

Impact Evaluation of Climate Adaptation Projects

Webinar

05 October 2016

Moderator: Timo Leiter, GIZ Climate Policy Team

On behalf of

BMZ



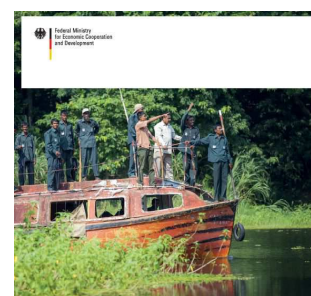
Federal Ministry
for Economic Cooperation
and Development

of the Federal Republic of Germany



Outline

- Presentation of the new guidebook
- Practical example of an impact evaluation of an adaptation project in Morocco
- Q&A



Impact Evaluation Guidebook for
Climate Change Adaptation Projects

Technical instructions



13.10.2016

Webinar "Pioneers in Adaptation M&E"

Seite 3

Setting the scene

- Adaptation is context-specific → no universal success metric
- Are adaptation actions effective?
 - Important to assess adaptation **outcomes**, not just **outputs**.
- Results frameworks of adaptation projects often use mainly output indicators.
- The question whether adaptation outcomes have been achieved and **how** is left unaddressed.
- **Impact evaluations** are one way of assessing adaptation progress.



13/10/2016

Assessing the effectiveness of adaptation

Seite 4



Dr. Stefan Silvestrini

- CEO at CEval GmbH, private spin-off company of the Center for Evaluation at the Saarland University
- Sociologist, focus on applied/evaluation research
- Working fields: Development Cooperation, Education, Technology Assessment



M&E-Guidebook for Climate Change Adaptation Projects

Webinar-Presentation of the Guidebook
developed on behalf of the GIZ

Stefan Silvestrini

Saarbruecken, October 5th 2016

- ✓ Objectives and tasks of the Guidebook
- ✓ Structure and content
- ✓ Selected evaluation designs
- ✓ Outline of the practical case study and further considerations

- ✓ Discussion






Objectives

- ✓ Provide practitioners in the field of climate change adaptation with a **common understanding** about the importance of **evidence-based information** and therefore required **evaluation designs**
- ✓ Enable them to reflect on the **type of adaptation project** they are responsible for and help them understand what kind of **evaluation approach** and what **methodologies** need to be applied, and how they should build their **M&E-system** in order to gather relevant information

Tasks

- ✓ Assess the **applicability and the strengths and weaknesses of different RIE approaches** in the field of climate change adaptation
- ✓ Provide **methodological guidance** and **practical demonstration** on the integration of these RIE approaches in M&E-Systems
- ✓ Present **econometric methods and mathematics** and discuss their practical implications
- ✓ Demonstrate the **potential of RIE approaches** to providing evidence on climate change vulnerability reduction and testing the underlying adaptation hypotheses

Providing for readability and understandability

- ✓ Technical terms always with brief explanations/definitions
- ✓ Formulas only where inevitable/necessary
- ✓ Graphical illustrations of methodological issues
- ✓ Links to external web resources
- ✓ Text boxes and icons signifying
 - ✓ Definitions 
 - ✓ Practical examples 
 - ✓ Tools and instruments 
 - ✓ Further reading material 
 - ✓ Checklists 
- ✓ Example tools and glossary in the annex

1. Evaluating CCA projects
 - ✓ Types and key features of CCA projects
 - ✓ Key challenges of CCA projects
 - ✓ Review of current methods to evaluate CCA projects
2. Rigorous evaluation designs and their applicability in CCA projects
 - ✓ Overview of evaluation designs – Potentials and limitations
 - ✓ Providing reliable large scale data
 - ✓ Providing the practical prerequisites for evaluation
3. Practical case study: Urban Management of Internal Migration due to Climate Change
 - ✓ Background and project objectives
 - ✓ Selection of an evaluation designs
 - ✓ Practical implementation

Evaluation design	Suitable project type	Required project characteristics	Data requirements	Results validity
Experiment (RCT)/ Quasi experiment	III, IV	<ul style="list-style-type: none"> Discriminable treatment group RCT requires random assignment to treatment and comparison group 	<ul style="list-style-type: none"> Ex-ante (baseline) and ex-post data from treatment and control group 	<ul style="list-style-type: none"> RCT has highest internal validity Internal validity of quasi-experimental design depends on selection bias External validity/transferability depends on comparability of framework conditions
Propensity Score Matching	III, IV	<ul style="list-style-type: none"> Discriminable treatment group Individual characteristics relevant for the treatment effect (covariates) must be observable 	<ul style="list-style-type: none"> Ex-ante and ex-post data from treatment and comparison group Data collection must include covariates 	<ul style="list-style-type: none"> Internal validity depends on completeness of covariates External validity/transferability depends on comparability of framework conditions
Pipeline approach	III, IV	<ul style="list-style-type: none"> Project needs to be implemented in phases Treatment groups of each phase must be comparable 	<ul style="list-style-type: none"> Ex-ante and ex-post data from each group 	<ul style="list-style-type: none"> Internal validity of quasi-experimental design depends on comparability of groups External validity/transferability depends on comparability of framework conditions
Regression Discontinuity Design	II, III, IV	<ul style="list-style-type: none"> Treatment group must be selected according to a specified criterion 	<ul style="list-style-type: none"> Sufficient number of comparable cases Larger sample size than for experimental/quasi-experimental 	<ul style="list-style-type: none"> Internal validity restricted to comparable cases
Time series	Panel: II, III, IV TSCS: III, IV	<ul style="list-style-type: none"> Panel: Focusing on individuals, households, organizations TSCS: Focusing on sectors, countries, regions 	<ul style="list-style-type: none"> Panel: Large sample size, few repeated data collections TSCS: Sample size irrelevant, large number of repeated data collections 	<ul style="list-style-type: none"> Panel: Validity depends on compliance of sample size with statistical requirements (cf. 3.3.1) TSCS: Validity is restricted to sample
Structural Equation Modeling	I, II	<ul style="list-style-type: none"> Focusing on entire sectors, countries, regions 	<ul style="list-style-type: none"> Statistical and/or empirical data for each model relevant construct 	<ul style="list-style-type: none"> Validity depends on model fit (i.e. to which extent the endogenous construct is explained by the model)

Project characteristics

- ✓ Evaluation starts before/at the beginning of project
- ✓ Discriminable target group (environmental migrants)
- ✓ Not all target group members are treated, i.e. comparison group data available in settlements not covered by the project
- ✓ Non-random selection of project participants
- ✓ Individual characteristics are in principle observable
- ➔ **Quasi-experimental design with Propensity Score Matching**
- ✓ Regional focus (settlements/hotspots)
- ✓ Longitudinal data available through project monitoring and potentially statistics
- ➔ **Structural Equation Modeling**

Benefits

- ✓ High internal validity of evaluation results
- ✓ PSM allows for impact attribution
- ✓ SEM allows for assessing systemic impact and the influence of external factors
- ✓ Longitudinal perspective allows for assessing adaptations in the project concept

Challenges

- ✓ Methodological demands are rather high
- ✓ PSM requires large scale data collection at treatment and comparison group
- ✓ Randomized sampling is logistically demanding
- ✓ SEM requires extensive knowledge about framework conditions and long term collection of empirical and statistical data

Preparatory tasks

- ✓ Document analysis, selection of evaluation design, development of a workplan
- ✓ Exploratory pre-mission: Gathering qualitative data for accomplishing the data collection plan, checking the availability/accessibility of data sources and the feasibility of the data collection

Baseline study (ex-ante evaluation) 2015

- ✓ Finalization of the data collection plan, development and pre-test of the data collection instruments
- ✓ Collection of baseline data, data analysis and reporting
- ✓ Preparation of a framework for continuous results based monitoring system: Specification of indicators and data collection plan

Continuous results based monitoring 2015-2018

- ✓ Adaptation of data collection instruments, development of a resource plan and assignment of responsibilities
- ✓ Implementation of monitoring system: regular data collection according to data collection plan, revision of data collection instruments as required (e.g. changing of project measures)
- ✓ Regular data analysis and reporting

Final evaluation 2018

- ✓ Adaptation of data collection plan and instruments, review of monitoring data, further document analysis (official statistics, project documents etc.)
- ✓ Collection of final evaluation data, data analysis and reporting

Ex-post evaluation 2021/22/23

- ✓ Adaptation of data collection plan and instruments, further document analysis
- ✓ Collection of ex-post evaluation data, data analysis and reporting

Thank you very much for your attention!



Gunther Bensch

- development and environmental economist at rwi, a German economic research institute
- implemented various studies based on large-scale household and enterprise surveys in Africa and Asia
- lead researcher of a planned impact evaluation on a GIZ climate change adaptation programme in Morocco

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Impact Evaluation in the Practice of Climate Change Adaptation

Developing a rigorous evaluation design for a GIZ project
in Morocco

Gunther Bensch (RWI), October 5 2016

- study genesis
- brief introduction to the giz project
- evaluation design proposal
- feasibility of an experimental approach

- » *no* study implementation yet
- » *no* results

· How can the impact of adaptation projects be assessed?
· Which impact evaluation methods can be applied to which types of adaptation projects?
· How can a participatory impact evaluation be designed in practice?

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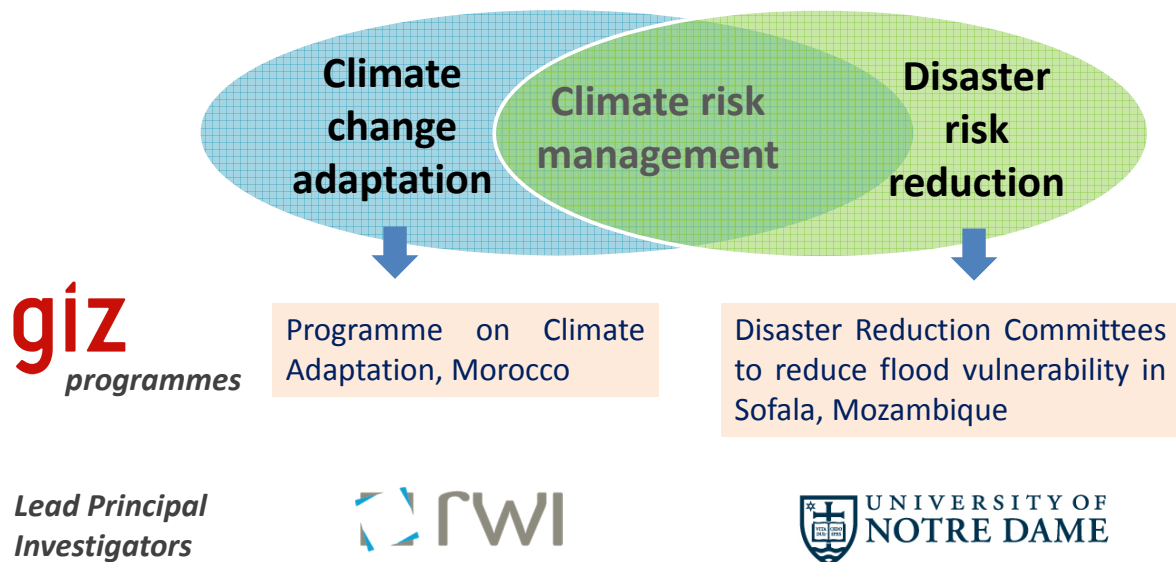
Study genesis

- *Climate Change and Disaster Risk Reduction Thematic Window* launched by the International Initiative for Impact Evaluation (3ie) in 2014
- 11 projects received *evaluability assessment* preparation grants



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- Climate Change and Disaster Risk Reduction Thematic Window launched by the International Initiative for Impact Evaluation (3ie) in 2014



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THE GIZ PROJECT IN MOROCCO

- sizable bundle of individual activities (>>100)
 - » mainly on meso or macro level (e.g. institutional capacity building; identification and mapping of vulnerable ecosystems)
 - » micro-level activities are mostly low-scale pilot projects
 - » numerous national institutions as co-implementers

Dernière valeur connue	Valeur cible	Historique des données	Graphiques des tendances	Tendances constatées
(2013) 742,23 ha	--	2004-2012		▲
(2013) 38.000 ha	--	1942-2013		—
(2013) 1.656 ha	--	2005-2013		▲
(2012) 79 289 pieds	--	2007-2012		▲
(2011) 5,2 MDH	--	2003-2011		▲

*decentralized CCA
information systems*




*ecosystem service value
chain business development*



*climate vulnerability assessment &
action plans for highway operator*

EVALUATION DESIGN PROPOSAL

1. Grantee inception and client consultation workshop



Evaluation Proposal Form
Indicates fields that must be completed

BASIC DETAILS		<small>No score required</small>
Number of the grant submission (to be filled by 3ie)		
Title of proposed impact evaluation study* <small>(Please include intervention type, country and possible method in the title)</small>		
Proposed duration of grant in number of months*		
Proposed start date (MM/YYYY)	02/2015	
Proposed end date (MM/YYYY) <small>(9 months after the end of data collection, for production of the final report)</small>	05/2019	

- » Evaluation context
- » The intervention its theory of change
- » Evaluation questions
- » Evaluation design: internal validity
- » Evaluation design: external validity
- » Policy process, alignment, and influence
- » Plain language summary
- » Deliverables, workplan and budget

Feasibility standards of the American Evaluation Association (AEA)

- Practical and Responsive Procedures
- Contextual Viability
- Effective and Efficient Resource Use

Impact Evaluation Guidebook, Ch.1

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2. Two-week scoping mission incl. stakeholder consultation workshop

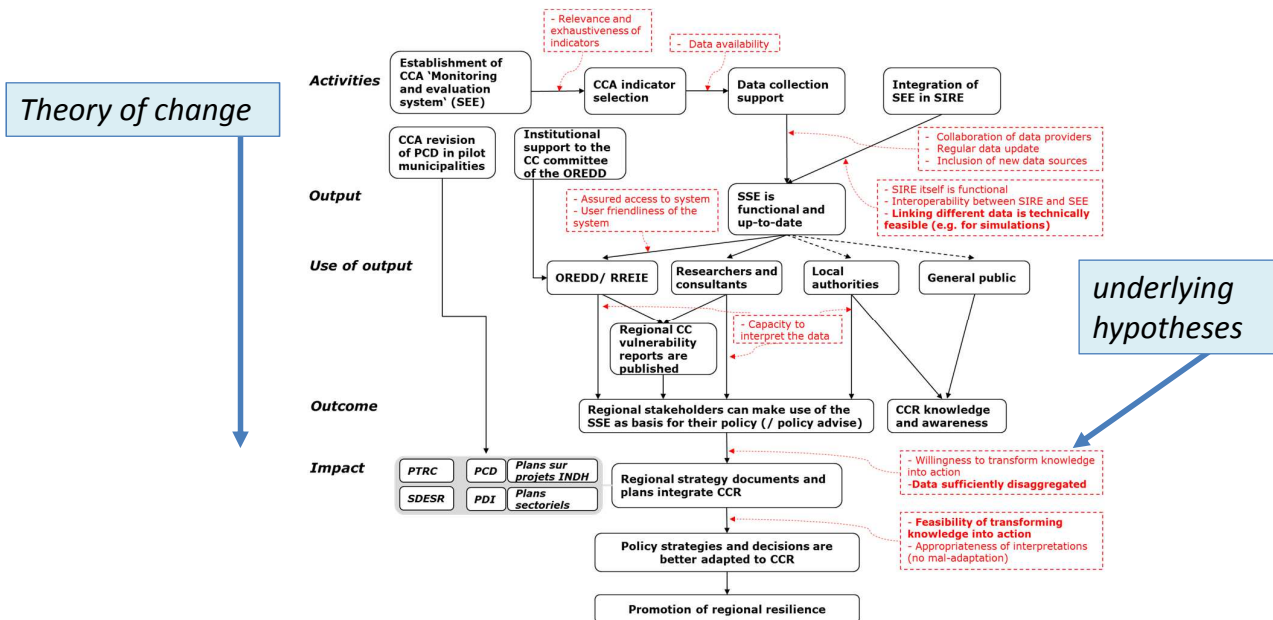
- ➡ common understanding of project theory
- ➡ avoid black box evaluations



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2. Two-week scoping mission incl. stakeholder consultation workshop

→ example: decentralized CCA information systems



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Key challenges:

- ambiguity of the concepts
- no universal indicators
- shifting baselines
- long time horizons
- uncertainty

Impact Evaluation Guidebook, Ch.2.2

- intermediary outcomes
- interventions often affect
 - » probability distributions of outcomes
 - » variability of outcomes

- a quantitative approach simply requires a sufficient number of independent observations

Sample size calculation formula

Impact Evaluation Guidebook, Ch.5.6

- » users of CCA information system
- » community development plans
- » highway sections
- » cooperative members
- » GIS and remote-sensing data

Types of CCA projects:

- individual level
- institutional level
- systemic level

Impact Evaluation Guidebook, Ch.2.1

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How can a participatory impact evaluation be designed in practice?

1. client consultation in *overall design phase*
2. stakeholder consultation in *exploratory scoping phase*
3. beneficiary participation in *(qualitative) data collection phase*
4. beneficiary consultation in *recommendation development and feeding-back of findings phase*

FEASIBILITY OF AN EXPERIMENTAL APPROACH

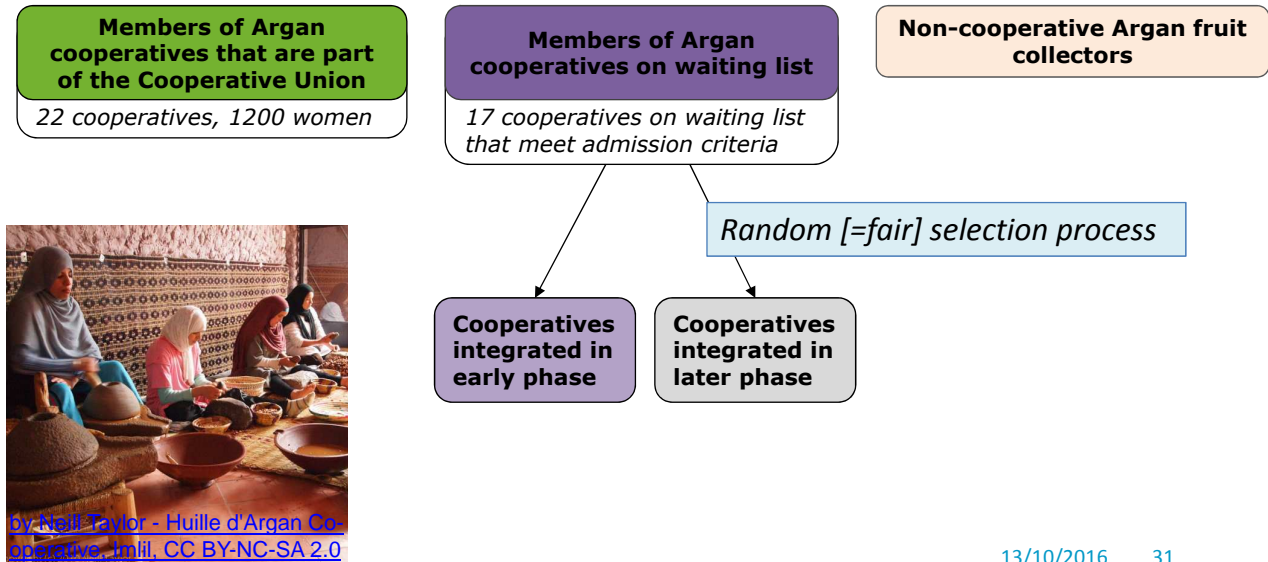
Feasibility of an experimental approach

→ example: Argan oil business development

Types of evaluation designs:

- experimental
- quasi-experimental

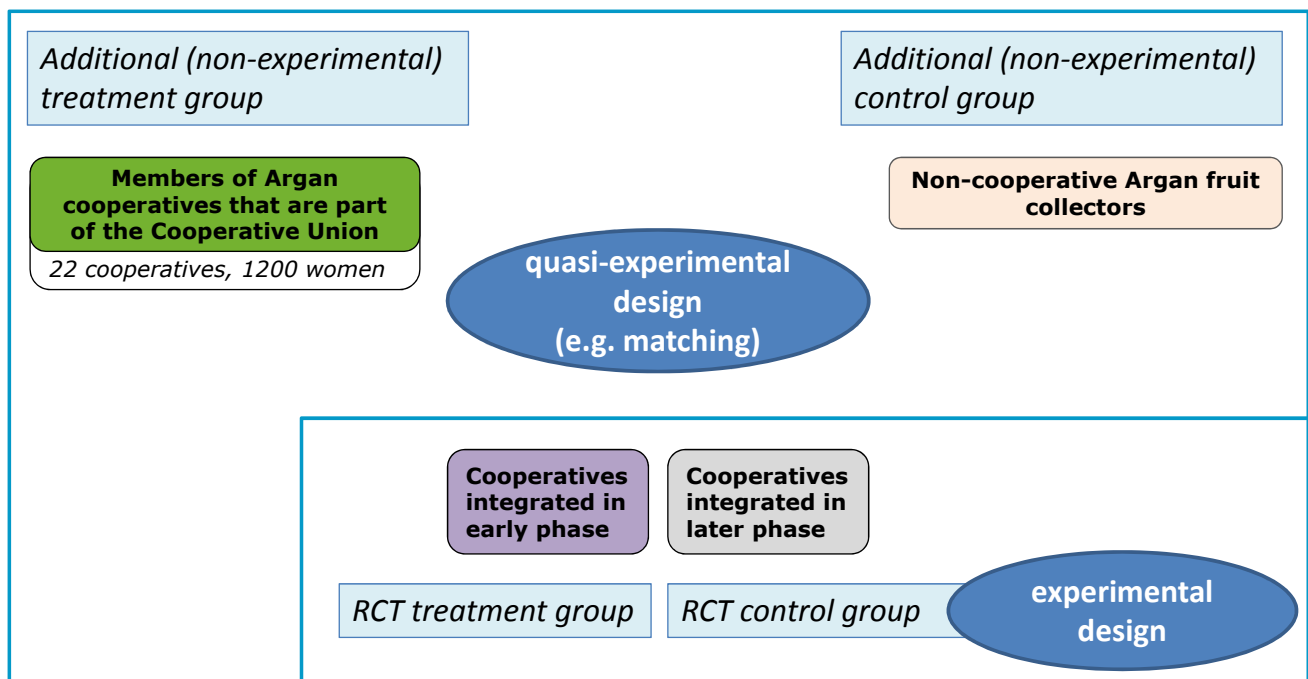
Impact Evaluation Guidebook, Ch.3



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Feasibility of an experimental approach

→ example: Argan oil business development



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Feasibility of an experimental approach

- none of the studies listed is experimental
- *Environment and Climate Change* as one of twelve themes at last weeks' What Works Global Summit 2016, but basically no studies or discussions on CCA
- Types of CCA interventions where one finds RCT applications:
 - » Payment for ecosystem services (e.g. RCT in Uganda by [Jayachandran et al. 2016](#); cifor.org/gcs/)
 - » CCA Education (e.g. RCT classroom training for year 7 students in Bangladesh by [Kabir et al. 2015](#))
 - » Interventions to reduce the health impacts of CC (e.g. bednets; Systematic Review by [Bouzid et al. 2013](#))

current CCA project evaluations
Impact Evaluation Guidebook, Ch.5.1



26-28 SEPTEMBER, LONDON
WHAT WORKS
GLOBAL SUMMIT 2016

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Concluding remarks

- CCA projects pose greater challenge to impact evaluations, in consequence little to no rigorous CCA impact evaluations so far
- increasing policy demand for empirical evidence, mainstreaming of evaluation approaches, and availability of evaluation tools
- pragmatism and creativity required for designs that are policy-relevant, appropriate, and rigorous
- Let's go for it!

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Discussion

You can:

- Type your questions in the chat window, or
- Raise your hand by clicking the indicated button and speak over your microphone. This requires a good internet connection and a quiet place to avoid background noise.

Please state:

- Name
- Country



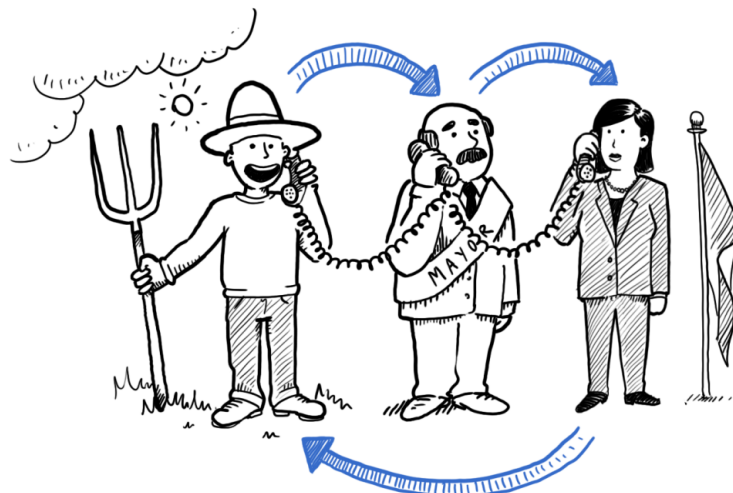
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Webinar "International developments in adaptation M&E"

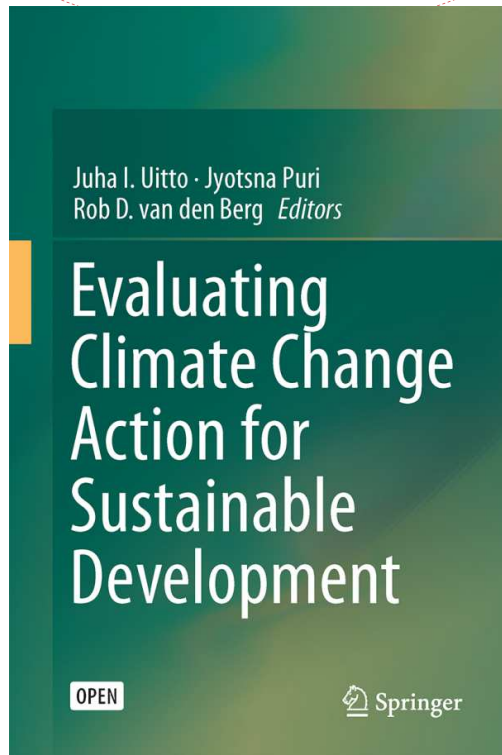
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Questions & Answers



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New book on Evaluating Climate Change Action

Publishing date: **5 November 2016**

All chapters are **open access** and can be **downloaded for free!**

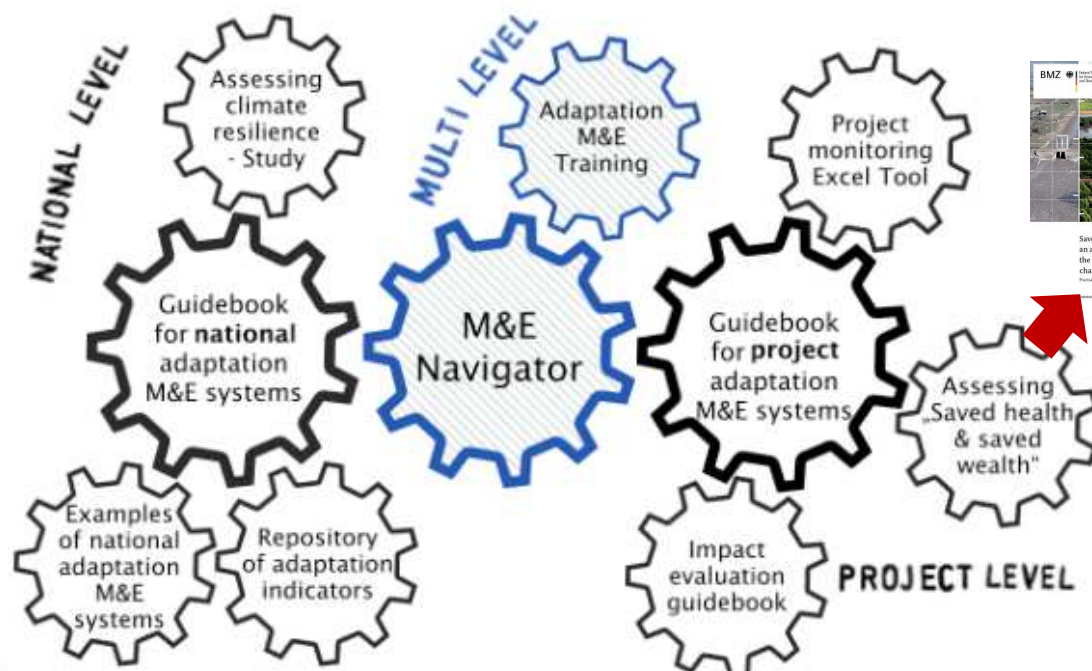
Presents the state of the art in evaluating climate change strategies and action in the rapidly changing landscape of international development cooperation.

Includes **GIZ's Adaptation M&E Navigator**: a decision support tool to select suitable M&E approaches.

→ Please google the title to get access.



GIZ's Adaptation M&E Toolbox





Thank you!

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