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Evaluation update

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Digital advancement in evaluation
Remote data analysis and the “on-site experience”

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Note

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Satellite data, online surveys and geocoding make it easy to collect data from afar. This simplifies ex-post evaluations, especially in regions that are difficult or impossible to reach, for example due to conflict. However, the evaluation of projects under Financial Cooperation (FC) has shown that the impressions from the site visit, the ability to experience the target group’s perspectives, and anecdotal evidence remain a valuable component of evaluations wherever possible. The experience acquired in this way can be verified by way of triangulation using digitally available data – and vice-versa.

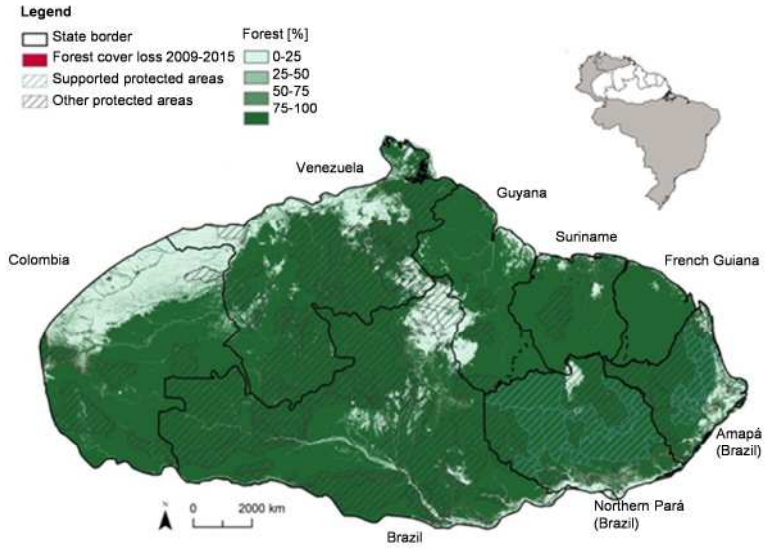
Due to the new methods’ practical application in the evaluation of projects under FC, their strengths initially came to the fore. However, upon further reflection their limitations also became clear – we will describe both aspects below.

Remote sensing data facilitate impact measurement in large and remote areas

The evaluation of a project under FC to conserve flora and fauna in **Madagascar**, conducted in 2016, aimed to draw conclusions about the impacts made in nine protected area complexes distributed across four ecoregions of the country. As a normal evaluation trip would not have been able to capture the overall picture in the project areas, remote sensing data was employed in the search for evidence of the nature conservation measures’ success. A controlled comparative analysis of forest area –i.e. comparing areas with FC measures with other areas – demonstrated that forest cover had decreased since 2009 in the country’s system of protected areas and the FC-supported protected areas, though less so than in Madagascar’s other forested areas. The annual deforestation rate of 0.3% in the supported areas – as against 0.9% deforestation in the other protected areas under consideration – was rated as a relative success in terms of a “contribution” by the project, even though it was not possible to reliably and directly attribute impacts, due to the variety of possible influences.

Furthermore, in a project of the German International Climate Initiative (IKI) to protect the primary rainforest in the **Guiana Shield geological macroregion**, the use of pre-processed remote sensing data made it possible to compare forest cover and deforestation in the entire region, the individual countries and sections of the Guiana Shield, in addition to the project areas and unsupported protected areas in the

Illustration of forest cover in the *Guiana Shield*



Own analysis and preparation. *Data sources: project areas and protected areas. UNEP-WCMC and IUCN (2017), Protected Planet: The World Database on Protected Areas (WDPA) [Online], 06/2017, Cambridge, UK: UNEP-WCMC and IUCN. Available at www.protectedplanet.net. Forest and forest cover. Hansen/UMD/Google/USGS/NASA [Online]. Available at: http://earthenginepartners.appspot.com/science-2013-global-forest.*

region. The analyses made a methodologically sound contribution to the evaluation, showing for instance that the deforestation in Guyana, French Guiana and Venezuela was significantly lower between 2009 and 2015 than in Suriname, Columbia and the Brazilian part of the Guiana Shield.

Impact hypotheses can be reviewed relatively easily using digital data

Some evaluation questions that initially appear complex can now be answered more easily, as was seen in Brazil. Within the evaluation of a project under FC in **Brazil**, in which 120 indigenous areas in the Brazilian rainforest had been supported between 1996 and 2008, the indigenous people visited reacted positively to the support in securing the legal entitlement to their lands and could point to the positive impacts locally. Following the evaluation mission, the evaluators wondered whether, in addition to the project's dedicated objective ("to contribute to securing the survival of indigenous peoples"), it also had positive impacts on the forest cover and the extent of conflicts between indigenous people and the adjoining population. To examine this question, a rigorous impact analysis was conducted in cooperation with the US research institute AidData. Vegetation density trends and the extent of territorial infringements were analysed in 565 geocoded areas with the help of satellite data, taking the demarcation status (i.e. the physical marking of the territorial boundaries) and numerous other independent variables into consideration. Consequently, remote data were combined with data gathered on the ground. The review of the causal relationships showed that the demarcation alone was not accompanied by demonstrable reductions in deforestation, though it was correlated with a clear – and statistically significant – downturn in the number of land conflicts.

Digital resources increase quality, efficiency and transparency of evaluations

While some of the analyses in the previous examples were quite extensive in scope, digitalisation also offers many small approaches that can play a part in standard evaluation. For instance, a project under FC in two districts of the **Indian** state of Gujarat included support for over 13,500 smallholder families in developing and maintaining orchards on private wasteland up to the first harvest. During this project's evaluation, data collected from surveys and interviews was supplemented with recorded information from global navigation satellite systems for position-finding purpose. Recorded GPS information from the *FollowMee GPS Tracker* combined with remote sensing data from *Google Earth* software allowed the evaluators insight into the families' "wider living environment". This also facilitated a subsequent review of the locations, and conclusions in terms of connection to roads and other infrastructure, along with the availability of water source. The digital resources also simplified the selection and distinction of project and control villages. Before the trip, remote sensing data was used to check which locations were suitable to visit. This way, a representative selection of project and control locations could be made, accounting for factors such as topographic incline, remoteness and road connection. After the trip, the GPS Tracker's recorded information confirmed that these locations were in fact the ones visited.

Digital methods provided real time savings during an evaluation in **Pakistan**. Within a currently ongoing cooperation between the University of Mannheim and the FC Evaluation Department, household surveys for purposes of impact measurement in a project under FC have been implemented with digital support and remotely managed ("remote evaluation"). The project supports the launch of a health insurance scheme in two provinces of the country, funding insurance premiums for the poorest household. Baseline data were collected prior to the roll-out of the insurance to ensure that the impacts of this project (which is innovative within German development cooperation) can be measured rigorously following its conclusion. This was supported by information and communications technology (ICT). After interview training sessions were successfully completed via *Skype*, the interviewers drove to the villages, equipped with tablets and the open Source software *ODK Collect*. In the evenings, they would upload the data to the servers at the local Head Office. The

interviews were then remotely reviewed from Germany, e.g. controlling for the plausibility of GPS coordinates and response rates (such as the relative frequency of the answer “yes” to the question about a hospital stay).

Remote sensing data facilitate measurement of particular causal relationships – but are insufficient for an overall explanation

The examples described may give the impression that exact knowledge of the project impacts is now available. Indeed, environmental indicators such as soil erosion or deforestation can be measured precisely. It is therefore tempting to measure the project’s success by the data that are easily available: to paraphrase Abraham Maslow, ***if all you have is a hammer, you treat everything as a nail.*** However, this increases the risk of a one-sided impact assessment. To counteract this, the approach must be chosen in an open enough way to allow for other evaluation questions and method. In other words, remote sensing is ***“just one more tool in the toolbox”.***

Lack of understanding of local conditions restricts knowledge gained from remote sensing

The digital household survey in **Pakistan** had major methodological advantages due to “live” data control. However, unless the fine tuning is done on-site, some misunderstandings may no longer be able to be cleared up. The remotely collected data for the weight of children under age five provided results that were scarcely plausible. Although it became apparent in good time that scales were often placed on carpets, causing them to display unduly low values, it was no longer possible to correct the fact that the scales were also read incorrectly – the weight recording had to be excluded from the analysis.

One evaluation, which included project areas in **Afghanistan** and **Tajikistan** alongside **Pakistan**, also made it clear how important close cooperation on-site can be. In addition to an online survey, the experts conducted a series of individual, confidential discussions in light of sensitive topics such as corruption or perceptions of threats, which were important for the evaluation of the project.

Inspired by the new analytic capabilities, attempts are being made to use digital methods in more and more regions via an even wider range of methods. Light intensity at night is one factor that enables conclusions to be drawn about a project region’s economic development. At the same time, the use of satellite images or other forms of digital information has clear limitations in the evaluation of FC. The target group’s use of the created infrastructure, for example, a typical indicator in FC projects, can only be recorded to a moderate extent.

It is only possible to reap the full benefits of digital resources when technical preconditions are in place

The target group is also often unavailable for surveys “from afar”. In places where people are cut off from modern telecommunications – known as a digital divide – many digital evaluation methods are stretched to their limit. If electricity and Internet access are unavailable in remote project areas, it also becomes impossible – or impracticable in terms of effort – to conduct ICT-supported household surveys as in the Pakistan example.

The real added value: digitalisation and the “on-site experience”

Only the project visit can bring certain impacts to light. That the supported measures in the Atlantic rainforest actually increased connections between protected areas in individual mini-corridors was made clear with an on-site account: a jaguar had been sighted in the project region for the first time in 20 years. In Madagascar, more recent selected regeneration areas and clearings were visited in a GPS-supported one-day foot patrol to verify unclear results from the satellite image. In the project to support smallholders in India, it was possible to identify mango and cashew trees thanks to remote sensing, but not to see the positive effects on their way of life; this only became manifest as a result of the visits with the families, and took the form of reduced rural depopulation, diversified cultivation, and improved education and health.

Our takeaway: digital techniques enrich the mix of method. Satellite images make initial assessment of the local situation possible, thus helping to formulate (additional) evaluation questions, which can then be answered through an “on-site experience”. And by the same token, the experiences on-site may trigger further data-based analyses. Ultimately, the evaluation method chosen must suit the project.

Photo

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