



CLIMATE  
POLICY  
INITIATIVE

# The Role of Technical Assistance in Mobilizing Climate Finance – Insights From GIZ Programs

Martin Stadelmann  
Angela Falconer

October 2015

A CPI Brief

**giz**

## Acknowledgements

We would like to thank GIZ colleagues Johannes Woelcke for his excellent guidance, support and comments during the set up phase of the project, Alexander Froede for his ideas on suitable case studies and guidance on the Climate Finance Readiness Programme, Regina Bernhard, Xing Fu-Bertaux, Andrea Iro, Marlen Görner, Wulf Killmann and Trudy Könemund for their comments, and suggestions and more than 55 interview partners for their insights on the case studies.

A special thanks also to Sarah Jo Szambelan for her support on all case studies, Sebastian Woerle for his help on the Chile case study and Jessica Brown for her contribution to the Mexico and Vietnam case studies, Ruby Barcklay, Barbara Buchner, Amira Hankin, Elysha Rom-Povolo, Dan Storey, and Tim Varga for their help, useful comments, suggestions, and internal review.

This project would not have been possible without the generous technical and financial support of the Gesellschaft für Internationale Zusammenarbeit (GIZ). The findings, interpretations, and conclusions expressed in this report are those of the authors, and do not necessarily reflect the views of GIZ.

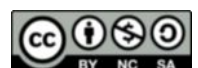
## Descriptors

Sector	Energy, Land use
Region	Global, Asia, Africa, Latin America
Keywords	Climate finance, mobilization, GIZ, capacity building, technical assistance, enabling environment
Related CPI Reports	<ul style="list-style-type: none"><li>▪ <a href="#">What is climate finance? Definitions to improve tracking and scale up climate finance</a></li></ul>
Contact	Angela Falconer <a href="mailto:angela.falconer@cpivenice.org">angela.falconer@cpivenice.org</a> Xing Fu-Bertaux <a href="mailto:xing.fu-bertaux@giz.de">xing.fu-bertaux@giz.de</a>

## About CPI

Climate Policy Initiative works to improve the most important energy and land use policies around the world, with a particular focus on finance. An independent organization supported in part by a grant from the Open Society Foundations, CPI works in places that provide the most potential for policy impact including Brazil, China, Europe, India, Indonesia, and the United States.

Our work helps nations grow while addressing increasingly scarce resources and climate risk. This is a complex challenge in which policy plays a crucial role.



## Executive Summary

International development assistance can play an important role in mobilizing additional public and private climate finance for keeping global warming below 2 degrees and helping developing countries in their efforts to adapt to climate change.

The existing literature focuses on the role of international *financial* assistance instruments, such as debt and equity that can directly mobilize additional public and private investment. **Few studies look at the role of technical assistance<sup>1</sup> and how such assistance may help mobilize investment for climate change.**

This paper aims to provide some first insights on the topic by analyzing five technical assistance programs of one of the largest technical assistance agencies worldwide, the German 'Gesellschaft fuer Internationale Zusammenarbeit (GIZ).

### How technical assistance mobilizes finance: direct and indirect mobilization

Technical assistance agencies use their initial financing to develop programs that attract direct co-financing (from donors, developing country governments or the private sector). Technical assistance also indirectly mobilizes finance, by supporting the creation of policy environments and markets that are conducive to climate-resilient and low-carbon investment, for instance, by building capacity and institutions and proving there is money to be made in new markets by demonstrating alternative approaches. **Such technical assistance activities help address knowledge, policy / regulatory, risk and viability gaps that prevent low-carbon and climate-resilient investments.**

The indirect mobilization effect of technical assistance is difficult to quantify due to the long-term nature of the effects and its interactions with other key drivers, but in-depth case studies can track the ways in which such assistance has contributed to increased finance and contribute to the development of refined methodologies.

1 Technical assistance involves activities supporting governments and other parties' development strategies and needs, including the development of policy and regulatory environments through the provision of grants and in-kind resources. Activities include institution and capacity building, training, provision of advice, data, information and systems as well as demonstration projects.

### Five types of technical assistance that have mobilized finance

From our analysis of GIZ programs, we identify five types of technical assistance that have mobilized finance: policy advice, support for project development and for funding applications, provision of data, program coordination, and institutional capacity-building.

The following factors were critical in ensuring that those activities successfully mobilized finance: GIZ's long-term engagement and solid in-country presence, its work with existing institutions, extensive outreach, and joint efforts with financial assistance initiatives.

Technical assistance providers could consider several additional entry points to target the mobilization of private finance more directly, including supporting private project developers to advance project concepts, start-up businesses, and 'aggregator' organizations that work directly with multiple businesses such as traders, cooperatives or lenders.

### Quantifying finance mobilized: insights from a review of five GIZ programs

In-depth case studies are currently the only way to estimate the mobilization effect of technical assistance. Our review of five case studies, for which we conducted more than 50 expert interviews, confirmed that GIZ's technical assistance has mobilized additional finance. Across four programs<sup>2</sup> we have identified a total of €37-233 million in public finance and up to €412 million in private finance mobilized by the GIZ-managed €43 million of technical assistance funding - that is €0.9-15 of finance directly or indirectly mobilized for every €1 managed by GIZ in the four programs. But the amount mobilized is highly uncertain and further methodological developments are needed to reduce the uncertainty regarding the scale.

The uncertainty is due to the often-substantial time lag between technical assistance interventions and actual mobilization of finance, and the interaction of these interventions with many other factors and actors.

2 Excluding the Climate Finance Readiness Programme since it is too early to estimate mobilization quantitatively.

Our case study results indicate that some technical assistance activities might be as valuable as financial assistance in mobilizing finance, but further methodological development and empirical work are needed to examine further specific cases as uncertainty levels can be high particularly with regard to indirect mobilization.

Nonetheless, assessing indirect mobilization is useful for organizations and funds looking to identify ways to mobilize resources through technical assistance and maximize the effectiveness of their programs.

For international reporting however, technical assistance providers should focus on the more certain numbers for direct mobilization of finance from private and domestic public sources.

Given the difficulties involved in measuring the mobilization effect of technical assistance ex-post, technical assistance providers may wish to assess mobilization only where it is a major goal of the project. To measure indirect mobilization, it is crucial to measure outputs carefully and quantitatively over the project lifetime so mobilized finance can be traced back to the outputs.

## CONTENTS

1. INTRODUCTION	1
2. HOW TECHNICAL ASSISTANCE MOBILIZES FINANCE DIRECTLY AND INDIRECTLY	2
3. FIVE TYPES OF TECHNICAL ASSISTANCE THAT HAVE SUCCESSFULLY MOBILIZED FINANCE	4
4. TECHNICAL ASSISTANCE ACTIVITIES THAT COULD TARGET PRIVATE INVESTMENT MORE DIRECTLY	7
5. QUANTIFYING FINANCE MOBILIZED: INSIGHTS FROM A REVIEW OF FIVE GIZ PROGRAMS	9
6. RECOMMENDATIONS FOR TECHNICAL ASSISTANCE PROVIDERS ASSESSING AND REPORTING THE FINANCE MOBILIZED BY THEIR PROGRAMS	10
7. REFERENCES	11

## 1. Introduction

**International development assistance, which includes both financial and technical support to developing countries, can play an important role in mobilizing public and private climate finance for keeping global warming below 2 degrees and helping developing countries in their efforts to adapt to climate change.**

Buchner et al. (2014) show that public and private finance that contributes to climate change mitigation and adaptation (“climate finance”) is flowing but falls far short of investment needs. Therefore, mobilizing climate finance has become an urgent topic both in climate negotiations and development assistance. Development assistance, which is already contributing to the mobilization of additional public and private climate finance in developing countries, will have an important role in the future, particularly as the majority of low-carbon investments will have to take place in rapidly growing developing countries (IEA 2014).

---

*Little is known about the mobilization of climate finance through technical assistance*

---

**The existing literature on mobilizing climate finance focuses on the role of financial instruments in international assistance,** such as debt and equity that can directly mobilize additional public and private investment. Few studies look at how technical assistance,<sup>3</sup> may help indirectly mobilize investment.

**This paper aims to provide some first insights on the effectiveness of technical assistance in mobilizing additional climate finance and key pathways to mobilization** by analyzing five programs of one of the largest technical assistance agencies worldwide, the German ‘Gesellschaft für Internationale Zusammenarbeit (GIZ). The paper concludes with a discussion of possible approaches that technical assistance providers might use to assess and measure the mobilization effect of their interventions.

---

3 Technical assistance involves the provision of grants and in-kind resources in support of governments and other parties’ development strategies and needs, including the development of policy and regulatory environments. Activities include institution and capacity building, training, provision of advice, data, information and systems as well as demonstration projects

We base our assessment on four case studies of GIZ programs selected because their implementation is advanced enough to provide evidence of mobilized finance and because they cover diverse sectors and geographies:

1. Chile - Renewable Energy Program, commissioned by BMUB<sup>4</sup>
2. Mexico - Energy Efficiency in New Social Housing commissioned by BMUB
3. Pacific Islands – Coping with Climate Change Program<sup>5</sup>, commissioned by BMZ
4. Vietnam – Integrated Coastal Management Program, commissioned by BMZ<sup>6</sup>

We also looked at GIZ’s Climate Finance Readiness Program (commissioned by BMZ) which is at an early stage of implementation but provides useful insights nonetheless.

We selected the case study approach as the most appropriate methodology to analyze the mobilization effect of technical assistance, following a literature review to investigate possible approaches. Using detailed case studies we could look into the indirect effects of technical assistance and overcome the time lag between interventions.

The team carried out over 55, mostly in-country, semi-structured interviews with experts and officials familiar with the selected projects and programs, including GIZ experts, national government counterparts, partner government officials and experts from other donor organizations and NGOs working in the same field. We also consulted documents from GIZ, other entities involved in the project and from the web.

We adapted and simplified CPI’s San Giorgio Group<sup>7</sup> case study approach to focus on climate finance mobilization aspects of the selected projects and programs.

---

4 The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

5 The program supports mainstreaming of climate change into strategies and policies as well as piloting and implementing mitigation and adaptation measures.

6 The German Federal Ministry for Economic Cooperation and Development

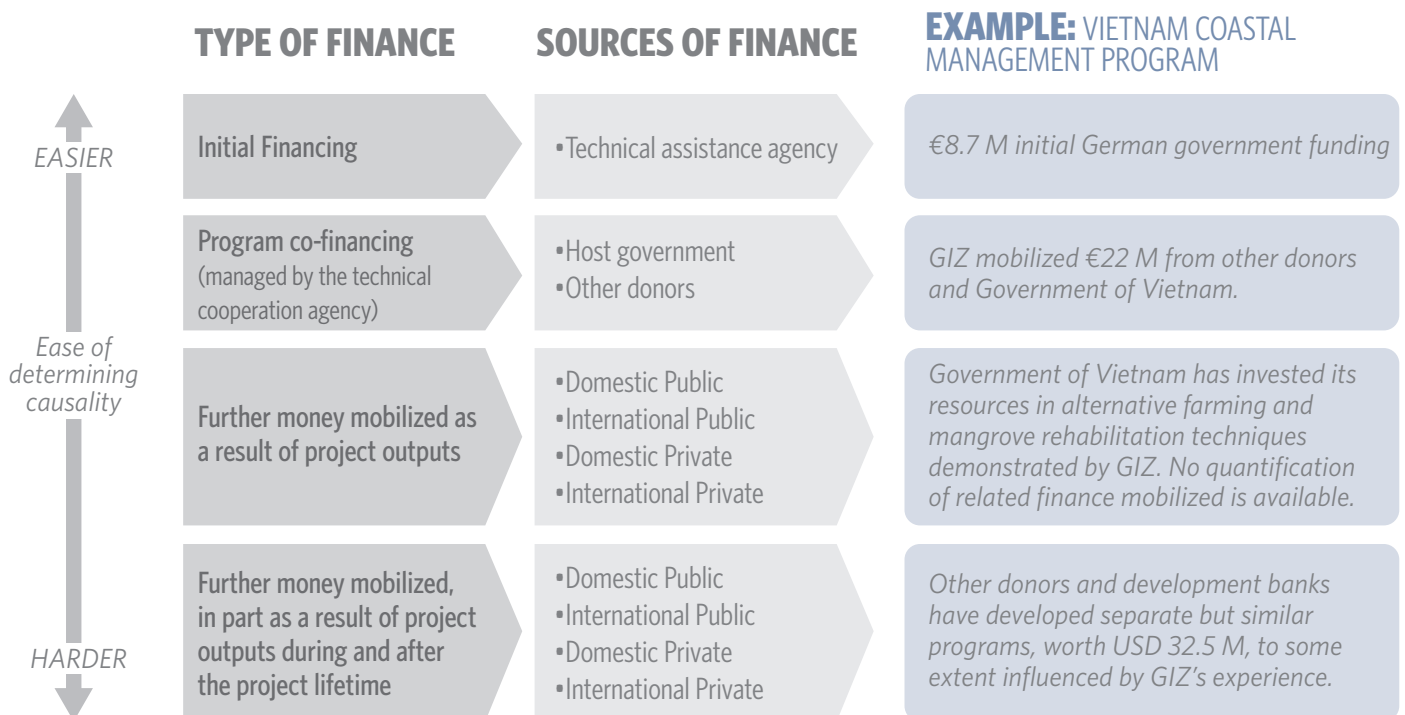
7 The San Giorgio Group is a joint initiative of CPI, the OECD, the World Bank and China Light and Power.

## 2. How technical assistance mobilizes finance directly and indirectly

Technical assistance mobilizes climate finance in different ways. Technical assistance agencies can use their initial financing to develop programs that attract direct co-financing for these programs from donors, developing country governments or the private sector. Technical assistance can also help countries access additional sources of domestic and international climate finance by building capacity and institutions, and demonstrating alternative approaches. Technical assistance also indirectly mobilizes climate finance and by supporting the development of an enabling environment that is conducive of private investments. Figure 1 illustrates these 'layers' of mobilization and the increasing difficulty of determining causality between the technical assistance program and resources mobilized when finance is flowing only indirectly and/or long after the implementation of a technical assistance intervention. The diagram includes the example of GIZ's coastal adaptation project in Vietnam.

*Technical assistance primarily addresses knowledge, policy and regulatory gaps to low-carbon and climate-resilient investment but also helps address risk and viability gaps*

Figure 1: Types of climate finance 'mobilized' by technical assistance, as shown by the GIZ's coastal management program in Vietnam



**Technical assistance helps fill four critical gaps in order to facilitate low-carbon and climate-resilient investment:** policy and regulatory gaps, knowledge gaps, risk gaps, and financial viability gaps (see Figure 2).<sup>8</sup> Of these gaps, technical assistance primarily addresses knowledge gaps, building nations' awareness of climate risks and their capacity to develop policies and measures that mitigate and adapt to climate change, thereby addressing policy and regulatory gaps. Technical assistance also helps to address other risk and viability gaps by directly reducing investment risks (for example, by providing technology performance data), contributing to the adoption of public policies that

incentivize investment (for example, by establishing renewable energy feed-in tariffs) or reducing costs and risks through concessional finance.

The *indirect* mobilization effect is difficult to quantify due to the long timeframes between program implementation and potential effects and the complex interaction with other investment drivers, such as national policy making, market development and financial assistance. However, in-depth case studies can track the most effective ways to mobilize finance, as discussed below.

---

8 Knowledge gaps occur where public and private actors lack the information, financial structures or institutional capacity to make investments, to develop policy frameworks or to design interventions to target specific risks and costs. Risk gaps include technology risks, financial risks, political risks and market risks that prevent public and private entities from investing. Viability gaps arise where the costs of an activity are greater than available revenues, considered on a net present value basis.



### 3. Five types of technical assistance that have successfully mobilized finance

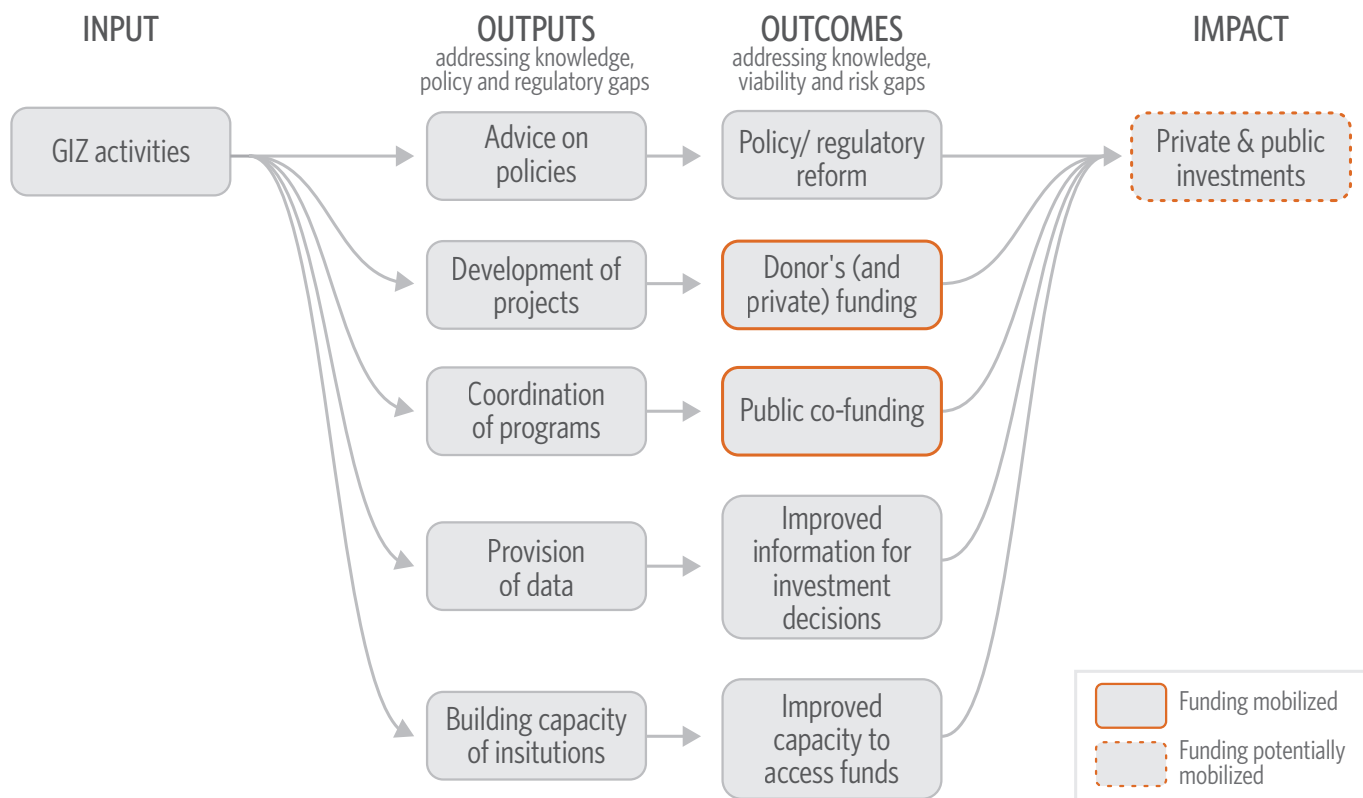
Based on a review of five GIZ technical assistance programs, we identified five major types of technical assistance activities or “pathways” that have likely led to the mobilization of finance by addressing specific knowledge, policy and regulatory gaps (see Figure 2):

1. **Advice for policymakers can help governments to set up policies and regulations that enable private investment.** For example, strategic advice on how to improve the legal and regulatory environment for renewables helped the Chilean government design policies that led to hundreds of millions of dollars being invested in renewable energy. Under the Climate Finance Readiness Program, strategic advice for policy change and mainstreaming of climate change into national, subnational and sectoral planning and policies helps to overcome knowledge and capacity barriers of domestic policymakers on integrating climate-related finance into budgets and across sectors. If climate change is integrated into the planning system, then governments may allocate their own resources for climate-related interventions, and / or set up policies that help to mobilize private investors.
2. **Support for project development and preparation of funding proposals can help public and private actors to attract investment.** For example, by helping to draft funding applications and providing expertise on financial, technical and political feasibility, GIZ helped Mexico to secure €14 million for its Nationally Appropriate Mitigation Action (NAMA) for energy efficiency in new social housing.
3. **Provision of data and information and sharing lessons can overcome important knowledge and technology barriers and thereby enable private and public investments.** For instance, GIZ provided natural resource data for renewable energy investment in Chile, reducing investment risks. By evaluating and sharing lessons from their own early technical assistance interventions, GIZ has helped to prepare countries to access and manage international climate finance, and is sharing early lessons on such readiness activities at the global and national levels. This can help to spread knowledge on the importance of undertaking readiness activities, and thereby prompt additional programs, both by GIZ and others (e.g. the Czech Republic decided to invest in readiness activities partly because of GIZ’s experiences).
4. **Coordination of larger umbrella programs helps maximize scale-up and replication of successful practices, allowing the participation of other donors.** These coordinating activities allow donors to participate as co-funders for programs that use the existing technical assistance expertise of established local offices. For example in Vietnam, GIZ program coordination has mobilized at least €15 million from the Vietnamese and Australian governments for the Integrated Coastal Management Programme, and in the Pacific Islands Coping with Climate Change Program, coordination and project development mobilized up to €17.3 million in public finance in the Pacific Islands. GIZ’s efforts to coordinate its own readiness activities under the Climate Finance Readiness Programme with those of other development partners in country does not mobilize finance on its own but helps to support the overall effectiveness of donors’ efforts.
5. **Building the capacity of national institutions helps countries to access or unlock additional climate finance, from international funds but also national and private sources.** Under the Climate Finance Readiness Program, advice on the selection and operation of Green Climate Fund (GCF) National Designated Authorities (NDAs)<sup>9</sup> and on the selection, accreditation and operation of GCF national implementing entities (NIEs)<sup>10</sup> helps to address national governments’ capacity and knowledge gaps in order to help them access resources from the GCF.

9 NDAs are nationally-appointed entities with strategic oversight of a country’s GCF-related activities

10 NIEs, once accredited, receive direct financial transfers from the GCF and directly manage projects supported by the Fund

Figure 2: Ways of mobilizing climate finance identified in GIZ's technical assistance programs



*We have identified five technical assistance activities that have mobilized finance under the country programs: policy advice, support for project development and applications for funding, provision of data, coordination of programs and institutional capacity building*

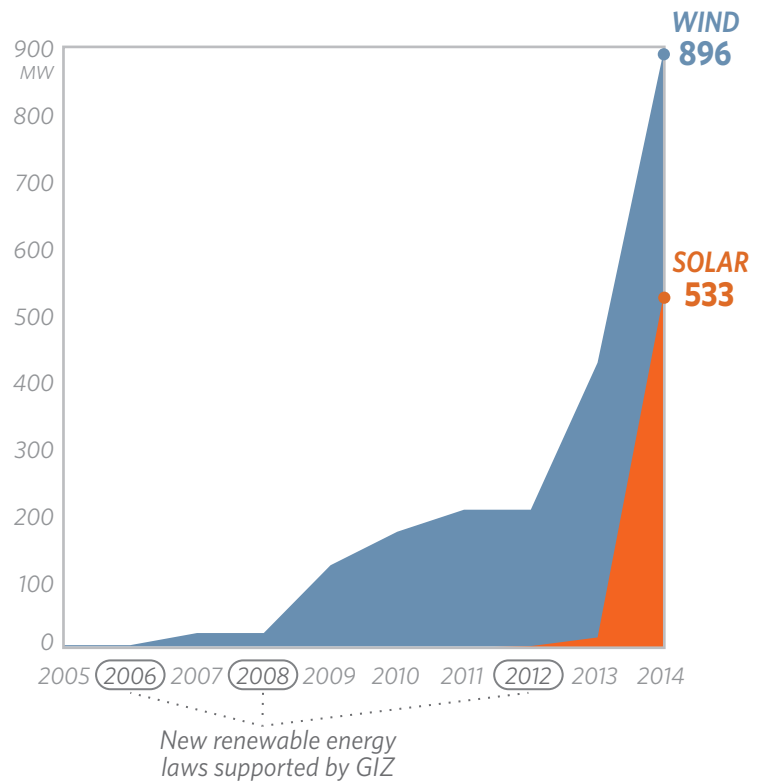
**The success of these mobilization strategies depends on a range of factors**

In the case studies, the following factors were critical to ensuring that the above strategies successfully mobilize finance:

- **Long-term engagement and solid in-country presence:** GIZ's long-term in-country presence and strong cooperation with local governments are valued by counterparts and recognized by GIZ's development partner peers. The long-term involvement and local presence of GIZ in Chile has helped to support the design of policies that indirectly enabled the government and the private sector to invest hundreds of millions of dollars in renewable energy. In the years after GIZ started providing technical support to the national government on its Non-Conventional Renewable Energy program (in 2004), investment in wind and solar energy deployment rapidly increased (see Figure 3).
- **Expertise:** In all case studies, interviewees stressed the value of GIZ's technical expertise, tools, information and data (e.g. on the procedures to access GCF funding).

- **Use of existing institutions.** For example, representatives from Mexico’s national housing commission noted that GIZ’s work complemented theirs and supports existing Mexican institutions.
- **Extensive outreach:** interviewees noted that the considerable time invested to engage counterparts at all levels of government was essential to bring stakeholders on board and realize project outcomes (e.g. the extensive outreach at both the local and national levels in Vietnam).
- **Support access to financial assistance** For instance, GIZ technical assistance funding under the NAMA facility, helped Mexico to access loans for new energy-efficient housing from German development bank KfW.

Figure 3: Solar and wind power deployment in Chile and legislative changes supported by GIZ’s program



Sources: IRENA (2015), Ministry of Energy

## 4. Technical assistance activities that could target private investment more directly

*There are several new entry points for technical assistance to target private investment more directly, including supporting private project developers, start-up businesses, and private 'aggregator' organizations that work directly with multiple businesses such as traders, cooperatives or lenders to multiply and scale-up impacts*

In the case studies, much of the technical assistance provided focused on capacity building for public actors, which is a typical form of support. While capacity building for public actors can indirectly (e.g. via policy adoption) mobilize private finance, we found that the size of this impact is uncertain. If technical assistance providers want to target private investments more directly, our review of the literature indicates that the following tools could help:

- **Technical support to develop well-designed projects:** we have seen in the case of the Pacific Islands that good project design can help mobilize public finance. Here, GIZ supported pre-feasibility studies and cost-benefit analyses that helped mobilize financing for energy projects in Kiribati and Vanuatu. The same applies to private finance; private investors often face a lack of well-developed bankable projects in which to invest. This investment barrier can be addressed with technical assistance, often in combination with direct financial support.<sup>11</sup> While financial assistance agencies may be involved in developing project

pipelines, their support tends to come in at a later stage, when projects are almost ready for financing. There is a gap in supporting early stage project development, which technical assistance could fill.

- **Support start-ups in business development:** small companies that work in land-use or in energy services often lack the capacity to develop their businesses and access debt capital (e.g. off-grid energy service companies using PV). Technical assistance to such companies could help businesses get off the ground through e.g. incubator services, co-funding of initial set up costs, feasibility studies etc.
- **Support standardization / ratings:** Technical assistance can support the development or application of standards and ratings to help attract private sector investment and scale up into bigger deals (particularly relevant for energy efficiency), a strategy already used in the GIZ coordinated Energising Development program (GIZ 2014).
- **Provide capacity to private 'aggregator' organizations such as traders, cooperatives or lenders to multiply and scale-up impacts.** For example, the International Finance Corporation supports agri-businesses to train farmers and promote the adoption of climate-resilient practices and investments in climate-resilient seeds and technologies in Nepal (Trabacchi and Stadelmann, 2013). Development banks also provide capacity for local financial institutions to increase their lending for adaptation activities (Trabacchi and Mazza, 2015)

<sup>11</sup> For example, the Climate Development and Finance Facility is under development as part of the Global Innovation Lab for Climate Finance combines capacity building and direct financing thereby combining both technical and financial assistance. See: <http://climatefinancelab.org/> and <http://scaf-energy.org/about/introduction.html>. The Seed Capital Assistance Fund helps energy investment funds in Asia and Africa to provide seed financing to early stage clean energy enterprises and projects.

- **Support developing country governments to structure and bundle sustainable infrastructure investment opportunities to attract domestic and international institutional investors alongside development bank finance.** Institutional investors currently have limited involvement in the financing of sustainable infrastructure in developing countries but could be interested in certain types of financial instruments like yieldcos because of the stable return infrastructure finance can provide.
- **Target development of domestic capital markets for commercial and public investors to invest in activities improving climate resilience and clean energy.** Building the capacity of local banks in lending to these activities can, alongside the creation of demonstration cases, help develop new markets and improve lending terms in the long-term, as the government of Turkey did to support geothermal energy development (Oliver and Stadelmann 2015).

## 5. Quantifying finance mobilized: insights from a review of five GIZ programs

**In-depth case studies are currently the only way to estimate the true mobilization effect of technical assistance.** Because of the mostly indirect nature of technical assistance programs' mobilization of finance, this mobilization can be assessed only through close examination of the intervention and its impacts, in collaboration with actors involved.

---

*Our review confirmed that GIZ's technical assistance has clearly mobilized additional finance, but further methodological developments are needed to reduce the uncertainty regarding the scale.*

---

**While we are confident, based on our review of documents and interviews with public and private investors, that the technical assistance programs studied are mobilizing climate finance, further methodological developments are needed to reduce the uncertainty regarding the scale.** Across four programs<sup>12</sup> we have identified a total of €37-233 million in public finance and up to €412 million in private finance mobilized by the GIZ-managed €43 million of technical assistance funding – that is €0.9-15 of finance directly or indirectly mobilized for every €1 managed by GIZ in the four programs. These estimates are based on a review of project-related documents, interviews with around 40 experts by phone or in person and three in-country visits.

The precise amount of finance mobilized by GIZ as a result of the four programs is highly uncertain but likely to be towards the lower bound as the upper bound relates mostly to investments in renewable energy in Chile. Here, GIZ's impact is difficult to attribute

as it relates to advice to governments on how to set up renewable energy policies and other factors or actors may have played a role. This does however also demonstrate the potential high impact of technical assistance that supports the development of clear, long-term legal frameworks and fiscal incentives. The €0.9-15 range is similar to reported 'leverage ratios' for financial instruments and carbon credits, estimated at €2-15 (€3-4.5 under conservative assumptions) mobilized finance for every €1 invested.<sup>13</sup>

**These numbers indicate that some technical assistance activities may be as valuable as financial assistance in terms of their impact on mobilization of finance.** This is most likely to be true of technical assistance activities that improve the domestic policy environment (see, for instance, Figure 3). Three-quarters of climate finance and 90% of private climate finance come from domestic sources, according to CPI's Global Landscape of Climate Finance 2013 and 2014 (Buchner et al. 2013, 2014) so assisting countries to develop their policy environments is certainly an impactful approach.

Ultimately, however, identifying technical assistance activities as a direct mobilizing cause of finance is an uncertain exercise in the current state of methodological development because of the often substantial time lag and the intermediate steps between interventions and actual mobilization of finance.

Given the heterogeneity of technical assistance programs and their direct and indirect impacts, it is not possible, in the current state of methodological development, to make quantitative judgments on finance mobilized by technical portfolios overall based on the sample size of five case studies.

The next section provides recommendations on how technical assistance agencies can best quantify and report their mobilization of finance of in the future.

---

12 Excluding the Climate Finance Readiness Programme since it is too early to estimate mobilization quantitatively.

---

13 Some of the numbers underlying the leverage ratios of 2-15 come from public finance providers themselves. As public finance providers may not put projects under the same scrutiny as researchers (e.g. assuming all public co-finance as 'mobilized') the actual ratio of mobilized finance to financial assistance investments may be closer to 3-4.5, see Stadelmann et al. 2011.

## 6. Recommendations for technical assistance providers assessing and reporting the finance mobilized by their programs

Assessing the mobilization of climate finance by technical assistance is difficult. Finance data is often lacking, there is a long time horizon between intervention and finance mobilization, and often an indirect causal link via intermediate outcomes, making attribution of causality challenging.

---

*In-depth case studies are currently the only approach to assess both indirect and direct mobilization effects of technical assistance.*

---

Quantitative estimations of finance *indirectly* mobilized by technical assistance are subject to large bounds of uncertainty. Assessing direct and indirect mobilization is however useful for funds and organizations to identify lessons on how technical assistance can best mobilize resources and maximize their effectiveness.

For international reporting, donors should focus on the more certain numbers for *direct* mobilization of finance from private and domestic public sources. Furthermore, to avoid double counting at an international level, donors should not claim to mobilize finance of other donors as the latter will usually claim these as their own climate finance flows.

Technical assistance providers should consider the following steps in their approach to assess the mobilization effect of their interventions over time:

- Clearly define any mobilization goals of intervention during project planning: Define whether direct mobilization of public and private co-finance and indirect mobilization of public and private finance via intermediary outputs are main goals of the intervention. If so, specify the expected mobilization pathways and metrics to track impact.
- Measure direct co-finance and project outputs during and shortly after project implementation: First, measure private and public co-finance, and attribute mobilized co-finance pro-rata<sup>14</sup> to the mobilizing finance. Secondly, measure intermediate outputs that are expected to mobilize finance (e.g. level of new feed-in tariff enabled by GIZ).
- Measure actual financial flows and connect to project outputs after project completion: For selected projects, measure the long-term finance flows (e.g. renewable energy investments) related to the intermediate outputs measured in the step before (e.g. feed-in tariff). Part of these flows can be attributed to the measured technical assistance outputs, based on at least two expert views. Based on this, ranges for ratios of finance mobilized by GIZ outputs can be estimated. The ratios can be applied to help understand the future mobilization effect of technical assistance projects.

---

<sup>14</sup> Double counting arises if several donors contributing to a program consider that all finance in the program was mobilized by their contribution.

## 7. References

- Bloomberg New Energy Finance (BNEF). 2015. "Projects and assets database: Renewable energy projects and asset finance [Internet]"; [cited 2015 August]. Available from: <https://www.newenergyfinance.com/projects> and <https://www.newenergyfinance.com/assetfinancing/> (registration required).
- Buchner B, Stadelmann M, Wilkinson J, Mazza F, Rosenberg A, and Abramskiehn D. 2014. The Global Landscape of Climate Finance 2014. Venice: Climate Policy Initiative. Available from: <http://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2014/>
- Gesellschaft für internationale Zusammenarbeit (GIZ). 2014. Strategy 2014-2018 Energising Development – Phase 2. Available at: [http://endev.info/images/c/c2/EnDev\\_Strategy.pdf](http://endev.info/images/c/c2/EnDev_Strategy.pdf)
- International Energy Agency (IEA). 2014. World Energy Investment Outlook. Special Report. Paris. International Energy Agency.
- International Renewable Energy Agency (IRENA). 2015. Statistics on Installed renewable energy capacity. Accessed August 2015: <http://resourceirena.irena.org/gateway/countrySearch/?countryCode=CHL>
- Oliver P, Stadelmann M. 2015 Public Finance and Private Exploration in Geothermal: Gümüşköy Case Study, Turkey. Venice: Climate Policy Initiative. Available from: <http://climatepolicyinitiative.org/publication/public-finance-and-private-exploration-in-geothermal-gumuskov-case-study-turkey/>
- Stadelmann M, Castro P, Michaelowa A. 2011. Mobilising private finance for low-carbon development. Tackling barriers to investments in developing countries and accounting of private climate flows. Final report, Climate Strategies, Cambridge
- Trabacchi C, Mazza F. 2015. Emerging solutions to drive private investment in climate resilience. Venice: Climate Policy Initiative. Available from: <http://climatepolicyinitiative.org/publication/emerging-solutions-to-drive-private-investment-in-climate-resilience/>
- Trabacchi C, Stadelmann M. 2013. Making climate resilience a private sector business. Empirical evidence from the agricultural sector of Nepal. Venice: Climate Policy Initiative. Available from: <http://climatepolicyinitiative.org/publication/making-adaptation-a-private-sector-business-insights-from-nepal-pilot-program-for-climate-resilience>