beauty- and personal care products, as well as health insurance premiums. The project will help the suppliers to improve the quality of their products and services, and to improve their business management skills. Furthermore, the project will link them up with a pool of Health and Hygiene Sales Agents who will help them selling the sanitation products and services to the target group. The project will strengthen the capacity of 165 sanitation suppliers and 40 wholesalers.

Health and Hygiene Sales Agents engage in marketing the WASH products and services

The project will establish a pool of 250 HHSAs. HHSAs are newly established one-persons businesses that engage selling WASH products and services on a commission basis. The commission is paid by the WASH suppliers.

The project will train and coach these start-up HHSAs in social marketing techniques and business management skills. After two years the HHSAs are expected to continue their business without project support.

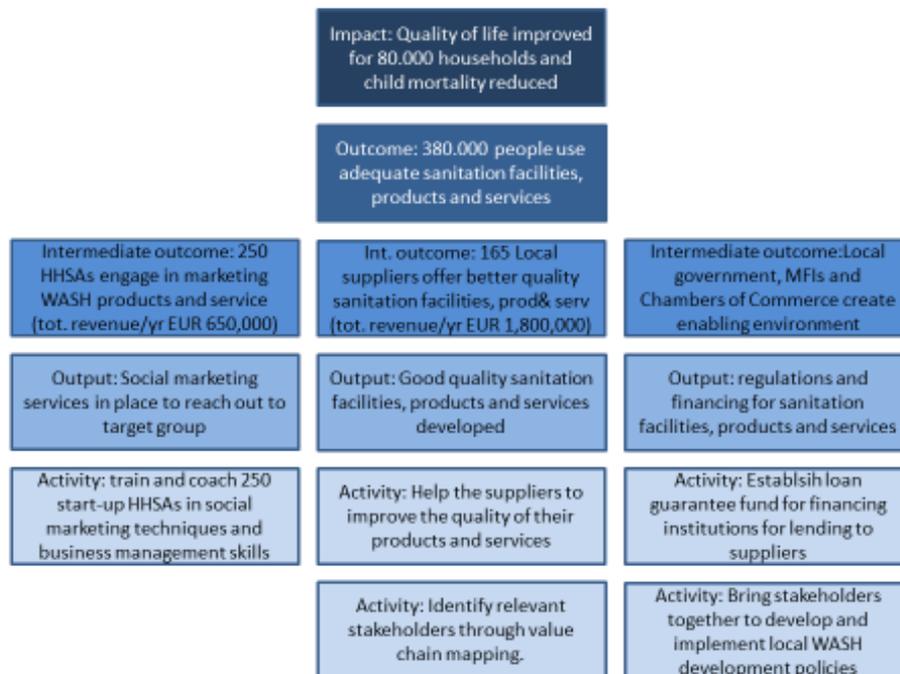
Improved performance of actors that constitute the enabling environment

One of the main actors responsible for creating an enabling environment are the local governments. The performance of local governments will be strengthened in the following areas:

- Bringing stakeholders together to develop and implement local WASH development policies
- Developing and implementing regulations concerning sanitation facilities, products and services

Other actors whose capacities will be strengthened include financing institutions, and in particular micro-finance institutions and chambers of commerce. The MFIs will be supported with a loan guarantee fund that aims to reduce the risk of lending to selected suppliers of sanitation products and services and to Health and Hygiene Sales Agents for establishing their business. Each guarantee serves as partial collateral for a loan, allowing the MFI and the entrepreneur to get to know each other, build trust, and explore future investment opportunities that benefit both parties. The chambers of commerce will be supported with establishing and facilitating networks of WASH entrepreneurs with a view to stimulating the establishment of B2B linkages, innovation and the exchange of other knowledge and information that is strategic for the individual businesses and the sector.

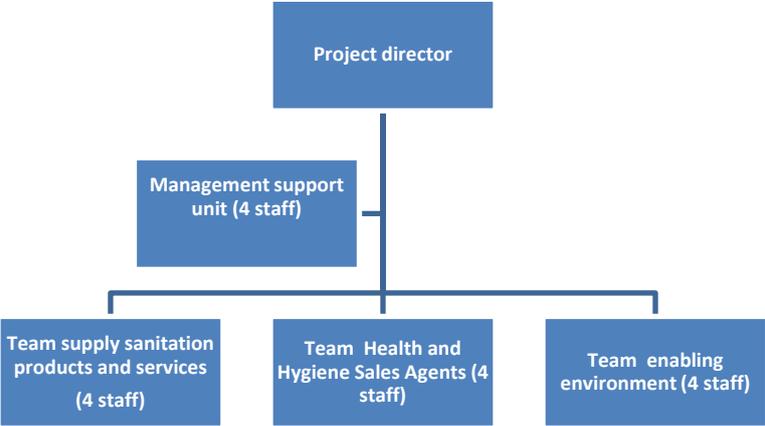
Theory of Change



Project organisation

The project management is composed of a director, a management support unit and four thematic units. One thematic unit for each outcome.

The project has 17 staff. 16 are involved in project work. 5 staff including the director in project management and administration. Each staff member is provided with office space, a computer and a mobile phone. The project has one car and 8 motor bikes.



Recommended approaches for assessing efficiency

Notes on applicable tools and methods, Pol de Greve

This note summarizes tools and methods that can be applied to assess efficiency in the value chain development project (case #1). It reflects my personal assessment and views.

After brief remarks on the case (Section 1), I discuss applicable tools and methods first for level 2 (Section 2), and then for level 1 (Section 3).

1. Remarks on the case

The water supply case description provides limited information on the budget breakdown by costs and cost centres. The 3 core components of the project being

- Support to Health and Hygiene Sales Agents to engage in marketing of WASH products and services
- Support local suppliers to offer better quality WASH facilities, services and products
- Support LGA, MFIs and Chamber of Commerce to create enabling environment.

The ToC has little or no details on pathways of change i.e. the sequence outcomes that must occur in order to reach your long-term goals. See annex for an example of ToC on water supply that shows detailed pathways. A similar detailed ToC would be necessary in this case to be able to set clear boundaries for the assessment and identify adequate measurements of efficiency.

2. Level 2 tools and methods

Level 2 tools and methods compare the efficiency of entire aid interventions with alternatives or benchmarks with the purpose of selecting those interventions producing the largest net benefit with available resources.

All methods in this group can also be conducted ex-post for accountability and learning purposes, i.e. to verify or correct ex-ante results and to improve assumptions for subsequent ex-ante application.

Level 2 methods and tools that are applicable to this project include:

- Cost-Effectiveness Analysis – Cost-Utility Analysis
- Cost-Benefit Analysis
- Social Return on Investment
- Multi-Criteria Decision-Analysis (MCDA)

Two major components of the programme have an integrated (value-chain like) setting whereby different actors and interventions are linked with the ultimate aim to realise a concrete outcome being 380,00 people receiving adequate and accessible access to improved sanitation facilities, products and services and having the knowledge, skills and behaviours to use these in an appropriate manner. In the third programme component, the sub-components related to establishing a guarantee fund and promoting networking and multi-stakeholder platforms of different actors are also directly instrumental in streamlining the value chain and increasing its breadth and depth to reach a larger number of people with adequate and accessible facilities, products and services.

Economic analysis – Cost-Effectiveness Analysis / Cost-Utility Analysis

Note – it is (for some arguably) assumed that Cost-Effectiveness Analysis is the general term for an economic analysis that compares the relative costs and outcomes of different courses of action and that Cost-Utility Analysis can be classified as a form of CEA (that is most often applied in health economics).

CEA compares different interventions with similar, but not identical, effects on the basis of the cost per unit achieved. Typically, the CEA is expressed in terms of a ratio where the denominator is the non-monetary unit of benefit created and the numerator is the cost associated with producing this benefit.

The ToC indicates two key impact areas:

- Quality of life improved
- Child mortality reduced

There is no obvious or logic method for blending outcomes in these two areas into a single impact measurement that could be used for a CEA at programme level.

Quality of life is a complex multi-faceted concept that does not lend itself easily to assessment of effectiveness if one aims to capture benefits beyond those related to economic wellbeing. Other methods (like SROI) provide better options in this respect.

CEA (CUA) is commonly applied for health programmes whereby morbidity and mortality can indeed be singled out as key outcome of a programme. There are different options in terms of unit measurement of outcomes such as QALY or morbidity / mortality rates (assessing effectiveness in terms of cost per % reduction in these rates).

Nonetheless, in the case of hygiene and sanitation programmes, it seems impossible to treat the two stated impact areas (quality life and child mortality) as unit cost centres in such a way that programme costs (or budget) can be apportioned to each one (direct costs plus allocated portion of programme overhead). Therefore, there is a limited potential of using CEA in this case, unless one would accept the (ToC's sub-impact outcome) "access for one individual community member to improved WASH facilities, products or services" as the key performance indicator. Admittedly, this would rather be considered a Level 1 measurement of efficiency.

Financial and Economic Cost-Benefit Analysis

There is some potential for using CBA even though monetary benefits might be but a fraction of the overall impact. Nevertheless, one may indeed be able to capture some programme benefits in monetary terms, either directly if related to income generation (e.g. suppliers' profit margin) or reduction in household expenditure (e.g. for health care). Incidentally, the same applies to incremental costs, not only programme-related but also at household level e.g. HIGHER expenditure for access to WASH facilities or services of purchase of WASH products.

Note that for reliable measurement of efficiency, incremental benefits need to be established, which in an ex-post assessment requires reliable baseline data and/or control group. In the ex-ante situation, programme managers (and funders) must ensure that provision is made in the project formulation, planning, and budget for carrying-out an adequate baseline as well as an ex-post CBA (or other efficiency assessment).

Capturing Blended Values – Social Return on Investment

Development programmes create blended values, i.e. the changes that they generate, can take many forms e.g. financial, economic, social, environmental, political, cultural, etc. WASH projects are no different, on the contrary they typically create a myriad of tangible as well as intangible values that may encompass a multitude of impact areas, e.g. in health, education, inclusiveness, participation, empowerment, personal security, income, livelihood, social capital, and many more. Some methods such as Social Return on Investment (SROI) allow to capture blended value creation for multiple stakeholders. SROI accounts for stakeholders' views of impact, and puts financial 'proxy' values on those impacts identified by stakeholders which do not typically have market values. The result is a single cost-benefit ratio and measurement of effectiveness that is based on / includes the financial and non-financial (social, environmental) costs and values generated by the programme. Technically speaking, SROI calculation is similar to CBA and NPV, i.e. discounted costs and benefits¹.

By way of example: in documented SROI assessments of hygiene and sanitation programmes, non-monetary outcomes were captured and monetised

- Livelihood in terms of changes in income or asset base at household level, or as a way to educational and health development (see below) of individual and household members.
- health in terms of reduced health care expenses, income from working days not lost due to health problems, enjoyment of good health;
- education as future improved income, social status, enjoyment of having access to (higher) education;
- (women) empowerment can be captured (proxy) as a way to educational, economical and health development (see above points)

Areas such as empowerment (as an end in itself) or personal security are more challenging and may be difficult to monetise (at individual level)². Therefore, in SROI the numeric assessment (ratio calculation) needs to be completed with a narrative section that provides details on principles used for monetisation of intangibles and lists and describes values that could not be monetised (but are generated by the programme).

Multiple-Criteria Decision-Analysis (MCDA)

A MCDA scoring model calculates total scores for different intervention alternatives based on a set of weighted criteria. MCDA facilitates decision-making in the face of incomplete data and uncertainty. As such, they can be used to complement (rather than replace) other methods.

In the present case, some comparative criteria could include

- Inclusiveness (for marginalised, women, children & youth, elderly)
- Expected economic impact on different actors (private sector suppliers, HHSAs)
- Profitability of the different businesses involved (suppliers, HHSAs, MFI)
- Expected welfare impact for households
- Expected sustainability of outcomes (guarantee fund, networks, WASH facilities)
- Outcomes of the multi-stakeholder platforms
- Assumed effect of lobby and advocacy efforts

The criteria should be developed in a participatory process that involves decision makers and other stakeholders. The main advantage of this approach is that the decision-making process is transparent to the decision-maker and to stakeholders. It is also systematic in the sense that criteria, weights and scores can be critiqued separately, leading to more informed decisions.

¹ taking into consideration: deadweight and attribution

² at state level empowerment may be reflected in government budget shifts aimed at strengthening social and economic position of women and realising their rights

3. Applicable level 1 tools and methods

Level 1 tools and methods identify efficiency improvement potential in a single intervention. In contrast to level 2 analysis, the principal purpose of level 1 analysis is to improve the efficiency of the intervention at hand (rather than choosing the most efficient interventions from a pool of options).

Level 1 methods and tools that are applicable to this project include:

- Unit costs and other partial efficiency indicators
- Follow the money
- Financial analysis
- Comparative ratings by stakeholders

Benchmarking of unit costs and other partial efficiency indicators

Unit costs and partial efficiency indicators can also be compared across projects, but care must be taken that they allow for meaningful benchmarking, i.e. that they are calculated with the same protocol and applied to similar projects under similar conditions. There are many options for unit costing depending on the context-specific constellation of the service & product delivery system (basically the WASH value chains)

- Input programme costs per supplier to improve his/her service and product delivery
- Unit cost to establish a single HHSA business
- Unit programme cost per person getting access to improved WASH facilities, products or services

And in benchmarking

- % of HHSA's still in business after x years,
- % of original beneficiaries actually reached and using services / buying products
- % of suppliers linked to and active in networks or MSPs established by programme

Follow the money

A simply approach with high potential for identifying cost saving potentials in the project at hand is the "follow the money" approach. In this approach, the evaluator systematically disaggregates total project expenditures and, for each (important) budget item, conducts additional analysis to determine the appropriateness of procurement procedure and whether there is cost-saving or outcome generation potential (e.g. water yield, # potential). This very much coincides with the (respectively) "economics" and "efficiency" aspects within the four-criteria Value for Money concept. A related approach is the Basic Efficiency Resource Approach that compares the input-outcome performance of operational units within one specific setting (i.e. programme or organisation). It is largely a qualitative comparison that establishes differences between units in maximising outcomes with minimal inputs.

		Below Average Efficiency	Average Efficiency	
Inputs	High			BER approach
	Low			
		Low	High	
		Outcome		

Source - Oxfam

Financial analysis

Programme level

One approach to financial analysis at programme level calculates the discounted net present value (NPV) from a financial perspective. Net Present Value is a way to value an investment taking into account the time factor of money. Conceptually and technically this is similar to the CBA method of level 2 but in a "stand-alone" mode. A related measurement, is the Internal Rate of Return (IRR). IRR is the discount rate that makes the net present value of a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project. IRR is also an appropriate method for comparative (level 2) assessment.

Entrepreneurial level

In this case, a number of stakeholders (or groups of stakeholders) are acting as economic agents in a value-chain-like setting, i.e. suppliers / traders, the HHSAs, and the MFI. The efficiency of such entrepreneurs can be measured and monitored using standard financial parameters and ratio's - the assumption being that economic agents will apply (at least basic) practices of bookkeeping and financial reporting (ledger, profit-loss account, cash flow).

Comparative ratings by stakeholders

A participatory method that can be useful in the present case is to ask or systematically survey stakeholders for their opinions and preferences regarding available project design choices. Questions can directly aim at partial efficiency or, if cost considerations are difficult to assess by stakeholders, at effectiveness (which the evaluator can then complement with information on costs).

For example, we can ask intended buyers or users of services about their perception on different types of services or products, check acceptability or preference of different product-price combinations, ask people about their present constraints and challenges in sanitation and hygiene and

to what extent different supply models may address these challenges.

Comparative ratings may not immediately serve the purpose of assessing efficiency and effectiveness but can be used to complement such assessment and is particularly relevant in an ex-ante programme formulation stage (to inform programme design).

Conclusions

Applicability of methods:

Level 2: CBA or SROI to capture blended value creation

MCDA e.g. for social rating of different models

Level 1: Financial analysis for entrepreneurial aspects & unit costing for programme

Add comparative rating for finetuning model design

