Ex post evaluation – Vietnam

Sector: Forest development (31220)
Projects: KfW4: 199865676 Reforestation in Thanh Hoa and Nghe An (IV) (+ complementary measure 2001 70 225); KfW6: 200065912 Forest rehabilitation and sustainable forest management in Quang Nam, Quang Ngai, Binh Dinh, Phu Yen (Reforestation VI)*
Implementing agency: Ministry for Agriculture and Rural Development (MARD)

Ex post evaluation report: 2020

All figures in EUR million	KfW4 (Planned)	KfW4 (Actual)	KfW6 (Planned)	KfW6 (Actual)
Investment costs (excl. complementary measure)	9.78	9.63	12.31	13.83
Counterpart contribution	2.90	2.90	2.60	4.13
Funding	6.88	6.73	9.71	9.72
of which BMZ budget funds	6.88	6.73	9.71	9.72

*) Random sample 2019, investment figures do not include complementary measure

Summary: The projects involved the reforestation or rehabilitation and sustainable management of state-owned areas of forest with commercial tree species in two northern Vietnamese (Nghe An, Tanh Hoa – KfW4) and four central Vietnamese provinces (Binh Dinh, Phu Yen, Quang Nam, Quang Nga – KfW6). The overarching goal of both projects was to protect natural resources from erosion and degradation and to improve living conditions. For the management of the forest areas, the Vietnamese government transferred long-term land usage titles (red books) to families of smallholders and village communities (only KfW6). The beneficiaries were actively involved in land usage planning and all other major stages of implementation. Plants and fertilisers were provided free of charge and the beneficiaries received periodic compensation payments for their planting and cultivation work; these payments were deposited into specially created savings accounts (“savings book model”).

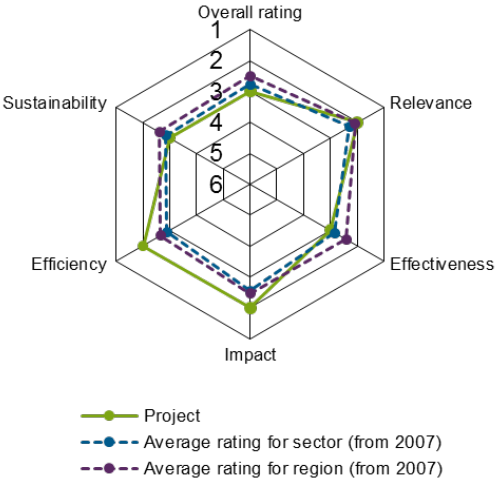
Objectives: Through the rehabilitation/reforestation and sustainable management of 19,000 ha (KfW4) and 32,700 ha (KfW6, including 10,000 ha under community forest management schemes) of permanent mixed forest (module objective), the projects’ goal was to protect endangered natural resources (soil and water) from degradation and erosion (development objective) and – in the case of KfW6 – to contribute to an improvement of living conditions (development objective).

Target group: The direct beneficiaries were 14,218 (KfW4) and 16,700 (KfW6) households of smallholders, including 2,290 households in 6 communities involved in communal forest management. The number of indirect beneficiaries through soil and water conservation cannot be determined exactly.

Overall rating: 3 (both projects)

Rationale: The rate of forest coverage could be increased significantly in marginal locations with a low potential for agricultural use. The established areas became home to climate-resilient mixed forests of native plant species, the majority of which are of high ecological value. The intended environmental impacts have already set in after a few years, though their long-tern preservation is at risk.

Highlights: Both projects set new impulses with site-appropriate planting of native species with concepts of natural regeneration and community forest management, which have helped shape Vietnam's current forestry policy and thus had an impact that goes beyond the project context. Despite the ecological successes, it is evident that the focus on native deciduous tree species as opposed to fast-growing exotic species can be detrimental to economic effectiveness in the short and medium term. The assumption that project beneficiaries would generate significant income from regular forest thinning measures even before the trees had reached the necessary height has proven to be inaccurate in many cases to date.



Rating according to DAC criteria

Overall rating: 3 (both projects)

Ratings:

	KfW4	KfW6
Relevance	2	2
Effectiveness	3	3
Efficiency	2	2
Impact	2	2
Sustainability	3	3

Relevance

During the project appraisal, the advanced level of environmental degradation and the soil's low capacity for water retention were identified as core problems. At project start, only 15 % of the area in KfW4 and just about a quarter of the area identified as woodland or forest in the KfW6 project communities actually contained forest. The consequences of deforestation were the large-scale erosion of slopes, regular flooding, and sedimentation in reservoirs and irrigation channels. The loss of important ecosystem functions led to yield reductions in rice production, and thus, to an adverse effect on the livelihoods of the population, the majority of whom earn their income from agriculture. The main causes identified included the unsustainable management of land and forests (including illegal timber extraction), a lack of environmental awareness, insufficient knowledge of and experience with modern concepts in sustainable forest management by the forestry authorities, and a lack of concepts for involving the population in management planning and resource usage. The goal was to address these problems through reforestation of degraded areas by means of planting native species and/or natural regeneration (NR). Both the assessment of the problem and the resulting concept and underlying impact logic are plausible in retrospect.

KfW4 (project term: 2003 – 2012) and KfW6 (2005-2014) closely followed the concepts of their predecessor projects KfW 1–3 but paid closer attention to planting native species. Innovative new schemes included the introduction of NR measures and the promotion of community forest management (CFM), a first experience like this for the project region (KfW 6). Gradual adoption and replication of this approach could therefore be observed over the individual phases of the project.

Both projects pursued a participatory approach: from land use planning through the actual rehabilitation of the area, the target group was actively involved in all stages of the project implementation. To keep opportunity costs as low as possible and to avoid any conflicts regarding land use, most areas selected for forest rehabilitation/creation measures were situated on heavily degraded hillside areas with little to no potential for agricultural use. Lots were drawn to separate the areas of individual target groups. The selection of the project measure (reforestation or NR) and the tree species were selected based on the local ecological and hydrological conditions and the requests of the beneficiaries.

Another central element to the project was the issuance of long-term land use rights, so called "red books" with a 50-year tenure. Furthermore, free fertilizers and seedlings were provided and a savings scheme with regular payments was set up to compensate participant for the reforestation efforts. Plantation and conservation measures were carried out by the beneficiaries themselves. The aim of this approach was to strengthen the ownership of beneficiaries and create incentives for sustainable forest management.

Both projects correspond to the goals of German Development Cooperation now and back then, because of their focus on protecting the environment and natural resources according to the principle of "Conservation through use", and by actively involving the target group. Like other projects with international financial backing, the KfW projects were part of a comprehensive national reforestation program, under which over 4 million hectares of land were reforested between 1998 and 2018. Considering these dimensions, KfW4 and KfW6 played a smaller role in terms of reestablished forest areas. Nevertheless, they brought new aspects to the program by focusing on site-appropriate planting of native species and introducing the concepts of NR and CFM, which had a pioneering character in Vietnam back then.

From the current perspective, mechanisms to ensure the sustainable financing of cultivation and conservation measures for reforestation and natural regeneration areas (both for individuals and CFM) with native broad-leaf tree species after the end of the project should have taken on a greater role during the design phase. In both projects, an assumption was made during the appraisal stage that the beneficiaries would generate income from regular forest thinning measures, even before reaching the rotation period for timber harvest. In retrospect, this assumption proved to be incorrect for a large proportion of the project areas.

Relevance rating: 2 (both projects)

Effectiveness

The projects' objective was to reforest and rehabilitate 19,000 ha (KfW4) and 32,700 ha (KfW6, 10,000 ha of which were allocated for community forest management) of degraded forest area and to manage these reforested areas in a sustainable manner. Since not enough areas with sufficient forest quality could be identified in KfW6, the CFM area target was reduced to 3,500 ha.

Area target and quality of forests

In both projects, the area targets (A1 for KfW4 and B1 for KfW6) were slightly exceeded at the time of the final inspection (see Table 1). Due to a lack of geo-referenced data, an objective verification of current forest levels in the project areas using satellite data is only possible to a limited extent. The evaluation of up-to-date satellite data for the project areas in Thanh Hoa Province (KfW4) reveals that large portions of the areas remain forested, despite some deforestation, and that forest coverage is increasing. For example, the analysis of Sentinel satellite images with a spatial resolution of 10x10 meters reveals that the area covered by forest increased by 671 ha between 2018 and 2019. A further absolute increase in forest cover can also be assumed for the future. The results of the geospatial data analysis are generally in line with the official statistics, which report a significant and continuous increase in the degree of forest cover and standing timber volumes in all project provinces over the past 10 years. Based on this and taking official information from the executing agency into account, the prevailing institutional conditions (ban on logging in natural forests, permit requirement for land conversion and logging) and the positive experience from predecessor projects, we assume that a large portion of the forest areas established during the projects still exist.

A survival rate of at least 80 % of the reforested area 3 years after planting (KfW4, A2) and a significant increase in the timber volume (KfW6, B2) were selected as target indicators for the quality of existing forest. According to the information available, and based on the evaluating team's own impressions, both indicators were met or exceeded. Based on official information there is no indication of more large-scale logging in the project areas (KfW6, B3). The majority of areas have been largely spared from environmental damage caused by fire, pest infestation or storms so far. Due to a lack of data, an objective validation of this information is, however, not possible.

Cultivation and management

In both projects, the beneficiaries were trained in planting and cultivation measures. Compliance with these cultivation measures was a prerequisite for receiving the compensation payments. Since the end of the project, however, these have only taken place sporadically and are mostly limited to more simple activities, such as the removal of creepers. Forest thinning and other forest management measures were only implemented on a small scale due to the young age of the existing trees during the term of the project (KfW4, A3). The forestry authorities (Protection Forest Management Unit) rarely supervise or provide advice on cultivation and management. A lack of sales potential or an unfavorable yield/effort ratio make forest thinning measures economically unappealing. In general, logging in the project areas requires authorization, and according to those interviewed, it is generally only granted if the trees reach the required felling-height.

Due to the young age of the forests, it has already become apparent during project implementation that the originally envisaged preparation of management plans (KfW4 A4, KfW6 B2) was not possible or practical in the majority of cases. This does not apply to the CFM communities in KfW6, where these types of plans were drawn up and already being applied. On account of the instable financing situation, the continuation of the CFM Management Board and Forest Protection Groups trained during the project is

uncertain. In the province of Quang Ngai, the CFMs set up received retrospective compensation payments from the state for applied cultivation and conservation measures (regular patrols). There is no certainty about whether and to what extent these payments will be made to the communities in the future. Overall, the formulated management targets have proven to be too ambitious in retrospect.

Indicator	Status PA, target PA	Ex post evaluation			
KfW4					
(A1) Reforested/regenerated forest area	19,000 ha	In ha	Broad-leaved tree species	Pines	Acacia
		Reforestation	5,451	1,300	3,945
		NR / natural regeneration	8,922		0
		A total of 19,618 ha was reforested/rehabilitated. Target achievement rate: 103 %			
(A2) Survival rate (%) and proper cultivation of newly planted trees	Survival rate of new plants 3 years after planting measure at least 80 %	Vitality achieved. Survival rate > 80 % (89 % upon final inspection) Cultivation: partially achieved			
(A3) Stand density index that is adequate for the age, mixture of tree species and operating objective	n.a.	Only partially achieved – forest thinning only took place on 421 ha, broad-leaved trees and pines had not reached the right height and diameter for thinning by the end of the project.			
(A4) Operating plans outlining the handling of existing trees (from cultivation to final use for individual operation) are in place and are being implemented	n.a. -	Largely not achieved due to young age of trees			
KfW6					
(B1) Significant increase in proportion of (protection) productive forest and its quality (number of different species of tree and supply of timber)	Area: Upon PA: 22,700 ha + 10,000 ha (CFM), since adjusted to 21,700 ha + 3,500 ha CFM	In ha	Broad-leaved tree species	Acacia	
		Planting	3,916	5,500	
		Enrichment planting	2,641	0	
		Natural regeneration	14,352	0	

		Area: 22,833 ha on individual parcels of land, 3,586 ha CFM (NR only)
	Quality: Volume of wood and number of trunks per ha	Quality: Average increase in volume of wood on areas under observation of 0.62 m^3/ha, increase in number of trunks by 6/ha. This results in an overall increase of 16,000 m^3 per year (as at final review). Stabilisation of the increase in wood volume and the number of tree trunks (as of EPE).
(B2) Farmers apply forest management plans (FMP) and generate short-, medium- and long-term income from the sale of forestry products.	FMP: n.a. Income:	FMPs are applied for CFM; no FMPs are drawn up for individual forest owners Income: Applicable for owners of acacia stocks. Owners of reforested areas containing local species or NR do not currently generate any direct income from forestry (see Impact).
(B3) Large-scale clear cutting is banned upon the start of the project	n.a.	Achieved

Effectiveness rating: 3 (both projects)

Efficiency

To assess the **production efficiency**, the total project costs were set in relation to the total rehabilitated area. The average area costs calculated in this manner amount to EUR 489/ha in KfW4 and EUR 523/ha in KfW6. These figures are higher than comparative values for previous projects (KfW2 and KfW3). The reasons for this include the higher proportion of reforestation using more expensive native varieties of broad-leaved trees, higher compensation payments for farmers and higher labour costs. A good third of the total expenditure directly benefited the local population – in the form of said compensation payments and for the production of seedlings in plant nurseries set up especially for this purpose. One positive element worth highlighting is the widespread use of NR (45.5 % of the area in KfW4; 55.5 % in KfW6), which is a more cost-effective form of foresting than planting schemes. Efficiency-related aspects were also taken into account in the selection of the project locations: only districts and communities with at least 1,500 ha (district level) or 300 ha (community level) of degraded area were considered.

Both projects encountered significant delays during the implementation phase, which resulted in (slightly) higher costs in KfW6. The reasons for these delays included initial problems in the awarding of land rights (KfW6) and resistance from the authorities and target group regarding the cultivation of local species (Nghe An, KfW4). Due to the lack of experience with the site conditions for native species, extensive replanting was needed on 2,000 ha (KfW4, corresponds to 10 % of the project area) and 1,700 ha (KfW6, as a result of drought damage), which also delayed the course of the project. Overall, the production efficiency is rated as good to satisfactory.

The forestation measures make an effective contribution to erosion control and the stabilization of the water balance. Opportunity costs in the form of alternative forms of forest usage are low (see Relevance). While no exact figures are available, the authorities have stated that the value of the forest areas has grown at a continuous rate in recent years and is now several EUR 1000 per ha. The current market value of the rehabilitated forest areas therefore significantly exceeds the investment costs and considerable assets have been established. The first harvests have already been collected from some of the newly planted acacia plantations. The net profits reported locally (following the deduction of costs for harvesting, transport, seedlings and labour time) ranged from EUR 800 to 4000 per ha depending on the quality and

local demand. Over the long term, higher profits can be generated from native broad-leaved trees. Overall, we rate the **allocation efficiency** as good to very good.

Efficiency rating: 2 (both projects)

Impact

The overarching goal was to protect natural resources from erosion (both projects) and to improve living conditions over the long term through the sustainable use of permanent mixed forest (KfW6). No overarching target indicator was defined for KfW4, instead it was assumed that the desired environmental impacts would set in when the forest coverage rate was achieved. In KfW6, a range of different indicators was applied to measure the success (increase in forest area, improvement to water availability and the micro-climate, and increased biodiversity).

No hydrological measurement data or other objective data is available for the anticipated **environmental effects** (declining soil erosion and stabilization of the water balance). However, in household surveys conducted shortly before the end of the project, most of the project beneficiaries reported an improvement in water quality and availability (higher groundwater level, reduced need for irrigation), less sedimentation on rice fields and in reservoirs, and a significant increase in biodiversity. These positive impressions were confirmed in conversations on site and during visits. The improvement to the water balance and soil quality were listed as the most important outcomes of the project by almost all target group representatives interviewed locally as well as by the forestry authorities. Another positive effect is improved awareness of the environment and better understanding of the forest's functions within the ecosystem. The targeted environmental impacts can be deemed succesfull for both projects at the time of the EPE. However, the analysis of satellite data suggests that large areas of natural forest were destroyed in some project locations after the end of the project (see Sustainability), which could have a long-term adverse effect on the positive environmental impacts already achieved.

From the current perspective, the projects' positive climate change mitigation and adaptation effects could have also been incorporated in the target system.

Both projects contribute to **improving the living conditions** of the local population; however, the income-related effects have been low (so far). For the majority of the target group, these are limited to the temporary compensation payments for reforestation and cultivation and to the additional earnings from improved productivity in rice farming, which may be traced back in part to the environmental effects described above, but cannot actually be quantified due to a lack of data. Otherwise, direct income from forestry has so far only been generated in the case of the acacia plantations (roughly 20 % of the area). In areas that were reforested or rehabilitated with pines and native varieties of broad-leaved trees, economic use is limited to logging for the user's own needs and the harvesting of non-timber forest products (e.g. resin production), which in some cases can be very lucrative. The assumption made during the project appraisal that the beneficiaries would be able to generate regular income from forest thinning measures even before the end of the long rotation period (significantly longer than 50 years for some native species or 40 years for pines, and between 5 and 10 years for acacia, depending on the location) has proven to be incorrect in retrospect. In NR areas, where the stand age would already permit selective logging today (particularly in the case of CFM), the nationwide ban on logging in natural forests prevents better economic utilization of the forest. In addition to the income effects, the rehabilitation of the forest and the transfer of land usage rights have created considerable assets (see Efficiency), which may have reduced the vulnerability of the beneficiary households and strengthened their socio-economic resilience.

One further positive aspect are the two projects' **structural impacts**. Both projects took on a pioneering role in terms of the site-appropriate planting of native varieties of broad-leaved tree species, the use of NR and the piloting of CFM (KfW6). According to the executing agency, the experience with these approaches has shaped Vietnam's current policy on forestry. Today, the conservation of remaining natural forests and the preservation of important ecosystem functions and biodiversity are an integral part of the national forest strategy. As a result of the approval of the CFM forest management plans drawn up during the project period, a legal foundation for timber extraction in communally managed areas of forest has been established for the first time (KfW6), which benefits the expansion of this approach to the project province of Quang Ngai and other areas. Furthermore, the principles of participative land use planning have been incorporated into the rules for state reforestation measures in some project regions.

In total, around 14,200 households (KfW4) and 16,700 households (KfW6) have benefited from the measures, significantly more than originally planned. According to all parties consulted, a key factor in the success of both projects was the awarding of long-term land usage rights to individuals and communities. Conversations on site revealed that the transfer of rights to forest areas is regarded as valuable in itself and has helped to reinforce ownership. It is not clear whether the land usage rights could give rise to unintended negative effects, such as deforestation of the landholders "own" area and conversion to more economically attractive acacia plantations (see Sustainability).

The participatory land use planning (VLUP) as well as the compensation payments and training measures received were also highly appreciated by both the target group and the authorities. According to concurring statements from a variety of stakeholders, VLUP enabled land usage conflicts to be prevented on a wide scale. The savings book approach is appreciated for its transparency and low susceptibility to corruption, but has a lower priority among the target group than other elements of the project.

Impact rating:2 (both projects)

Sustainability

The intended environmental impacts (erosion control, stabilization of the water balance, increase in biodiversity) have set in even after just a few years and may be enhanced further should the forest areas remain intact. According to the authorities, there has not been any sign of major damage caused by pests or fires. Since a large part of the project areas is planted with site-appropriate native varieties of broad-leaved tree species, the resistance to extreme weather is currently regarded as good. At the same time, an ex post analysis of satellite data for the project areas in Thanh Hoa Province (KfW4) shows that a portion of each project area has been deforested in many communities since the end of the project (2012). Due to the uncertainty of the data, no information can be provided about possible causes, nor is it possible to say which tree species had been planted on the deforested areas. However, the size of the deforested area significantly exceeds the size of the project areas containing acacia plantations (where regular clear cutting was anticipated) – by 591–1094 ha depending on the calculation method used (see Table 1 in Annex 1). Conversely, this means that a significant portion of the deforestation work took place on NR areas and/or areas planted with native species and these obviously are not being protected to a sufficient extent. This does not appear to be an isolated phenomenon: the area deforested since the end of the project exceeds the maximum area of acacia plantations in 22 out of 28 local authorities. In total – depending on the calculation method used – areas of natural forests estimated at approximately 6–11 % of the total project area have been deforested (see Table 1 and Figure 1 in Annex 1). When questioned, it was reported that these converted areas affected plants that failed to reach their growth targets. Unfortunately, no comparative geo-referenced data is available for the other project province in KfW4 and that of KfW6. However, since most of these provinces have the same underlying legal conditions and economic incentives, we deem it likely that parts of the natural forest areas there are also under deforestation pressure (see also Figure 1).

Due to the project areas' low potential for agricultural use, we assume that most of the deforested areas are being converted into (ecologically less valuable) acacia plantations and therefore are having an adverse impact on the positive environmental impacts achieved to date, though these should remain intact over the longer term. Overall, we therefore rate the **ecological sustainability** as favorable.

The picture surrounding **economical sustainability** is mixed: there is no doubting the economic capacity of planting fast-growing acacia trees, at least in the short and medium term. Owners can harvest the trees at regular intervals (often by means of clear cutting and direct replanting) and thereby generate sufficient income that significantly exceeds the opportunity costs of alternative agricultural use (see above). However, the situation is different for pine trees (KfW4), naturally regenerated areas and plantations containing native varieties of broad-leaved tree species, which have long rotation periods and have yet to generate any income from timber extraction. This could change in the medium term for owners of NR areas with more mature plants, including those in community forest management schemes, if the ban on logging in natural forests – currently in place until 2020 – were to be lifted. It is questionable as to whether or to what extent the increasing value of the trees, the extraction of non-timber products, and the appreciation of the positive environmental impacts provide sufficient incentive for preserving (a large part of) these areas, including over the long term – as demonstrated by the results of the satellite data analysis.

The experience from this evaluation once again shows that a win-win situation for ecological and economic objectives is impossible or very difficult to achieve, even with carefully thought-out natural resource conservation projects. With measures that primarily target the rehabilitation and conservation of native species and therefore promise a high degree of ecological effectiveness (as is the case for KfW4 and KfW6), this aspect should therefore be reflected in the hierarchy of objectives, and no ambitious income and poverty objectives should be formulated. A further recommendation also applies for the future: reforestation projects with a focus on conservation must be more heavily incorporated into state land use planning. In order for these planning processes to be effective, a strong monitoring system needs to be in place, which should be part of appropriate law enforcement system that controls compliance with land use plans.

In the context of the increasing opportunities presented by the digitalization, further consideration should be given to long-term compensation mechanisms in protected forests. Automated and satellite-data-based payment systems could be a suitable technical instrument for financing savings books for forest conservation at a low cost, even several decades after the implementation phase, and could therefore guarantee the economic and ecological sustainability of the projects.

Sustainability rating: 3 (both projects)

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** and **overarching developmental impact**. 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 efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy 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 efficacy 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 efficacy 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 five 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).