

Ex post evaluation – India

>>> Project of the International Climate Initiative (IKI)

IKI funding area: 2: Adapting to the impacts of climate change, 3: Conserving natural carbon sinks/REDD+*

Programme/Project: Improvement of protected area management and adaptation to climate change in Indian ecosystems with vulnerable climates, project number: 209810581, BMUB reference: 09_II_021_IND_K_Klimaschutz

Implementing agency: World Wildlife Fund (WWF) Germany and India



Ex post evaluation report: 2017

		Planned	Actual
Total costs	EUR million	0.275	0.275
Counterpart contribution	EUR million	0.075	0.075
Funding	EUR million	0.00	0.00
of which IKI funds	EUR million	0.200	0.200

*) According to the IKI Programme Office, Funding Areas 2 and 3, as per classification of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) Funding Area 3

Summary: Northeast India numbers among the least-developed regions in the country. It stands out by means of its high biodiversity. The fragile ecosystems are increasingly under threat from deforestation, infrastructure measures and agricultural practices that are heavy on resources. Climate change also presents a major risk for the population and the environment on account of extreme weather conditions. During the project, WWF India carried out a vulnerability study as well as pilot measures to adapt to climate change (sustainable use of drinking water, solar-powered water boilers and street lights).

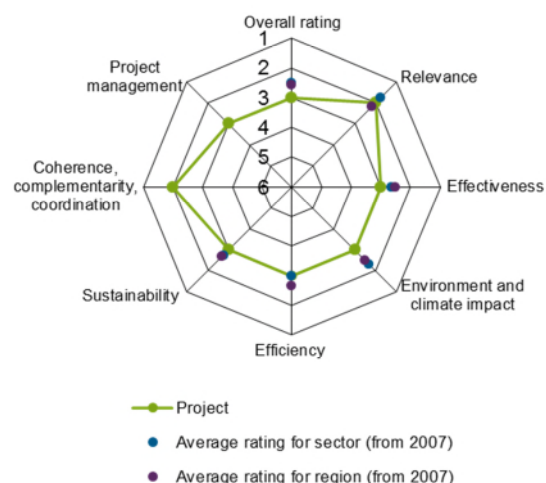
Objectives: The project objective was to support the two federal states of Sikkim and Arunachal Pradesh with integrating the expected impacts of climate change into state measures on natural resource management (NRM) (Outcome). The results of the study were to be channelled into designing specific adaptation measures and used to support the preparation of further actions under German development cooperation (DC). The development objective (impact level) was to enhance the resilience and adaptability of vulnerable groups in the population and sensitive ecosystems against climate change.

Target group: The local governments of the federal states of Sikkim and Arunachal Pradesh, and, for the pilot measures, the vulnerable population groups in the region

Overall rating: 3

Rationale: The study and pilot measures were entirely relevant for the local governments as they had been called upon by the government to prepare their own climate action plans. While the pilot measures resulted in specific follow-up projects, more effort should have been dedicated to presenting the study results for political deliberations and implementing them.

Highlights: A pilot project was implemented during the project, resulting in a follow-up project in 2010 that won the Indian *Groundwater Augmentation Award*, which recognises extraordinary achievements in the sustainable use of groundwater.



Rating according to DAC criteria

Overall rating: 3

Lessons learned

- The climate change vulnerability study could have been expected to have further-reaching effects if the study had been designed more appropriately for the target group, and if it had contained a summary of the study results (important for political decision-makers) and specific recommendations for future projects.

Methodology of the ex post evaluation

The ex post evaluation applies the methodology of contributory analysis, and attributes effects to the project using plausibility considerations based on the careful analysis of data, facts and impressions, resolving possible contradictions, and filtering out similarities. The analysis is based on assumed causal relationships as presented in the impact matrix developed at the time of the project appraisal (PA) and reviewed during the ex post evaluation (EPE). This evaluation report sets out arguments as to why certain influencing factors were identified for the experienced effects and why the project under investigation was likely to provide the contribution that it did. The evaluation draws on the WWF vulnerability study prepared for the project, “An ecosystems approach to Climate Change Vulnerability Assessment in Sikkim and Western Arunachal Pradesh”, as well as the WWF’s technical progress report for 2010. The 2011 evaluation report commissioned by the German Federal Environment Agency¹ was also evaluated, along with academic literature, and this work was further complemented by online research. No visit was made to the regions investigated in the project; the evaluation was carried out as a desk review.

India at a glance

Area (country/project region)	India: 3.29 million km ² Sikkim: 7,096km ² Arunachal Pradesh: 83,743km ²
Land use (country/project region)	Total project area: 14,096km ² Sikkim: 7,096km ² West Arunachal Landscape (WAL) ² : 7,000km ² ³
Population / population growth	India: 1.33 billion (2017 estimate) / 1.5% (2016) ⁴ Sikkim: 607,688 / 1.23% (2016) Arunachal Pradesh: 1,383,727 / 2.6% ⁵ p.a. (2001–2011)

¹ Conducted by the GFA Consulting Group

² Western Arunachal Landscape (WAL) is an area in Arunachal Pradesh that extends over the districts of West Kameng and Tawang

³ WWF Report (2010)

⁴ World Bank (2017)

Gross domestic product (GDP) per capita	India: USD 1,850 per capita (nominal) Sikkim: USD 4,300 (4th place out of 33 Indian federal states) Arunachal Pradesh: USD 2,200 (17th place)
Population below the national poverty line	India: 21.2% (less than USD 1.90 PPP) Sikkim: 8.2% ⁶ (2012) Arunachal Pradesh: 34.67%
Human Development Index	0.624 (medium), rank 131 (2017 — EPE) 0.580 (medium), rank 127 (2009 — PP)
Carbon emissions per capita	1.6t per capita (2013)

General conditions, classification of the project and project measures

For this project, WWF India was to carry out a vulnerability and feasibility study and pilot measures to support the state governments of Sikkim and Arunachal Pradesh in northeast India in integrating climate change adaptation measures into their climate action plans. The results were then supposed to lay the foundation for projects by German development cooperation (FC and TC), also aimed at developing strategies for helping India's poorer populations to adapt to climate change.

Of the components in the original plan, only the vulnerability study and the pilot measures were implemented. A central element of the project is therefore missing, since the feasibility study was supposed to present the state governments with concrete projects beyond the pilot measures and define their financing needs.

The project was carried out in one of India's most ecologically vulnerable regions, the eastern Himalayas (states of Sikkim and the western part of Arunachal Pradesh; see following section: Map of the project area). The project region is susceptible to the effects of climate change, and is also known around the world as a unique biodiversity hotspot. The fourth report from the *Intergovernmental Panel on Climate Change* (IPCC) from 2007 predicts that global warming will accelerate the melting of glaciers in the Himalayas, leading to a significant increase in the risk of floods, erosion and mudslides in the northern part of India during the wet season. In the longer term, this will have a considerable impact on the most important water catchment areas, and will lead to water shortages, a reduction of freshwater reservoirs, droughts and land degradation. Maintaining the drinking water supply during the dry season was already a challenge for the local population in northeast India at the time of the project design. In addition, the IPCC predicts a significant drop in crop yields by the middle of the 21st century.

In response, the prime minister at the time released India's "National Action Plan on Climate Change" in June 2008. According to this plan, India would aim to limit the impact of climate change primarily through the use of clean energy production technologies, better forest management and the protection of important ecosystems. The national action plan established the conceptual framework for climate protection measures in India's individual states, while also making local governments responsible for the concrete design of specific measures.

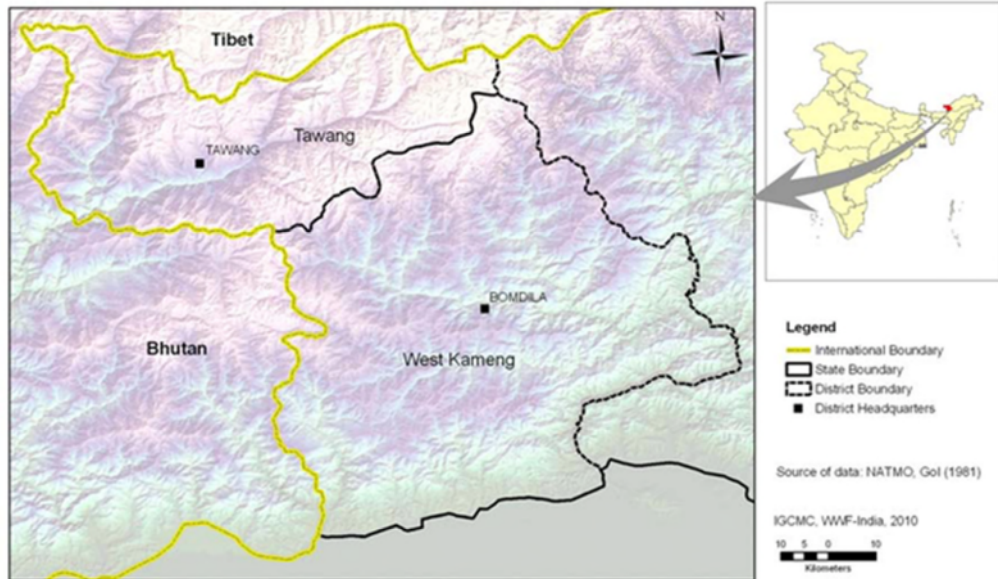
⁵ Indian census (2011), population growth averaged between 2001 and 2011 — current data not available

⁶ Planning Commission Sikkim, 2012

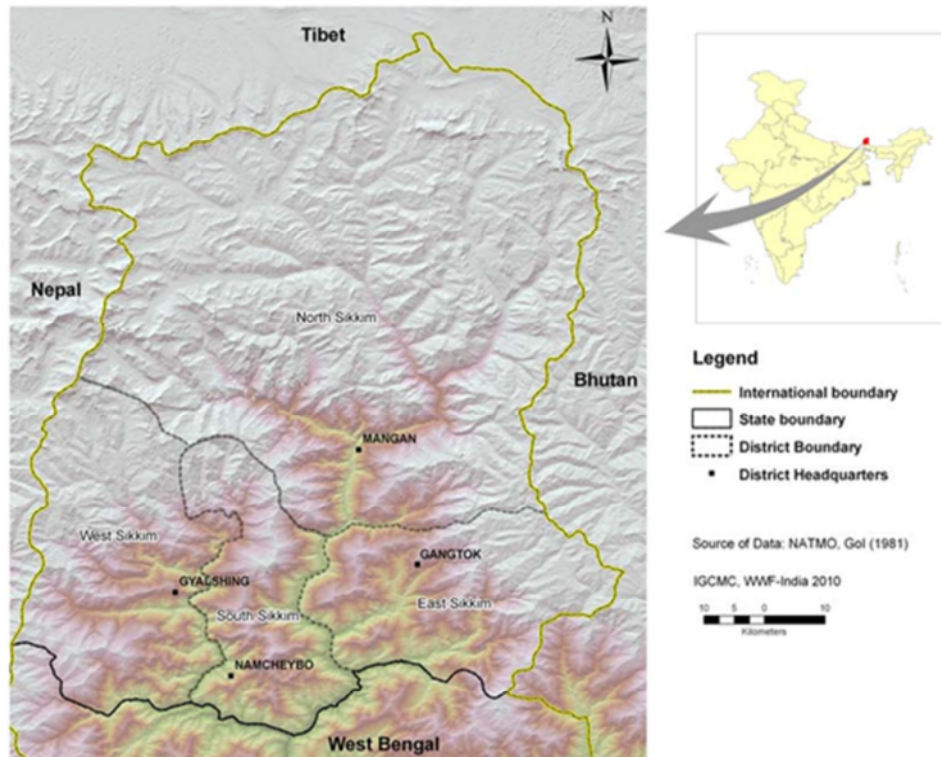
⁷ Indian Reserve Bank, 2013

Map of the project area

Location Map of West Arunachal Landscape (WAL)



Location Map of Sikkim



Source: "An ecosystems approach to Climate Change Vulnerability Assessment in Sikkim and Western Arunachal Pradesh", WWF 2010

India's eight north-eastern states, which are characterised by their proximity to the Himalayas, are home to a high proportion of intact primary forests and a level of biodiversity that is unique in the world. In the states of Sikkim and Arunachal Pradesh, these features are under increased threat from infrastructure measures and resource-intensive agricultural activity. Climate change also plays an increasingly important role, causing an increase in extreme weather events like droughts and flooding.

Relevance

Although the project consisted of just a single study, IKI objectives such as consistency with national climate policies and recognition by the partner government were of central importance. The implementation measures that were mentioned in the study design and planned for a later date were intended to improve the ability of poor population groups in particular to adapt to climate change. Based on its subject matter, the BMUB assigned the project to IKI Funding Area 3 ("Conserving natural carbon sinks/REDD+"), although it should actually be assigned to Funding Area 2 ("Adapting to the impacts of climate change") based on the measures proposed.

The fact that the project was prepared in cooperation with relevant stakeholders (local farmers, indigenous groups, municipal and state governments) is evaluated as positive. In addition, the study should provide a basis for the implementation of measures from German FC and TC to carry out climate action plans in five states of northeast India.

This study is innovative in that, prior to this project, climate change vulnerability studies in northeast India had mainly been conducted at a higher level of abstraction, and the available data for these two states was very poor. As such, the WWF's approach of encouraging a connection between adaptation concepts at the local level and their integration at the political level was innovative and well-designed. The pilot measures were relevant in that water scarcity represented a growing risk for the local population, and diversification of income sources (e.g. through tourism) was therefore also important in order to reduce dependence on natural resources.

The results chain was coherent. The vulnerability study and the resulting pilot measures provided effective support for local governments in their implementation of adaptation measures, thus improving the population's resilience in the face of climate change.

Conclusion: The relevance was high, since the project design took IKI objectives into account whenever possible and was aligned with the national climate protection plan. The target-group orientation and relevance to development were also high.

Relevance rating: 2

Effectiveness

The goal of the project was to support the states of Sikkim and western Arunachal Pradesh in the development and implementation of climate-related policy measures through the use of studies, analyses and pilot measures. No outcome indicators were defined, but there were output indicators that can be used as proxy outcome indicators. While the states were encouraged in the context of the national climate action plan to develop their own local strategies, for which they were then reliant on external studies and expertise, the project goal seems to have been set too ambitiously from today's perspective, especially since there was no strategy for the concrete implementation of the study results.

The achievement of the project objectives can be summarised as follows:

Indicator	Ex post evaluation
The climate change vulnerability of selected population groups and ecosystems was investigated, and climate adaptation strategies were developed.	Mostly achieved — the climate change vulnerability study was prepared, and concrete adaptation strategies were developed and implemented in connection with the pilot measures, especially for the sustainable use of groundwater. Another point to emphasise is that innovative approaches like <i>Participatory Rural Appraisal</i> (PRA) methods were used to get the local population involved.
A feasibility study, including appropriate financing measures based on the needs of local population groups, was prepared with the relevant authorities and local stakeholders.	Not achieved — according to the WWF, the results of the vulnerability study were at least presented to the state governments, but there was no documentation of the form in which they were presented. The planned feasibility study was not provided.
A limited number of pilot measures for adaptation actions in especially vulnerable areas, financed by the project partner, were successfully started.	Mostly achieved — the project partners implemented pilot measures to a limited extent. For example, solar-powered water boilers were installed in 90 households, along with 10 street lights. In addition, plans for sustainable water use were developed and implemented in four districts in Sikkim.

As can be seen in the table, not all of the established goals were achieved. The project measures included the preparation of the climate change vulnerability study, training for 15 officers of the Rural Management and Development Department in 2010, and other pilot measures. The study’s methodology was characterised by an approach closely aligned with the needs of the target group, specifically through coordination with local actors and their direct input on the process. In this way, vulnerability data were validated directly through so-called *ground truthing*, which included, for example, interviews with village residents in the project regions.

The feasibility study provided for in the project design was not completed. The WWF was supposed to use the studies to go beyond the pilot measures and discuss concrete project proposals, financing needs and the implementation plan with the state governments. The vulnerability study was unable to compensate for this, since it contains neither a summary of study results, which would have been important for political decision-makers, nor specific project proposals for future projects. The last part of the study only offered a few generic proposals, e.g. rainwater collection, but even these could have been worked out in a much more context-specific way.

Pilot measures were carried out to a limited extent, as provided for in the project description. The project description does not include any detailed specification of what is meant by “limited extent”. However, it is fair to say that solar-powered water boilers for 90 households and 10 street lights represent a very small scope indeed, which limits the experience to be gained for future projects. In addition, as part of the pilot measures, plans for sustainable groundwater use were developed and implemented in four districts in Sikkim, and solar-powered water boilers

were installed in tourist guest houses in Western Arunachal. WWF did not specify the exact numbers, however.

The degree of utilisation by the target group is difficult to determine. The actual target groups of the study were the local governments of Sikkim and Arunachal Pradesh. The target group indicated in the project proposal was the local population, who would have been the target group after the study was over or in a future implementation project.

Conclusion: The effectiveness of these measures falls short of expectations, but the positive results dominate.

Effectiveness rating: 3

Efficiency

Overall, it is difficult to evaluate the efficiency of individual measures, since the financing plan does not include a detailed cost distribution. For example, the exact number of training sessions was not specified.

In general, however, we note that EUR 200,000 for pilot measures, as well as a study of this size and associated efforts by the partner organisation, are entirely appropriate, since climate models were prepared and research was conducted on site by local experts. For example, according to the consultant, so-called “ground truthing” (local validation) of vulnerability data was carried out as part of the WWF study. Nevertheless, the study does not include any concrete recommendations for action or an *executive summary*; as a result, the results were not immediately useful as a basis for action, especially for the local governments.

Given that the feasibility study was not conducted, only a part of the planned measures was implemented; however, this is mainly attributable to unrealistic budgeting for this project and not to an excessively expensive study.

In addition, the budgeted costs of about EUR 75,000 for the pilot measures in Sikkim and Western Arunachal are entirely appropriate when we consider that aid was provided to 90 households, 10 street lights were installed, plans were developed in four districts in Sikkim for sustainable use of groundwater, and solar-powered water boilers were installed in guest houses in Thembang and Lumpo-Muchat.

Conclusion: The efficiency was satisfactory given that the costs incurred (EUR 200,000) were not unreasonably high for a study of this kind and associated pilot measures, but also given that concrete recommendations for action and a summary of the results were missing, and that the study was therefore not immediately useful to the target group as a basis for action.

Efficiency rating: 3

Overarching climate and environmental impacts

The overall impact of the project can be seen in the activities that have resulted from the use of the completed vulnerability study and the knowledge acquired from the implemented pilot measures, i.e. in the extent to which the results have influenced (and continue to influence) the states’ action plans and projects from German DC and the WWF. The study results were used in preparing the German DC project “*North East Climate Change Adaptation Programme*” (NECCAP), for which the project proposal was presented in December 2010, but which could not be implemented due to political factors⁸. The goal of the FC measure was to finance con-

⁸ Conflicts between Indian central government and north-eastern regions

crete adaptation measures on a local level for areas that had previously been identified in the WWF vulnerability study and an additional vulnerability study for northern India financed for the FC measure as particularly vulnerable. However, only Sikkim was involved in the NECCAP project, not Arunachal Pradesh. Furthermore, it is difficult to prove a direct causal link between study results and implemented measures, especially since the completed study did not contain any specific recommendations for action.

According to project participants, the study had a non-trivial influence on the WWF's project design in both states. For example, the development of pilot plans for the sustainable use of groundwater in four districts in Sikkim resulted in a WWF project that in 2012 received the "Groundwater Augmentation Award 2010" from the Indian government, honouring extraordinary achievement in the sustainable use of groundwater.⁹ Even today, the WWF is continuing to expand local capacities for sustainable water management through training and workshops.¹⁰

According to the WWF's final report, the government in Sikkim continued to use the methodology of the WWF vulnerability study after the end of the project, but no further details are available on this. In Arunachal Pradesh, the evaluation of 2011 noted that the results of the WWF closing workshop had influenced the state's climate action plan. There was also additional contact between government authorities and the WWF, especially in connection with the *Community Conserved Areas*¹¹ concept in Arunachal Pradesh.

Conclusion: Although it is not entirely clear how much influence the study results had on public policy, they were used to prioritise the measures from the NECCAP project, even though a more comprehensive vulnerability study was prepared here for all of northern India and the project was ultimately never implemented. The pilot measures also contributed to an award-winning project.

Overarching climate and environmental impacts rating: 3

Sustainability

These measures can be considered sustainable if the impact on local government departments with regard to state climate policy and the implementation of related projects are sufficiently long-lasting. In the context of the project, it is important to differentiate between the completed vulnerability study and the pilot measures. The study results are already seven years old, and have since been rendered out-of-date by improved climate models and more recent data. The pilot measures based on the vulnerability data, as well as the resulting projects, must therefore be evaluated accordingly.

The study results were integrated in the NECCAP project, and their continuation depends on the sustainability of this project, about which no conclusions can be drawn yet.

The WWF is continuing to place particular emphasis on developing plans for sustainable groundwater use in four districts in Sikkim. The Indian government's decision to award an important water conservation prize to the WWF indicates that there is sufficient interest with regard to the importance and continuation of this approach.

⁹ WWF India (2012), http://www.wwfindia.org/news_facts/?7160/WWF-India-is-awarded-the-Ground-Water-Augmentation-Award-2010-by-the-Government-of-India

¹⁰ WWF (2017),

http://www.wwfindia.org/about_wwf/critical_regions/khangchendzonga_landscape/interventions/

¹¹ Community Conserved Areas (CCAs) are natural ecosystems (e.g. forests, seas, wetlands) that are characterised by a high degree of biodiversity, and that are protected by the population groups who live there for cultural, religious, economic or political purposes in accordance with local laws.

Conclusion: The sustainability of the study results is tied to the projects that have followed from those results. Further-reaching effects could have been expected if the study had been designed more appropriately for the target group.

Sustainability rating: 3

Coherence, complementarity and coordination

The project was coordinated with the NECCAP project mentioned above. Since a vulnerability study for all of northern India was also prepared as part of the NECCAP project, methodological pluralism ensured a more solid basis for future projects despite inadequate data. At the same time, the preparation of two studies with substantial overlapping also means duplicated effort, but the fault here (if any) lies with the follow-up project.

With regard to complementarity, the IKI study also contributed to the development of climate models for northeast India, a region that had received little attention on this point in previous climate research. Data collection in the context of fieldwork was an important step in confirming the analysed climate data and different vulnerability profiles of the relevant population groups on a local level, and represented an effective and innovative approach in this context, since previous work had mainly been based on macro data.

With regard to coherence, the project complemented the local policy of the project region, since it should empower the federal government of the states of Sikkim and Arunachal Pradesh to form the national climate action plan in concrete ways at the local level. A vulnerability study was therefore an appropriate way to identify high-priority measures and long-term strategies.

Conclusion: The project was characterised by a high level of coherence, complementarity and coordination with the NECCAP project. There was some duplication of vulnerability analyses between the two projects, but due to the poor data situation in the northern region, this can be evaluated as a predominantly positive result.

Coherence, complementarity and coordination rating: 2

Project management

Central planning difficulties arose in the course of implementing the project. This is mainly attributable to the fact that the project proposal was intended for an implementation project and was not adequately adapted.

At the same time, the objectives at the output level were clearly too ambitious. With a relatively limited budget of EUR 200,000, the project was supposed to finance a vulnerability study, a feasibility study, policy consulting and pilot measures. It would have been useful here to concentrate on the major components of the project: the vulnerability study and concrete pilot measures in specific sectors to ensure that the findings of the study are put into practice. The study did not contain any context-specific recommendations for action or an *Executive Summary*, limiting its value as an advisory tool for the state governments. In addition, the project proposal mentioned that pilot measures should be financed with capital resources, but does not specifically indicate which measures those resources should be used for.

Conclusion: The planning for this project was both too vague and too ambitious. It would have been useful here to reduce the number of measures planned, and to plan the structure of individual components (like pilot measures and policy consulting) more specifically from the beginning.

Project management rating: 3

List of Abbreviations	
EPE	Ex post evaluation
FC	Financial Cooperation
IKI	Internationale Klimaschutzinitiative (International Climate Initiative)
IPCC	<i>Intergovernmental Panel on Climate Change</i>
PA	Project appraisal
PRA	<i>Participatory Rural Appraisal</i>
TC	Technical Cooperation
WWF	<i>World Wildlife Fund</i>

Notes on the methods used to evaluate project success (project rating)

Projects (and programmes) are evaluated on a six-point scale, the criteria being **relevance, effectiveness, efficiency, overarching developmental impact, coherence, complementarity and coordination rating and project management**. The ratings are also used to arrive at a **final assessment** of a project's overall developmental efficacy. The scale is as follows:

Level 1	Very good result that clearly exceeds expectations
Level 2	Good result, fully in line with expectations and without any significant shortcomings
Level 3	Satisfactory result – project falls short of expectations but the positive results dominate
Level 4	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
Level 5	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
Level 6	The project has no impact or the situation has actually deteriorated

Rating levels 1-3 denote a positive assessment or successful project while rating levels 4-6 denote a negative assessment.

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability): The developmental impact of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental impact of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental impact of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental impact of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The **overall rating** on the six-point scale is compiled from a weighting of all seven individual criteria as appropriate to the project in question. Rating levels 1-3 of the overall rating denote a "successful" project while rating levels 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (level 3).