

Ex post evaluation

Sustainable Management of Watersheds in the Lower Mekong Basin, Laos

Title	Sustainable Management of Watersheds in the Lower Mekong Basin		
Sector and CRS code	Forestry development (CRS code: 31220)		
Project number	2001 66 728		
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)		
Recipient/Project-executing agency	Mekong River Commission Secretariat & Ministry of Natural Resources and Environment, Lao PDR		
Project volume/Financing instrument	EUR 5.112 million/financing from own funds		
Project duration	October 2012 - September 2017; 4 years and 11 months		
Year of report	2022	Year of random sample	2021

Objectives and project outline

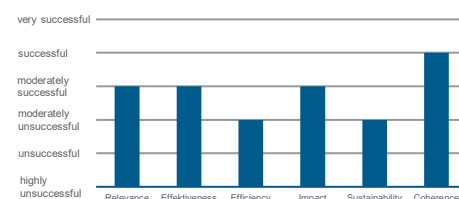
The objective at outcome level was to sustainably and efficiently manage the Nam Ton water catchment area. The objective at impact level was to contribute to securing the functions of the Nam Ton water catchment area and to contribute to improving the socio-economic living conditions of the population. In addition, the water catchment area was to serve as a model for comparable water catchment areas. The project financed the design and implementation of measures to sustainably manage the water catchment area in the Nam Ton project area in the lower Mekong basin.

Key findings

The project's approach of implementing various measures in a water catchment area in Laos as a pilot project was moderately successful. However, the efficiency and sustainability of the implemented measures were rated moderately unsuccessful.

- The **relevance** of the project is rated moderately successful as, despite the appropriate identification of the core problem, the small-scale concept of measures is rated as too ambitious and disadvantageous for implementation.
- The **coherence** of the project is rated as good, as the project was in line with the objectives of the Laotian government and German DC.
- Despite the positive results in terms of increased income and the allocation of land titles, due to the unclear influence on the conservation of forest areas and the implementation problems of the savings book approach the **effectiveness** is only rated as moderately successful.
- The **efficiency** of the project is assessed as moderately unsuccessful. Although positive results can be seen, implementation efficiency and parts of production and allocation efficiency are significantly below expectations.
- The **overarching developmental impact** of the project is rated as moderately successful as learning experience was used in other water catchment areas, but water quality and outflow deteriorated slightly.
- The **sustainability** of the project is rated as insufficient, as some of the implemented core measures did not have any effect beyond the end of the project.

Overall rating: moderately unsuccessful



- Future pilot projects should be designed to be less fragmented and focus more strongly on particularly relevant components.
- Focusing on fewer measures can contribute to higher production and allocation efficiency.
- Clear, binding and regular communication with beneficiaries is essential for the effective development of afforestation premiums.
- Project planning should provide a sustainable approach for handing over activities to local stakeholders, partners and target groups.
- Target systems and indicators should be developed in such a way that they produce reliable data both during the course of the project and at the end.

Rating according to DAC criteria

Overall rating: 4

Ratings:

Relevance	3
Coherence	2
Effectiveness	3
Efficiency	4
Overarching developmental impact	3
Sustainability	4

Summary of overall rating

Since the project's sustainability is significantly below expectations and its efficiency was moderately unsuccessful at the time of the evaluation, the project is rated 4 despite generally satisfactory assessments of the other OECD DAC criteria.

Summary

This evaluation deals with the project "Sustainable Management of Watersheds in the Lower Mekong Basin" in Laos (BMZ No. 2001 66 728), which was implemented between mid-2010 and the end of 2017. The project financed the design and implementation of measures to sustainably manage the water catchment area in the Nam Ton project area in the lower Mekong basin with a size of around 80,000 ha. The project is a novelty in Laotian water and environmental policy, as measures for sustainably managing a water catchment area were introduced for the first time, independently of the planning for a dam. The project is broken down into two parts: Part I of the project included the measures in the Nam Ton basin. The project executing agency was the Department of Water Resources (DWR) of the Ministry of Natural Resources and Environment (MoNRE). Part II of the project supported Part I and prepared the experiences for the executing agency, Mekong River Commission (MRC).¹ The evaluation is focused on project Part I, which was implemented in Laos.

The aim of the FC project was to ensure that the communities in the project area manage natural resources sustainably and efficiently, that their production from land/forest management increases and that viable solutions to development problems in water catchment areas in Nam Ton are developed and tested (outcome objective). In this way, the aim was to safeguard the functions of the Nam Ton water catchment area, improve the socio-economic living conditions of the population and use the Nam Ton catchment area as a model for comparable water catchment areas (impact objective). The project aimed to address the identified core problem of deforestation and degradation of natural resources in the project region, while setting an example for other regions.

¹ The Mekong River Commission is an association of four countries bordering Mekong: Laos, Cambodia, Thailand and Vietnam. They agreed in 1995 to jointly manage the river and its resources and develop its economic potential. China and Myanmar, the areas upstream of Mekong, have been dialogue partners since 2002, but are not bound by decisions of the MRC. The MRC's mandate is to promote the efficient use of water and other resources, thereby reducing poverty and protecting the environment. The programmes developed by the Commission are implemented at country level by the National Mekong Committees. The Lao National Mekong Committee (LNMC) is part of the Water Resources and Environment Agency (WREA).

Planned and actual project costs

		(planned)	(actual)
Investment cost	EUR million	5.62 million	5.80 million
Counterpart contribution	EUR million	0.51 million	0.67 million
Financing	EUR million	0.00 million	0.00 million
of which BMZ budget funds	EUR million	5.11 million	5.11 million

Relevance

Core problems

The core problem identified by the project – deforestation and degradation of natural resources – is understandable and appropriate from the perspective of that time and today. At the start of the project, it was determined that the heavy use of forest resources between 1993 and 1997 had led to an annual loss of forest area of 0.53% in the entire catchment area. An unchanged deforestation rate would have reduced forest cover from its current level of 35% to 20% in less than 100 years.² Accordingly, the sustainability of the management of the water catchment areas in the lower Mekong catchment area was and continues to be an important concern of the four MRC Member States.

The changes in land use resulting from deforestation have already had a negative impact on the hydrology of the water catchment area, with the direct consequence of increased flash floods and more severe droughts. Although the impact at the level of the entire catchment area of the lower Mekong Basin would be less visible, there was a risk of cumulative and transboundary expansion, which would have significant consequences for the socio-economic and environmental situation in the lower Mekong Basin. These risks still exist today.

Target group

The project's target group comprised the 32,000 or so residents in the project region. The focus was on beneficiaries who have been engaged in shifting cultivation to secure their livelihoods, often due to a lack of opportunities to grow wet rice.

The project design was appropriately geared to the needs and capacities of the target group. For example, villagers were to be involved in the design of land and water use plans and the underlying allocation of land use rights. Shifting cultivation farmers were to be offered farmland and microloans provided to finance the transition to sustainable farming practices. Support measures were also planned for the creation of paddy parcels and the construction of the irrigation systems needed to enable the cultivation of wet rice. To support the transition to sustainable farming practices, Kum Ban Centres³ were to be opened to provide free advice on erosion-protecting farming practices. Finally, another measure worked with fishers from 14 riparian villages of the Nam Ton River to designate resting zones for fish. These, as well as other measures in the project (see Effectiveness), were largely planned in accordance with the target group and the Laotian authorities and were to be implemented jointly.

Development policy objectives

With regard to the focus on development policy objectives, it should first be noted that the project was a novelty in Laotian water and environmental policy. For the first time, measures for sustainably managing a water catchment area were implemented regardless of the design of a dam. At the same time, the project was intended as a pilot project to play a pioneering role in the sustainable management of water catchment areas in the lower Mekong catchment area and thus to make an important contribution to reducing

² Programme proposal for the DC programme Sustainable management of water catchment areas in the Lower Mekong Basin

³ In the provinces, the Province Agriculture and Forestry Office (PAFO) is responsible for agricultural advice; at district level, it is the District Agriculture and Forestry Offices (DAFO). A few years ago, another advisory level was introduced nationwide under the DAFO, known as Kum Ban Centres (KBC). The staff of these centres are responsible for providing agricultural advice to groups (Kum) of farmers from several villages (Ban) and supports farmers in the introduction and further development of sustainable land use.

rural poverty. The pilot project also offered the MRC the opportunity to participate in concrete implementation measures in addition to the area of policy dialogue, consultation and coordination.

For the government of the Democratic People's Republic of Laos, the project offered the opportunity to implement and further develop their national political guidelines. For example, the Laotian government undertook to restore the water catchment areas using integrated management methods through (i) measures to decentralise responsibilities; (ii) the implementation of integrated, site-based management of natural resources with a focus on water catchment areas; (iii) the continuation of the pilot projects for integrated water basin management; (iv) the development of integrated water basin management models; and (v) the development of integrated water basin management plans in the eight northern provinces.⁴

Laos was and is also generally interested in stronger cooperation with international donors. For example, the Laotian government set the main objectives of NDA in its Vientiane Declaration on Partnership for Effective Development Cooperation (2016–2025) (Lao PDR, 2015). As the country lacked the capacity to take all the necessary measures to achieve the SDGs, the Laotian government focused international cooperation and development cooperation on the areas of alleviating poverty, capacity building, environmental protection and resilience to climate change, as well as good governance. The FC project with its measures to alleviate poverty and conserve resources was in line with this objective of the Laotian government.

Furthermore, the project was integrated into the strategic reference framework of the “BMZ 2030” reform concept. The most important goal of BMZ 2030 is still to overcome hunger and poverty. With “BMZ 2030”, the Federal Ministry for Economic Cooperation and Development (BMZ) also intends to promote resilience and food security through systemic approaches to low-emission and climate-resilient agriculture and to combine the use of natural resources with climate and environmental protection aspects through more sustainable land and spatial planning. This is intended to create agroecological approaches that promote synergies in the use of resources. In this way, the Federal Ministry for Economic Cooperation and Development (BMZ) intends to achieve a socially just and ecologically sustainable transformation of agricultural and food systems. In addition, agricultural value chains are to be adapted through soil protection and rehabilitation of degraded soils with water-saving cultivation systems and integrated water resource management, thus counteracting an increasing water shortage.

Project approach

The project design was developed in the Feasibility Study of 2007. Some of the measures implemented by the project have benefited from previous projects (see Coherence).

The project pursued a three-pronged approach to solve the core problem: 1) Support for the preparation of land use plans, 2) Support for agriculture and forestry, and 3) Support for the MRC. The project differentiated between Part 1 and Part 2, with the latter including support for the MRC.

The project's package of measures in Part 1 was very comprehensive and varied. A total of ten key activities were planned in the Laotian project area, also to pilot a number of approaches. These ten key activities can be grouped into four broad categories: technical support, land use planning, development of agricultural systems, and the development of integrated water management. It included both construction projects and investments in equipment and instruments as well as technical support. For example, ten different individual measures were planned for agricultural and forestry support. These included the support and construction of agricultural training centres (Kum Ban Centres), measures in protective forests, the construction of irrigation systems, the creation of paddy parcels and vegetable gardens, reforestation and planting, and water management measures (see Effectiveness).

From today's perspective, this large number of individual measures in project part 1 appears to be too ambitious (see Efficiency). An explanation for this ambitious approach became clear in the interviews: the aim of the pilot project was to implement as many activities and measures as possible and to involve a large number of Laotian partners and respond to their needs through the regional approach. However, this also meant a high level of coordination effort, as a large number of actors overall and different constellations of partners had to be involved for the individual measures (see Efficiency). In addition, due to the wide scope of the project, many measures were implemented as pilot projects, but could not be

⁴ Ministry of Agriculture and Forestry of the Lao People's Democratic Republic. Strategic vision for integrated watershed management.

sufficiently deepened and anchored (see Sustainability). From today's perspective, a project approach with few but concentrated measures and a stronger geographical focus would have been more appropriate. This would have ensured a stronger thematic focus and reduced coordination to a more manageable number of stakeholders.

Part 2 of the project served to strengthen the MRC. The MRC was to transfer the experience gained from implementing the measures to other water catchment areas. Until then, the MRC mainly worked in the area of policy dialogue, advice and coordination. However, the project offered the MRC the opportunity to distinguish itself through its involvement in one of its member countries by supporting concrete implementation measures.

Overall, the design of the measure was sufficiently precise and plausible with regard to the traceability of the target system and the underlying impact assumptions. The measures were also fundamentally suitable for achieving the programme objectives. The interplay between the social, ecological and economic aspects of sustainability was also taken into account in the concept. However, as explained in more detail in the Sustainability chapter, the only critical aspect is the formulated objective and the assumption that the Kum Ban Centres can act financially independently after completion of the project (see Sustainability).

Overall, the project's approach was and is suitable for addressing the core problem appropriately, taking into account the needs of the target group. However, the small-scale measure concept is rated as too ambitious, meaning that the relevance of the project is rated as moderately successful overall.

Relevance rating: 3

Coherence

Internal coherence

The project was generally designed in line with German DC priorities and is still coherent with Germany's political strategies today. For example, the project was part of the 2011–2020 "Biodiversity – our shared responsibility" strategy plan. The project measures contributed to strategic objective B: "Reduction of direct pressures on biodiversity and promotion of sustainable use" and to strategic objective E: "Improvement of implementation through participatory planning, knowledge management and capacity building".

Various FC projects were also carried out on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), focusing on reducing poverty in rural areas and in the area of resource conservation and biodiversity, on which the project was able to orient itself. For example, the design of the afforestation measures in the project concept was based on the experience of Germany's FC in Vietnam, among other things. The FC project was also preceded by the TC project "Nam Ngum Watershed Management and Conservation Project", which supported the MRC. This TC project came up with the idea of implementing measures in a water catchment area in Laos. Since financial support was also included in the project concept, the project was ultimately conceived as an FC measure. During implementation, the creation of synergies with the TC project was to be ensured. In the end, however, there was no cooperation between the two projects, as the start of the FC project suffered from delays.

In the international context, the project contributes to achieving several Sustainable Development Goals: SDG 1 "End extreme poverty" and SDG 2 "Food Security, Improved Nutrition and Sustainable Agriculture" were contributed to by using agricultural land more efficiently in the water catchment area and the resulting improved socio-economic position of the local population. It was possible to contribute to SDGs 13 "Climate Action" and 15 "Life on Land" by introducing resource-saving use and a more sustainable form of agriculture.

The project was also consistent with international and national norms and standards to which German DC is committed. Human rights were respected, the Paris Declaration was observed and the "leave no one behind" principle was also taken into account, for example, through the involvement of minorities such as shifting cultivation farmers or through a focus on agricultural training for women.

External coherence

In terms of external coherence, the project's objectives were integrated into the Laotian government's political strategies and development policy orientation. For the government of the Democratic People's Republic of Laos, it offered the opportunity to transpose and further develop their domestic political

guidelines. Overall, there were four policy objectives of the Laos People’s Democratic Republic (PDR), to which the project was integrated: the national strategy for growth and alleviating poverty, the policy for shifting cultivation and land ownership, the national action plan for forestry and the plan for decentralising the areas of responsibility.

The Laotian government has been developing various legal framework conditions since 1989 to combat the degradation of forests. The current forestry and forest management law at the start of the project was the Forest Law of 1996, which emphasises the importance of involving the local population in management, conservation and protection. The importance of water catchment areas and their crucial role in the conservation of natural resources was also recognised and focused on. Among other things, the FC project was coherently integrated into the Laotian government’s developmental policy through reforestation activities.

However, it was not possible to generate any major synergies with projects or activities of other donors or development organisations, as no other donors were implementing projects or programmes at the time of the project’s implementation that were linked in terms of content to the project’s activities in Part 1. Nevertheless, regular exchanges were held at the policy level with other donors such as Switzerland, Australia, the United Kingdom and the World Bank in order to address the support of the MRC.

With regard to internal coherence, the project was in line with German DC priorities. Internal and external cooperation was envisaged with regard to external coherence, but could not be achieved as described above. The coherence of the project is therefore rated as good overall.

Coherence rating: 2

Effectiveness

The objective underlying this evaluation at outcome level was to sustainably and efficiently manage the Nam Ton water catchment area. This objective is appropriate from the perspective at the time and today and is logically linked to the measures.

Four indicators are used to measure direct target achievement (Outcome level) (see Table 2).

Indicator	Target level	Status at final inspection (2016)	Status at evaluation
(1) 75% of participating households to report increased yields.	>75% (survey: 10% of households involved in the project).	Achieved. In the final survey, 67% of all households surveyed reported increased yields. In the case of those who benefited from specific investment measures (515 households in total), this was more than 75%.	Partly achieved. In many cases, the impacts were not sustainable.
(2) Forest areas to retain their current extent.	15,548 ha of forests left in their natural state.	Achieved. A comparison of satellite images from 2011 and 2017 showed no significant differences in forests.	Achieved. No significant changes in forest areas.
(3) Land tenure certificates or comparable land rights to have been awarded in the entire project region.	Yes.	Hinherb district: no; Santhong district: achieved. ⁵	Partly achieved. No changes compared with final inspection.
(4) Lessons to be learned from implementation to be used for strategy development, training and/or resource management in the Nam Ton region and the neighbouring countries.	Yes.	Achieved. Lessons learned has occurred. A regional workshop was organised in 2017 for this purpose.	Achieved.

Table 2: Overview of project indicators (outcome)

⁵ 141 land titles have been awarded, but only in Santhong (target was 119 land titles). Awarding of titles will be continued by the state programme. The component could not be implemented in the Hinherb district due to the lack of support from the district government.

On (1): A systematic survey of the change in yields of the participating households could not be made within the framework of this evaluation due to the scope of such a survey. In interviews with project participants, local government agencies and individual beneficiaries, however, general trends could be identified and any effects on the income of the local population could be anecdotally checked for plausibility.

The installation of irrigation systems allowed farmers to grow rice twice a year, during the rainy and dry seasons. As planned by the project, this led to an increase in yields.⁶ Since the end of the project, however, this impact has declined sharply because some of the water locks are now defective and do not close properly and the canals were not durable because they were not made of concrete (see sustainability).

In addition, newly established rubber and banana plantations upstream consume a lot of water, which impairs the water supply for rice farmers, especially during the dry season. Even if irrigation is functioning, only about half of the rice fields can currently be supplied with water during the dry season and rice farmers are forced to switch to irrigation. The impact of the irrigation measures, which covered only a relatively small area anyway, is therefore estimated to be low.

The project also trained households in planting and maintaining fruit trees and provided them with fruit tree seedlings free of charge. These households subsequently generated additional income from this cultivation, in particular through the cultivation of oranges and rambutans (related to the lychee tree). Accordingly, this measure was rated as one of the most successful measures by stakeholders, especially the beneficiary (shifting cultivation) farmers from the project region.

In six planting campaigns, 511 hectares were also planted with local trees – *Pterocarpus*, *Azelia* and teak tree species – which were benefiting around 324 users in 24 villages at the time of the final inspection. This corresponds to 25.5% of the area envisaged in the project planning. This afforestation was intended to provide the target group with a long-term secure income and to protect areas marginally suitable for agriculture from erosion. The evaluation shows that the survival rate of the trees generally appears to be average to above average. However, yields are not expected until a few years after planting. In the meantime, the project used a savings book approach. For this, grants were paid into a savings account at a local bank at the start of the measure. The afforesting farmers were to receive an amount from this savings account once a year to compensate for the care they have taken and for any loss of income if the trees have a satisfactory survival rate. Initially, up to six consecutive annual disbursements were planned as part of the savings book approach. However, there was a payment error in the years 2012–2013, in which, contrary to the partial payment logic, the full grant amount was already disbursed to some of the beneficiaries. As a result, all outstanding partial payments in the project were replaced by a one-off payment in the project. This has had a negative impact on the effectiveness of the afforestation measures, as the beneficiaries have received insufficient or no information at all about the reduction in disbursements to a one-off payment. Some of the local farmers and community leaders interviewed during the evaluation were critical of the afforestation component of the project and reported that, contrary to the assumption of several payments, payments have only been made once since the start of implementation and they are therefore still awaiting outstanding payments. In general, the shifting cultivation farmers had too little information about the payment requirements and there was no binding documentation about the participation in the afforestation project. During the on-site survey, beneficiaries indicated that they had not received a contract or a similar written agreement and had only one summary document on the afforestation measures, which did not contain any detailed information on the prerequisites for disbursement.

Generally, the various advisory and training measures, for example in the Kum Ban centres, nevertheless improved the villagers' agricultural production, especially in the areas of vegetable and rice cultivation as well as livestock and frog farming. In the interviews it became apparent that the local population could also apply the knowledge imparted to the creation and maintenance of rubber plantations, which have become popular in the project region in recent years. In this way, they achieved their first yields after just five instead of seven years (see Impact).

The project also supported the financing of new sources of income by providing microloans, which were offered directly in the project region. After the end of the project, the administration of the microloans was transferred to the district capital. This change excluded many villagers, especially those on lower incomes,

⁶ See final inspection of the project.

who do not have their own means of transport for the monthly payment by instalments. As a consequence, the annual number of loans has almost halved from 117 to 66 since 2017, with more remote villages being particularly responsible for this decline. Microloans were intended to help women in particular to tap into alternative sources of income, as other measures of the project were more likely to appeal to men or entire households.

In summary, it should be noted for the indicator that some of the measures could have made a plausible contribution to an increase in earnings. In particular, the expected effects of the advisory and training measures and the support for fruit cultivation are positive. The target achievement was reduced by the partially low implementation (forestation) and lack of sustainability (especially Kum Ban Centres, irrigation infrastructure and microloans).

On (2): The project aimed to prevent a further loss of the natural tree population in the region. At the beginning of the project, the area of the forests was estimated using satellite images to be 15,548 hectares.⁷ This corresponds to 19.5% of the total area of the water catchment area. However, the exact classification as "natural" is vague, especially since there are practically no untouched forest areas in the region. This means that there is no reproducibility over different satellite images and analysis methods.

For the final inspection, no comprehensive satellite data analysis was carried out. Instead it was indicated using data from the online tool Global Forest Watch that there was no significant loss of tree population during the project period. However, current data shows increasing annual tree loss since 2007 (see Figure 1). According to interviewees, the number of slash-and-burn fields has fallen, and currently only around 20% of farmers in the Hinherb district are still using slash-and-burn methods, for example. This anecdotally suggests that the particularly vulnerable group of shifting cultivation farmers no longer depends on these practices. The actual tree loss (approx. 1,500 ha per year) is therefore largely due to tree harvests in the context of forestry.



.....Figure 1: Tree area loss from 2001–2020, own calculation based on Global Forest Watch data

Analyses of the latest ESA⁸ satellite data show that 73.3% of the total area was covered by trees in 2020, indicating that the analysis carried out in the project has tended to underestimate the tree population⁹ (see Figure 2 and Table 3).¹⁰ The difference is due to improved image quality and processing as well as modified evaluation algorithms and categorisations. In this respect, the maps are not directly comparable with each other. The continued high tree cover is another indication that the forest areas have remained stable.

⁷ The final inspection erroneously indicated this value as 22,715 hectares. However, this corresponds to the total area of the tree population and therefore also includes plantations and bamboo.

⁸ European Space Agency (ESA)

⁹ Analyses of the project were based on a tree population of 70% of the project area.

¹⁰ The ESA's "WorldCover" data record has a resolution of 10m per pixel and an accuracy rate of 75%. It is based on Sentinel 1 and 2 satellite images from 2020. See also <https://worldcover2020.esa.int/>

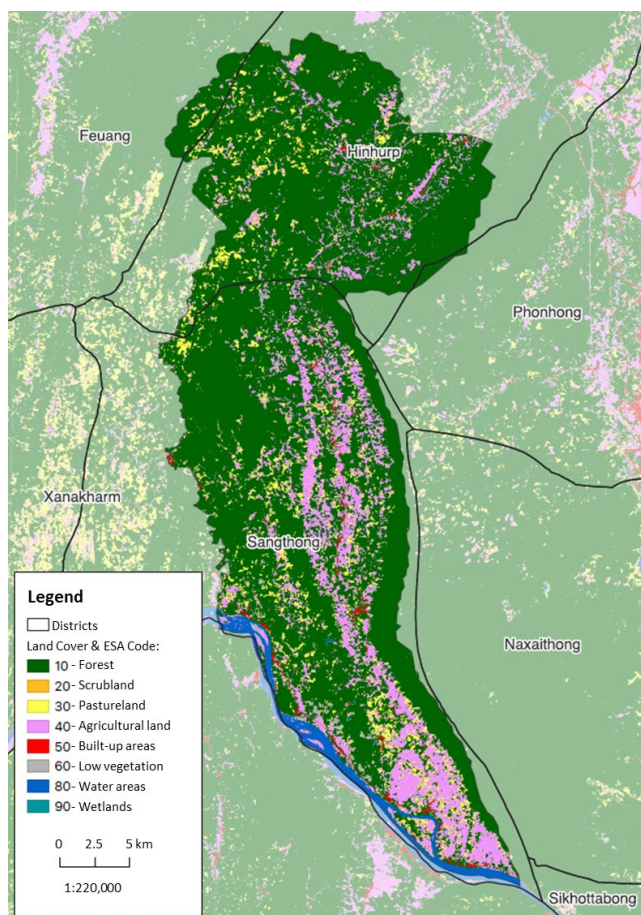


Figure 2: Satellite image of project region and type of vegetation based on ESA WorldCover data from 2020

Tree cover	Cropland	Grassland	Permanent water bodies	Barren / sparse vegetation	Built-up	Scrubland	Herbaceous wetland
73.3%	15.0%	6.7%	2.3%	2.0%	0.6%	0.2%	0.0
58073.71 ha	11853.88 ha	5305.46 ha	1836.68 ha	1607.93 ha	465.00 ha	119.99 ha	3.46 ha

Table 3: Overview of the type of vegetation based on ESA WorldCover data from 2020

According to Global Forest Watch data, the loss of trees before the start of the project and in the first two years of implementation (2007–2012), in which no impact could yet be expected, did not differ substantially from the following years. Although the expansion of the forest area was therefore kept constant and thus indicator 1 was achieved, the 511 hectares reforested by the project corresponded to less than one per cent of the forest area. The impacts that can plausibly be attributed to the FC project for the preservation of the forest cover thus appear to be relatively low, and it is plausible to assume that other external factors had a positive effect on the preservation of the forest cover (attribution gap).

On (3): With the support of the project, land tenure certificates were to be issued, which allow the owners to use certain areas for a long time. These land use rights were granted in particular to households that were particularly actively involved in the project measures and to households that had lost small parts of their land in the course of the construction of the irrigation plant in Nasaonang village in Sangthong district. Although the Santhong province exceeded the target of 119 with 141 certificates, no certificates were

issued in Hinherb because the provincial government refused to cooperate.¹¹ As a result, the target for this partial aspect was only partially met.

On (4): The experience gained from the project has achieved a major regional impact. For example, it was recorded as lessons learned during the implementation and made available to the other MRC member countries in a regional workshop. Two water catchment areas have already been identified in Thailand, which could benefit from the experience. Since the end of the project, important approaches have been implemented in a number of other projects (see Impact).

In summary, it should be noted that only the achievement of indicator 4 at the time of the evaluation can be regarded as fully fulfilled. Although the awarding of land titles was very successful in Sangthong, it could not be implemented in Hinherb. The impact of the project is unclear when it comes to maintaining the forested area, but this is a key indicator of the project's success. In addition, there were significant implementation shortcomings in the savings book approach, which adversely affected the effectiveness of these measures. However, due to the predominantly positive results in the increase in income, another key indicator for the project, the effectiveness is rated as still moderately successful but below expectations. Special attention should be paid to the low sustainability of the impacts (see Sustainability).

Effectiveness rating: 3

Efficiency

The project's efficiency was affected by both internal and external factors. These factors influenced both the time efficiency of implementation and indirectly the production and allocation efficiency of the project.

It should be noted that the project was basically an example of an attempt at cooperation between the regional executing agency (MRC) and two Lao partners, the Ministry of Agriculture and Forestry (MAF) and the Ministry of Environment and Natural Resources (MONRE). As the executing agency, the MRC was to channel the funds to the Laotian government. The Laotian ministries commissioned a National Project Office (NPO), which consisted of employees from both ministries. In addition, there was cooperation with the implementation consultant as well as cooperation with local institutions such as the Bank for Rural Credit, ACLEDA.

During the implementation, however, it turned out that the multi-actor constellation due to the regional approach resulted in a time-consuming coordination of the institutions, which led to delays especially in the first two years of implementation, 2010-2011. For example, the responsibility between the two Lao ministries changed during the course of the project, resulting in two changes of responsibility for project-relevant aspects and measures. The resulting additional red tape disrupted the smooth implementation of the project.

There were also challenges with the executing agency. According to project staff, communication and cooperation between the MRC and the NPO responsible for the project in Laos did not run smoothly due to a lack of interest on the part of the MRC in the activities in Laos and mistrust on the Laotian side, which was one of the reasons for the delays in implementation. According to interviewees, these challenges can be attributed to the reputation of the MRC in the region. In several interviews, it was pointed out that the MRC in the region is still considered to be a donor-led and dependent authority, which lacks institutional support from the governments of the regions.

There were also challenges with regard to the transfer of FC funds by the MRC to the Laotian authorities. At times, it was not clear how FC funds could be channelled to Laos without the MRC being fully responsible for them as the executing agency. This problem was solved during project implementation by the Laotian side taking responsibility for the funds. Furthermore, the MRC did not see itself as being responsible in many aspects and devoted significantly less interest to the project than was envisaged in the concept. Originally, the MRC was to steer the project in terms of both concept and content in order to generate learning experiences for future projects. In practice, the MRC was ultimately only responsible for the

¹¹ In Hinherb, due to a moratorium by the provincial government on the awarding of land titles, no land registration and awarding of titles could be carried out. The moratorium was only imposed during project implementation. Despite the applications from the executing agency, KfW and the consultant and the agreements concluded with the authorities of the province of Vientiane in April 2016, approval for the award of land titles was not granted.

transfer of funds, while the project took on an increasingly bilateral character (increased focus on Part 1 and change in the executing agency structure to the Laotian government) and was also implemented bilaterally. Among other things, this led to the project not being able to take on the desired regional character.

In summary, the reduced focus on Part 2 meant that the project was not able to make full use of the existing structures of the MRC and profile itself as a regional project. Also, potential synergy effects were prevented by the lack of coordination and communication between the main actors involved, which affected the implementation efficiency and thus indirectly the production and allocation efficiency of the project.

Nevertheless, decentralisation sought by the Laotian government led to a number of tasks and responsibilities being separated more efficiently at local level. This facilitated some implementation processes. According to the interviewees, the consistent overarching project responsibility of the head of the PEA in Laos was also extremely helpful for the implementation of the measures, as the personnel stability meant that there was a central contact person for all project participants and in all project phases. Nevertheless, the simultaneous work at regional (Part 2) and national (Part 1) level was resource-intensive and led to efficiency losses due to the differences between the MRC and the Laotian side described above.

Furthermore, the efficiency of the project was influenced by the small-scale nature of the measures in the project area. In general, the various individual measures can be divided into four categories: project implementation and technical support, land use planning, development of agricultural systems, and integrated water management. The costs for the preparation of the land use plans amounted to EUR 283,835.52 while the costs of the integrated water management amounted to EUR 209,909.86. This corresponds to 5.6% and 4.14% of the total costs of the project. However, the costs of developing farming systems, for example the six planting campaigns on 511 hectares and the planting and maintenance of fruit trees amounted to EUR 1.614 million or 31.8% of the total costs. Based on these figures and the indicator achievement presented in the Effectiveness chapter, it can be concluded that production efficiency was probably most successful in the area of agricultural systems development, as these plausibly led to improved income levels for the project's target group. However, it was noted during the evaluation that partially provided grants for the savings account approach are still in the designated accounts as credit balances at ACLEDA Bank and no provisions have been made conceptually to ensure the whereabouts, implementation and repatriation of such residual funds. The funds made available for the reforestation measures therefore remained partially unused and could not otherwise be used for the project, resulting in high efficiency losses.

The allocation efficiency, the impact of the project resources in relation to the achievement of the project impacts, can only be assessed to a limited extent. This is largely due to the fact that it is not possible to monetise the project impacts, as there is no reliable monitoring data on the indicators of the development objective, for example the poverty-reducing impact of the project (see Impact chapter). However, it is possible to analyse the allocation efficiency of the project to a certain extent. Based on the statements of key stakeholders, the project can be said to have a partial poverty-alleviating effect. There is also part fulfilment in respect of water quality, advisory capacity of the MRC and model character of the Nam Ton. It is therefore plausible that the allocation efficiency of the project is also generally positive. However, it is not possible to calculate and therefore monetise how much the project resources used contributed to the potential project impacts.

A large number of individual measures carried out within these four categories (see Relevance and Effectiveness) led to high coordination and administration costs, which reduced efficiency. Among other things, this led to a relatively large proportion of the funds being spent on the work of the implementation consultant. The project's biggest cost factor was project implementation and technical support, including consulting services, which amounted to EUR 2.965 million, or 53% of the total costs. However, due to the nature of the project and the intensive technical support, these high costs for consulting services are still justifiable. Nevertheless, the question arises as to whether a focus on fewer but more specific measures would have been more targeted and efficient. This focus on fewer measures could have secured greater production and allocation efficiency of the project. It was also noted in some interviews that when designing activity-intensive projects such as this one with a relatively weak partner, sufficient funds should be allocated for procurement and finance and accounting expertise.

Although positive results can be seen, the implementation efficiency and parts of the production and allocation efficiency are significantly below expectations, meaning that the efficiency of the project is rated as insufficient.

Efficiency rating: 4

Overarching developmental impact

The overarching developmental objective of the project underlying this evaluation was to sustainably safeguard the functions of the Nam Ton water catchment area and improve the socio-economic living conditions of its population, thereby serving as a model for comparable water catchment areas.

To measure the achievement of the development objective, the evaluation defined five indicators based on the six original project indicators.

Indicator	Target level	Status at final inspection (2016)	Status at evaluation
(1) The water quality of Nam Ton has remained stable.	All indicators were below the health-endangering threshold. ¹²	The values collected generally correspond to the standards (quality satisfactory).	Achieved.
(2) The water runoff is stabilised	Stable (measured in cm/s)	During the final inspection, the KfW delegation was informed that no significant changes during the project period could be identified based on measurements of the water levels (measurement for the runoff).	No data available.
(3) The local population (65% of both women and men) rate the impacts of the project as predominantly positive. ¹³ Alternative indicator: Key local stakeholders confirm that the project has a poverty-alleviating effect.	90%	90% of those surveyed, 50% of whom were women and 50% men, stated that they rate the impacts positively.	Partly achieved.
(4) MRC's role as an intermediary for water resource development projects is recognised. (Project Part II) Indicator is not included in the evaluation.	Yes	According to leading MRC employees, the project has helped MRC to set itself apart as a knowledge carrier and consultant in terms of the location-appropriate and sustainable use of water and land resources.	Since indicators (4) and (5) measure similar impacts of Part II of the project, this evaluation focuses exclusively on indicator (5) and discards indicator (4).
(5) MRC advisory capacities are recognised and in demand. (Project Part II)	Yes	The provision of technical assistance through relevant MRC programmes is recognised. Experience and lessons learned from the implementation of Part I have been applied in neighbouring water catchment areas in Thailand.	Achieved.
(6) Old indicator: Nam Ton is seen as a model water catchment area. New indicator: The management approach of the Nam Ton water catchment area has been replicated since its introduction in the region and/or in other countries.	Yes	The totality of the results and thus the model character can only be evaluated after several years. However, the sharing of lessons learned from the implementation of Part 1 with other MRC member countries and the establishment of an MRC website on water catchment area management also suggest a certain model nature.	Achieved. Replication was started in 2021 in twelve projects in four countries.

Table 4: Overview of project indicators (impact)

¹² The first water quality surveys were carried out in 2012 and the second in 2017.

¹³ The survey included a grab sample of beneficiary households.

On (1): The first indicator aimed to track the impact of human activities on water quality in the Nam Ton basin. It also needed to be ensured that the water quality in the Nam Ton River did not pose any risks to the population and the flora and fauna. During the project period, all measured values remained below critical thresholds, but these were only collected twice in 2012 and 2017. During the evaluation mission in December 2021, water samples were taken in the Santhong and Hinherb districts to examine relevant indicators for water quality. As can be seen from Table 5, the measurements did not show anything out of the unusual and are largely comparable to the quality measurements taken at the beginning and end¹⁴ of the project.

	2012	2017	2021	
			Sangthong District	Hinherb district
pH value	Slightly higher than 2017	6.6-7.33	8.17	7.15
Total dissolved solids	0 ppm	43.5-71.5 ppm	72 ppm	72 ppm
Electrical conductivity	Low	Low but higher than in 2012	147 ms/cm	143 ms/cm

Table 5: Overview of water quality in Nam Ton river

For example, the pH value in Nam Ton River is in line with expectations in three years of measurement. Only the pH value of 2021, which was taken in the Santhong district, is relatively alkaline for fresh water. This may be due to an increase in carbonate hardness. The value is nevertheless within a range that is compatible for the population and flora and fauna. Total dissolved solids (TDS) are composed of organic and inorganic substances such as nitrates, sulphates and carbonates dissolved in water. Total content of dissolved solids increased from 2012 to 2021. Nevertheless, the results are still low compared with other rivers, indicating that the impact of agricultural and domestic waste water as well as water pollution from point sources is low.¹⁵ Electrical conductivity (EC), the amount of dissolved ions and salts, was also low in 2012, 2017 and 2021. However, the 2021 and 2017 results were higher than in 2012. This also indicates a slight increase in the human pollution of water bodies, for example through fertilisation.

On (2): In addition to water quality, the regular stable water outflow is also an important indicator for the functioning of the water catchment area. Indicator 2 accordingly measures the water runoff in Nam Ton. The indicator and its underlying measures (see Effectiveness), was to enable the systematic recording of water quantity in the Nam Ton catchment basin. In addition to the project, this data can be used to better estimate floods and drought, as well as to calibrate models that reduce the impact of changes in land use (e.g. deforestation and reforestation) on the available water quantity. At the time of the final inspection, the runoff was stable. This could not be systematically verified in the evaluation, as no regular recording of water levels took place at the time of the evaluation. The MRC, which maintains monitoring stations at many points in the Mekong basin, does not operate any stations in the project area. The aspiration to use the data from the MRC monitoring stations for other purposes has thus not been achieved. However, the local population reported increased water shortages during the dry season.

On (3): The third indicator measures the second aspect of the overall objective, specifically the extent to which the project had a poverty-alleviating effect and thus improved the socio-economic living conditions of the population in the Nam Ton catchment area. This indicator was adjusted as part of the evaluation, as a large-scale survey of the population's income situation was not possible. Instead, the extent to which key stakeholders have confirmed a poverty-alleviating effect was recorded.

The interviews and the tour of the project region produced a mixed picture. The increased yields (see Effectiveness) meant not only increased agricultural and forestry production, but in most cases also increased incomes for the local population. In particular, the allocation of land titles stabilised the income situation of the beneficiaries and contributed to an improvement in many cases. The advisory and training measures and the support for fruit cultivation also had a positive impact. At the same time, the low sustainability of the measures, such as the irrigation infrastructure and the microloan system, also reduced the long-term and overarching impacts. The poor communication and information about the afforestation

¹⁴ Some values from 2012 and 2017 were not numerically represented in the project documents and only a qualitative assessment of these values was provided.

¹⁵ For example, the WHO recommended a TDS for drinking water of 300 ppm.

component also had a negative impact on the overarching impacts. Due to a lack of sufficient information, the planting of the areas was not sufficiently effective in some cases and also resulted in a lower survival rate of trees due to management. On the other hand, there was a lack of sufficient monetary incentives for the beneficiaries to maintain the tree population on a continuous basis, so that premature deforestation was more profitable in order to enable short-term harvest yields from crops grown during the year.

The local population also reported that although rice yields have increased in part, the surplus could not be sold due to a lack of infrastructure roads and means of transport). With an additional focus of the project on distribution opportunities, a more comprehensive impact could have been achieved here.

The establishment of vegetable gardens and the support for frog breeding were intended to enable women in particular to earn their own income. According to interviewees, these measures were not continuously implemented by the villagers. Some villagers continued growing vegetables for their own consumption. However, the production volume was not sufficient for sale or transport to the larger market in the capital city of Vientiane. Therefore, these measures were only useful as a further food security activity. The extent to which this food security has a poverty-alleviating effect on the target group cannot be conclusively assessed based on the available data.

In recent years, the target group has benefited from developments outside the project, which favour the population's socio-economic living conditions and thus have a poverty-alleviating effect. For example, more jobs are available through Chinese investment in banana plantations. In total, around 800 hectares of banana plantations are currently being cultivated in the Hinherb district, for example. In addition, the number of rubber plantations has grown significantly as they represent a lucrative source of income. According to interview partners, a farmer in the project area can now earn an annual additional income of around USD 3,000 on average with rubber. Nevertheless, the farmers trained by the project can generate faster and higher yields through their acquired knowledge (see Effectiveness).

At the same time, these developments are leading to the increased contamination of the Nam Ton River through the use of chemicals and fertilisers in banana plantations. Furthermore, the high water consumption of the rubber and banana plantations is resulting in the very low water levels of the Nam Ton and its tributaries, especially during the dry season. Rubber and banana plantations are one of the main causes of the river's deteriorating water quality.

On (4) and (5): Indicators 4 and 5 were used to measure the third part of the development objective. With them, the project aimed to promote the Nam Ton water catchment area as a model for comparable water catchment areas while strengthening the MRC and its role in the region. The interviews paint a largely positive picture. During implementation, some project participants had the impression that the MRC was an artificial, donor-supported institution that was not sufficiently involved in national contexts and therefore could not achieve a major impact. However, the MRC is now drawing on the project's experience and lessons learned. According to leading MRC staff, the project has contributed to the MRC's profile as a knowledge carrier and advisor in the field of site-appropriate and sustainable use of water and land resources. The lessons learned workshop at the end of the project was an important step in this regard.

On (6): Beyond the project region, experiences and approaches from the project have had a considerable impact on water basin management in the Mekong Basin. Relevant stakeholders referred to a number of projects currently planned or already being implemented in the region, based on the experiences of the pilot project. The water catchment area-based, participatory approach to land and water use planning was a novelty for the region and the MRC at the start of the project. Since the end of the project, this approach has already been integrated by the MRC into projects in twelve regions in four countries (Laos, Thailand, Cambodia and Vietnam), as it has demonstrated its value in the MRC's view. The idea of the savings book approach has also come into play in various projects. These projects aim, among other things, to enable the reduction of the depletion of natural resources through improved collaborative management by local communities, to enable improved basin-wide land use planning and water catchment area management in support of national and transboundary ecosystem services, and facilitate diversification of nature-based livelihoods through sustainable resource management and creation of wetland value chains.¹⁶ The

¹⁶ See MRC (2021). Project Based Action Plan for Implementing the Strategy for Basin-wide Environmental Management for Environmental Assets of Regional Importance 2021–2025.

management approach for the Nam Ton water catchment area was thus successfully replicated in the region.

Beyond the indicators, the project pursued two unofficial objectives. According to the interview partners, it was intended to act as a door opener for German FC to Laos and the field of water area management, and it was seen by many project participants as a model project. As a result, it was to pilot a series of measures and build relationships with various Laotian partners. These objectives have been achieved. According to central project stakeholders, further projects could be planned and implemented on the basis of the project's experience and the relationships established. For example, there are some related FC projects in Laos, an MRC project with components in Laos and Cambodia and a focus on wetlands, climate change mitigation through a forest conservation project, an integrated biodiversity conservation project, a project to support good governance and law enforcement in the forestry sector, a community-based forest management project, and even an DC programme to support the MRC.¹⁷ These projects and the programme are partly linked to the measures of the Nam Ton project.

In summary, the learning effect achieved for KfW and the MRC and the impacts on other regions and projects can therefore be rated as positive. Poverty-alleviating impacts are also plausible, but would have had even greater potential had the outcome objectives been successfully achieved. Water quality and runoff have deteriorated slightly over time due to the spread of banana and rubber plantations. Overall, the project is therefore rated as satisfactory, but below expectations.

Impact rating: 3

Sustainability

It should be noted that the various measures of the project are only partially sustainable and the implementation of some measures jeopardises the sustainability of the project.

For example, it should be noted that, contrary to the original assumption, the Kum Ban Centres will not be able to operate independently financially after the end of the project and will therefore be able to offer agricultural training courses and advice to local farmers to a much lesser extent. Weekly training sessions were held during project implementation. Today, training only takes place once a month. Some of the centres had to completely hire technical support and often only one or two of the original ten or more employees still work in the centres. Plants and other materials are also no longer sold to the original extent. In addition, most of the equipment financed by the project has now been damaged or broken, including water meters, for example. The assumption that the Kum Ban Centres could operate financially independently therefore proved to be too ambitious in retrospect. The Kum Ban Centres still rely on external donors, which impairs the sustainability of this measure.

Furthermore, the sustainability of the irrigation systems used by farmers to cultivate their rice fields is not ensured. This is due to the design of the water locks and channels (see Effectiveness). Already during implementation, the local population pointed out the insufficient durability of these systems and complained that the irrigation channels were not made of concrete and that maintenance was demanding and cost-intensive. In this regard, the project provided for repair and maintenance costs to be covered by water usage fees. Nevertheless, the final inspection already indicated that the repair costs of the water locks would exceed the financial resources of the water user groups. This assumption was endorsed by key stakeholders in the project region during the evaluation. Today, the defective water locks mean that in some areas only half of the fields can be irrigated and farmers have to take turns irrigating their fields year after year. As a result, the project did not provide any proposals for a long-term and effective solution to sustainable water use in the project area and the initially extremely positive impacts of the measure were only short-lived.

The sustainability of the project was also jeopardised by significant implementation problems with the reforestation measures. Payments under the savings account approach, in which amounts were to be

¹⁷ MRC wetlands (BMZ No. 201265974); climate change mitigation through forest conservation (CliPAD, BMZ No. 200865238 & 201066794); integrated biodiversity conservation (ICBF, BMZ No. 2012265024 & 201166982); support for good governance and law enforcement in the forestry sector (FLEGT, BMZ No. 201768795); community-based forest management (VFMP, BMZ No. 201667070).

disbursed to households via ACLEDA Bank as compensation for the care provided and the associated preservation of the tree population as well as for any loss of income, were predominantly not made in several instalments, but as a one-off payment (see Effectiveness). The beneficiaries were not explicitly informed of the change in the disbursement logic. For example, the evaluation showed that some households still hope for further assessments of their reforested fields and a subsequent disbursement. After years of waiting, other households decided to deforest the trees and cultivate other crops producing higher income in the short term. These implementation problems also resulted in a financial burden for the participating households, who did not receive a one-off payment as they used their working time to maintain the afforested areas without compensation. Interviews in the project region also showed that the poor information situation regarding the afforestation premium, its payment conditions and the general conditions for participation led to a loss of confidence among the households concerned. Overall, the sustainable success of the afforestation measure, in the sense of a lasting preservation of the tree population beyond the actual project completion, was counteracted by the insufficient information and remained clearly short of the actual level of ambition. However, the afforestation itself was regarded as effective and sustainable by key stakeholders in the project region.

Further education and training of the local farmers as well as the fruit tree plantations still have a positive impact on sustainability today. According to the interviewees, the training enabled them to learn planting methods that enabled the farmers to establish rubber plantations profitably in above-average periods of time. This is an indication that the project's training and further education measures strengthened the target group's capacities, enabling them to respond appropriately to environmental developments in the project region.

The support in the creation of the orchard plantations also led to the target group benefiting from this being able to successfully continue this measure after the end of the project. Compared with the other measures of the project implemented in Laos, this activity can therefore be regarded as sustainable. According to interviewees, the participatory use of water, land and forest resources also still exists in most villages today.

Comparable water catchment areas have profited from the MRC's experience with implementing the measures, meaning that Part 2 of the project is rated as sustainable overall (see also overarching developmental impacts).

Nevertheless, it can be summarised that the sustainability of the project is fraught with risks and, despite recognisable positive results, the negative ones outweigh the positive ones, so that this means a relatively unsuccessful evaluation. The main reasons for this are the lack of independence of the Kum Ban Centre with its limited financial, technical and staff capacities, the defective irrigation systems, which do not provide full output due to a lack of funds, and the challenges of reforestation measures.

Sustainability rating: 4

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

Projects are evaluated on a six-point scale, the criteria being **relevance**, **coherence**, **effectiveness**, **efficiency**, **overarching developmental impact** and the final **overall rating** of developmental effectiveness. The scale is as follows:

Level 1	very successful: result that clearly exceeds expectations
Level 2	successful: fully in line with expectations and without any significant shortcomings
Level 3	moderately successful: project falls short of expectations but the positive results dominate
Level 4	moderately unsuccessful: significantly below expectations, with negative results dominating despite discernible positive results
Level 5	unsuccessful: despite some positive partial results, the negative results clearly dominate
Level 6	highly unsuccessful: the project has no impact or the situation has actually deteriorated

The **overall rating** on the six-point scale is compiled from a weighting of all six individual criteria as appropriate to the project in question. Levels 1–3 of the overall rating indicate a “successful” project, levels 4–6 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 “moderately successful” (level 3).