

Theory-based impact evaluation

Better
Evidence
in Action

In brief

There are several different approaches to theory-based evaluation — including contribution analysis, realist evaluation and process tracing — and each has its own terminology. The common factor is that they all rely on generative causation. In other words, they depend on identifying the mechanism that explains effects. They also have two key stages: conceptual and empirical. In the former, researchers work with local stakeholders to develop or reconstruct the causal mechanism and use it to guide their evaluation; in the latter, they test the mechanism to investigate how their observed outcomes came about.

The causal mechanism — often referred to as a theory of change (ToC) or impact pathway — maps out how a project or intervention is expected to lead to its intended outcomes. It considers underlying assumptions, risks and contextual conditions. Developing ToCs with the active participation of local stakeholders ensures the process is open to different perspectives and insights, particularly in projects that have multiple strands, feedbacks and trade-offs.

The ToC is validated by looking for empirical evidence to test its underlying assumptions, and hypotheses that represent alternative causal explanations. The evidence can be quantitative and/or qualitative and we can collect it through a variety of methods. Validating the ToC reduces uncertainty about an intervention's contribution to observed outcomes by increasing or reducing confidence in each of the hypotheses that make up the ToC. The level of confidence in the causal claim depends on the level of detail in the evidence we collect. Some evaluations — particularly those that use process tracing protocols — will try to systematically test each component of the causal mechanism in turn; others will simply seek to show progress towards a project's end goals.

Monitoring, evaluation and learning; fisheries

Keywords:

Theory of change, research evidence, economic incentives for marine and coastal conservation, Bangladesh, traditional knowledge, hilsa

When can we use it?

Any evaluation should be tailored to the local context. Reconstructing the pathway to impact allows us to ask how and why an activity has led to an observed outcome in the given context. This makes theory-based evaluation suitable where there are multiple, complex causes and effects that require a fine-grained analysis.

Theory-based evaluation does not estimate the net effect of an intervention, but it can help us identify controls and confounding factors that can inform the design of experimental evaluations. More than this, however, theory-based evaluation explores how and why a particular change has come about by thoroughly testing the intervention logic against other plausible alternative explanations.

Strengths for gathering better evidence

A key strength of this approach is its flexibility to combine different methods of data collection and analysis to triangulate multiple sources of qualitative and quantitative evidence, including local knowledge and perceptions. The bottom-up nature of developing or reconstructing a ToC allows it to incorporate local and collective stakeholder knowledge and experiences, ensuring the evaluation directly targets policy and addresses local issues, making it more acceptable to local partners.

Its transparent and communicable approach also helps local partners understand a project. This enhances the likelihood that survey design and data collection will yield valid and reliable results.

The process of identifying strengths and weaknesses in a ToC to work towards an intended outcome is, by its nature, oriented towards creating positive change. By highlighting critical steps that require improvement or those that are unnecessary to bring about change, this method of evaluation promotes cost-effective practice. Finally, to improve, replicate and scale up activities from local to national and global levels, it is not enough to simply demonstrate a causal link. It is necessary to understand the underlying mechanisms. In developing a theory of change, theory-based evaluation creates external validity and generalisation beyond one particular project. This is especially true if the theory development/testing process involves thorough review of the literature and analysis of the mechanisms triggered in different



Enumerators interview Bangladeshi fishing households about their perceptions of hilsa management, as part of a theory-based evaluation

Credit: Annabelle Bladon

contexts. In these cases, theory-based evaluation can suggest what is more likely to work in other similar circumstances.

Aspects to keep in mind

This method's validity depends largely on the strength of the ToC. This, in turn, depends on the extent to which researchers and stakeholders have considered alternative hypotheses, risks and potential biases. Although we cannot necessarily question a ToC that has been developed through a participatory process, if we fail to identify multiple plausible causes and unintended feedbacks by considering wider theory and experience, there is a danger of working in a vacuum and thereby overlooking critical steps in a causal mechanism.

The context in which we apply this method also means that its empirical component will often rely on perceptions as evidence. Although these are fundamental to an intervention's success or failure, they bring with them a range of biases. Although we cannot eradicate these biases, we can minimise them.

When validating a ToC, we often lack systematic methodological guidelines for collecting data and assessing the strength of evidence. As a result, the selection and assessment of evidence can be somewhat subjective. Process tracing has the most established and systematic protocols for this validation but, in practice, when the outcome of an intervention is not fully known or variables are missing, it is challenging to apply these protocols in full.

Theory-based evaluation is transparent about its methodological limitations. It does not usually claim to be useful for decisively inferring causality, but rather for strengthening or weakening confidence in how a particular change has come about, and for explaining causal associations. It recognises that all explanations remain provisional because they could be disproved by more detailed analysis or a more aggregate level of analysis.

Considering power, inequality and gender

When describing a causal mechanism, it is important to recognise that mechanisms can differ between different households and individuals. By incorporating local knowledge and perceptions and considering alternative hypotheses, this method allows us to compare different mechanisms from different perspectives.

Its qualitative nature means we can use it to capture the experiences of different types of household and individuals and disaggregate the data accordingly. For example, survey respondents' perceptions may differ according to gender, income level or where they live. With this method, it is easier to ensure that, for example, both men and women, those on low or higher incomes or those who live in or outside a protected area are represented in a survey, than it is with quantitative methods.

To ensure a survey captures the full range of experience, we need to understand social and power structures, elements which are often neglected. We can strengthen the method by approaching it in an interdisciplinary way, conducting a preliminary assessment of power structures to guide the rest of the methodology. This highlights the importance of reconstructing a ToC, even where an existing one is available, to incorporate issues that may have previously been overlooked.

The transparent and communicable approach helps local partners understand a project



Knowledge
Products

Toolkit

Contributors to the toolkit

Simon Anderson	Celie Manuel
Sam Barrett	Essam
Annabelle Bladon	Mohammed
Francesca Booker	David
Stefano D'Errico	Satterthwaite
Phil Franks	Krystyna Swiderska
Sam Greene	Janna Tenzing
Ced Hesse	Xiaoxue Weng

Contact

Essam Mohammed
eymohammed@iied.org

Annabelle Bladon
a.bladon12@gmail.com

80–86 Gray's Inn Road, London,
WC1X 8NH, United Kingdom

Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
www.iied.org

IIED welcomes feedback via: @IIED
and www.facebook.com/theiied

The International Institute for Environment and Development (IIED) promotes sustainable development, linking local priorities to global challenges. We support some of the world's most vulnerable people to strengthen their voice in decision making.



This research was funded by UK aid from the UK Government, however the views expressed do not necessarily reflect the views of the UK Government.

Theory-based impact evaluation in action

IIED used this method in an impact evaluation of the government of Bangladesh's management of hilsa fishery, which includes imposing regulations and restrictions on (mainly artisanal) fishing and offering compensation for the subsequent loss of livelihoods. The limited availability of baseline social and ecological data meant there had been no rigorous impact evaluation of the government's hilsa management package.

Our evaluation used a theory-based, mixed-methods approach inspired by the principles of process tracing to collect and assess evidence that the intended outcomes have been realised and that hilsa management has contributed to these outcomes. We collected two types of data for our evaluation and used them to assess confidence in a reconstructed ToC. We used i) data collected through a household survey on fishers' knowledge and perceptions of hilsa management, on which we performed statistical analyses, and ii) remote sensing data, which provided an indication of compliance with fishing bans and environmental conditions. And, although these data did not allow us to test every component of the ToC, we established a degree of confidence in some key components of the mechanism and highlighted some weaknesses.

The evaluation results showed that the government hilsa management package was likely to have contributed to socioeconomic improvement of the fisher community and has potential to contribute to an increase in hilsa abundance in the longer term. It also seems likely that government efforts have resulted in improved compliance with regulations, particularly a reduction in sanctuary fishing during periods in which such fishing is banned, and that awareness-raising activities may have played a key part in influencing changes in fishing practices.

Our conclusions will inform the government's decisions around developing, improving and scaling up regulations and compensation for fishery management in Bangladesh. This shows the value of creative theory-based approaches for examining causality in complex interventions when data are limited.

This document is part of the 'Better Evidence in Action' toolkit.

Further reading

Befani, B and Mayne, J (2014) Process tracing and contribution analysis: a combined approach to generative causal inference for impact evaluation. *IDS Bulletin* 45(6): 17–36.

Bladon, AJ *et al.* (forthcoming). Impacts of hilsa fishery management: evidence from theory-testing and remote sensing in Bangladesh. IIED, London.

Punton, M and Welle, K (2015). Straws in the wind, hoops and smoking guns: what can process tracing offer to impact evaluation? *CDI Practice Paper*. www.ids.ac.uk

Vogel, I (2012) Review of the use of 'theory of change' in international development. DFID, London.

Vogel, I (2013) ESPA guide to working with theory of change for research projects. LTS International, Edinburgh and ITAD, Hove, England.