

# Ex post evaluation

## Infrastructure Programme to sustain Land Reform, Cambodia



<b>Title</b>	Economic Infrastructure Programme to sustain Land Reform		
<b>Sector and CRS code</b>	Rural development (43040), road transport (21020), water supply (14020)		
<b>Project number</b>	2013 66 996		
<b>Commissioned by</b>	BMZ		
<b>Recipient/Project-executing</b>	Cambodia / Ministry of Rural Development (MRD)		
<b>Project volume/financing instrument</b>	EUR 9 million / FC grant		
<b>Project duration</b>	2014 - 2018		
<b>Year of report</b>	2021	<b>Year of random sample</b>	2020

### Objectives and project outline

The target at impact level on which the EPE is based was to improve the living conditions and resilience of people with little or no land and indigenous communities in the project regions, and thus contribute to sustaining land reform. The target at outcome level was year-round use of the improved rural infrastructure. The main measure consisted of rehabilitating 15 sections of road with a total length of 86.5 km. As a supplemental measure, four schools were expanded with 14 classrooms and sanitation facilities and, in 15 villages, measures were implemented for the water supply (wells, in particular). Around 30 % of the funds benefited indigenous communities.

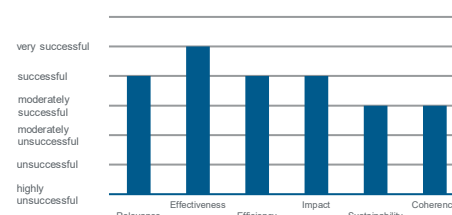
### Key findings

The project provided urgently needed basic infrastructure in a needs-based manner and, due to the achieved improvements in living conditions, it contributed to the effectiveness of development policy with regard to sustaining land reform.

The project has been rated “successful” for the following reasons:

- The project used a suitable concept to address a core problem in the country relevant to development policy – expanding inadequate basic infrastructure in the land reform settlement areas.
- Although the project was complementary to donor involvement and supported the partner’s own efforts, in retrospect, better coordination would have been desirable.
- The provided infrastructure is heavily utilised. Use of the roads far exceeds expectations. This is also reflected in the intended improvements to the target group’s living conditions.
- Due to general development processes independent of the project in the areas surrounding the indigenous communities, pressure has increased on forest areas, which is also compounded by the rehabilitated roads, among other factors.
- The infrastructure is in good condition thus far. The sustainability of the impacts may possibly be impaired by the inadequate maintenance budget. Local involvement with regard to maintenance of schools and of water supply as well as ongoing efforts with regard to capacities and the budget for road maintenance make an important contribution to sustainability.

Overall rating:  
**Successful**



### Conclusions

- Manually operated pumps were a transitional technology. Demand and willingness to pay for automated pumps and service connections have grown in fast-developing communities.
- Road rehabilitation can make it easier to access sensitive natural areas and aggravates their unsustainable use. This stands in contrast to the local population’s need for transport connections, development prospects and social participation.
- Projects that are expected to exert pressure on sensitive natural areas require the implementation of proactive instruments for environmental management and risk mitigation with corresponding budgets.

## Rating according to DAC criteria

### Overall rating: 2

#### Ratings:

Relevance	2
Coherence	3
Effectiveness	1
Efficiency	2
Impact	2
Sustainability	3

#### Relevance

The Khmer Rouge regime (1975–79) banned private property in Cambodia, and it was not restored during the Vietnamese occupation (1979–89) or the subsequent civil war. During the project appraisal (PA) in 2014, only a small percentage of the rural population had secured land titles. It was difficult to obtain land titles and existing property was not sufficiently secured. Parts of the population with little or no land were most affected by this, as were indigenous communities. Cambodian land reform, based on the constitution of 1993 and the 2001 Land Law, aimed to improve this. The reform process is still currently under way and aims to legally secure and/or restore inadequately formalised or abolished land ownership. Social Land Concessions (SLC)<sup>1</sup> are planned for people with little or no land and Indigenous Communal Land Titles (ICLT) are planned for indigenous communities.

At the time of the PA (2014), the poor basic infrastructure was one of the key hurdles for socio-economic development, both in rural Cambodia in general and in all of the land reform settlement areas. This was compounded by the poor road network, which made it difficult to meet basic mobility needs (access to trade networks / markets, schools, health facilities), particularly for the often remote settlements. Furthermore, in many settlement areas for people with little or no land and in indigenous communities, there was a lack of clean drinking water, sanitary facilities, community halls, schools, health stations, and existing buildings were inadequate or in poor condition.

The inadequate infrastructure and the associated poor living conditions hindered the implementation of the Cambodian land reform by making it difficult for people with little or no land receiving the SLC to settle and cultivate the land in their designated areas. At locations with significant infrastructure needs, people had already emigrated in some cases, or they never even began to use the land. The development of indigenous villages was also impaired by the poor infrastructure, which contributed to their inadequate participation in the general development of the country. Due to the long and unclear administrative processes involved in obtaining municipal land titles (Indigenous Communal Land Title – ICLT), these people were often sceptical of the Cambodian administration. This also had a negative impact on the interest in the planned ICLT. Land that was traditionally used by the indigenous communities but is now formally publicly owned will be returned into the hands of indigenous communities through the ICLT. At the same time, the lack of legally secured land made them vulnerable to land grabbing and illegal use of the natural resources.

From the perspective at the time and today, the project logically addressed the hurdles described above and would have thus been able to contribute to solving these core problems, which still exist today, by aiming to improve the living conditions through providing basic infrastructure in SLC settlements and settlements for indigenous communities.

For SLC settlements, the following results chain was assumed: improvement of basic rural infrastructure → development of livelihoods and permanent settlement → improved living conditions (income,

<sup>1</sup> The term “concession” is inaccurate, as it does not refer to temporary usage rights. Instead, it means that the beneficiaries receive a land title after five years of settlement or cultivation.

education, health). These causal relationships were plausible during the appraisal and continue to be. The good and affordable accessibility of the villages due to improved road infrastructure was considered an important aspect of facilitating more intensive maintenance and development of the assigned residential and farmland, thus creating the basis for developing livelihoods and permanent settlements. But the roads were also important for the population already living permanently in the villages with regard to improving access to educational and health facilities as well as other social services. Access to markets and gainful employment can contribute to increasing incomes, and provision of clean drinking water can reduce water-borne diseases. However, the above-mentioned development of livelihoods in the SLC settlements depended on a number of other factors that were beyond the project's influence. These included, among other things, the suitability of the allotted plots for farmland, the agricultural abilities of the target group and their access to further production factors (capital and equipment, in particular).

For indigenous communities, the project was based on the following results chain: improvement of rural infrastructure → improvement of living conditions (income, education, health) and strengthening of social participation → strengthening of traditional living areas, cultivation and land rights → resilience against external influences and stronger social and economic participation → demonstration effects leading to applications for further collective land titles by other indigenous communities. This results chain was and continues to be plausible from today's perspective as well. The causal relationships with regard to improving the living conditions (income, education, health) are the same as those for the SLC villages. In addition, improvements to the basic infrastructure make it possible for indigenous communities to take part in overall social development. In synergy with improved education and a stronger economic position, the indigenous are able to exercise their rights better, making them more resistant to outside influences (land grabbing, illegal logging). The demonstration effects assumed in the project proposal report are plausible but cannot be conclusively evaluated. In retrospect, even though the process gained significant momentum, the extent to which this is connected to the positive examples of the communities that benefited from the project remains unclear.

The land reform was and remains a political priority for the Cambodian government. In accordance with the Sub-Decree on Social Land Concessions (2003), the aim was to promote the transition of land that had previously been publicly owned to privately owned property for people with little or no land, to use for homes or small-scale farming. With this project, German DC supported the partner country's goals in this regard. Furthermore, the project's target and measures were consistent with the promotion of rural development in the partner country, which was supported within the scope of the "Regional economic development" DC programme at that time. (The objective of the DC programme was to support the poor rural population, particularly women, in increasing their income and in actively participating in local sustainable development.)

In view of the high relevance of the investments in road infrastructure, schools and water supply – also in the context of implementing Cambodian land reform, in particular – the relevance is rated as good.

### Relevance rating: 2

### Coherence

The project was closely related to other projects that aimed to support Cambodian land reform, the aspects of which were complementary, both regionally and with regard to their timing. The project was simultaneously implemented with the "Land Allocation for Social and Economic Development" (LASED) project financed by the World Bank, which has been ongoing since 2008. It was implemented by the Ministry of Land Management, Urban Planning and Construction (MLMUPC) as well as the Ministry of Interior, and is continuing in the follow-up LASED II and III phases. As a pilot project, LASED I primarily accompanied the awarding process for SLCs in seven provinces, established the corresponding capacities and, to a limited degree, financed infrastructure in the target communities through the provincial and district administrations of the above-mentioned ministries. It was not possible to fully provide the basic infrastructure envisaged in the development plans for the individual locations during the LASED I pilot phase.

The evaluated project took up its activities at a logical juncture and focused on supporting a total of 10 SLC settlements which, at the time of the PA (2014), had already received financing and advisory services from the World Bank, German Technical Cooperation (TC) and the Japan Social Development Fund within the scope of LASED I. The project aimed to implement the basic infrastructure still needed in these

settlements (particularly roads, but also water supply and schools). At the same time, TC is still providing support to land recipients in the target communities until 2022, enabling them to make a living from the acquired land.

In indigenous communities, German FC and TC involvement was complementary as well. While – in addition to the LASED settlements – FC also promoted basic infrastructure in 13 settlements in indigenous communities in the provinces of Mondolkiri and Ratanakiri that had already applied for or received collective land titles, TC was involved in the area of securing land rights for indigenous communities by accelerating the measurement of municipal land areas as a prerequisite for issuing titles.

The World Bank began the LASED II follow-up project in 2016, during the implementation of this project. Project measures and regions overlapped with the involvement of German development cooperation here. From today’s perspective, the question arises as to whether a separate FC project to support SLC settlements was expedient in view of donor coordination, and whether focusing FC involvement on supporting land reform in the indigenous communities, which had not been supported by LASED until then, would have been better. It would have been good to pool all LASED infrastructure measures into one project to avoid parallel implementation structures and lower transaction costs during project implementation (project management, construction planning and awarding). However, at the time of the PA (2014), cooperation between the World Bank (as the most important financier of LASED) and Cambodia was suspended. There was no systematic donor coordination in the promotion of land reform.

At the time of the PA, cooperation in the area of rural road construction had already been established between FC and the Ministry of Rural Development (MRD) for ten years. Against this background and the project’s focus on rural roads, implementing the project with the MRD is understandable. Although the implementation ensued within the structures of the Cambodian administration, there was no systematic coordination with MLMUPC (executing agency of LASED and TC). Donor-financed projects are implemented by project-specific Project Management Units (PMUs) at national level and by Project Implementation Units (PIUs) at regional level at the request of the MRD (as is also generally the case in other ministries). MRD staff are delegated for specific and defined tasks and responsibilities for the term of the project. The criticism expressed in the RIP I–III ex post evaluations (EPE) that the PMU is not sufficiently integrated into the MRD processes and the knowledge transfer to the ministry potentially has a less broad impact in view of completely independent, project-specific processes remains valid.

In summary, the project was complementary to the involvement of international donors and German development cooperation. The instruments of German DC therefore fit well into and supported the partner’s own efforts in implementing the land reform. However, from today’s perspective, focusing on the indigenous communities not addressed by LASED at the time and pooling all donor funds within the LASED programme, or at least improving coordination between the donors and the responsible ministries, would have been advisable. The coherence is therefore rated as moderately successful overall.

**Coherence rating: 3**

### Effectiveness

The outcome-level target that forms the basis of the EPE was year-round use of the improved rural infrastructure. The target achievement is assessed using the following indicators:

Indicator	Status before the project (2015)	Target value	Actual value (2017) <sup>2</sup>	Actual value at EPE
(1) Volume of traffic on the rehabilitated roads	Baseline study <sup>1</sup>	+20 %	+160 % motor vehicles +150 % motorcycles -28 % non-motorised vehicles +476 % pedestrians	+560 % motor vehicles +505 % motorcycles -82 % non-motorised vehicles +280 % pedestrians <sup>3</sup>

(2) Specific travel times on the rehabilitated roads	Baseline study <sup>1</sup>	-20 %	-67 %	-25 % <sup>4</sup>
(3) Number of households with access to a year-round water supply	Baseline study <sup>1</sup>	Increase	Realised	Realised <sup>5</sup>
(4) Number of pupils at rehabilitated/expanded primary schools	Baseline study <sup>1</sup>	+15 %	+22 %, of which 50 % girls	Steady <sup>5</sup>

1) Baseline study conducted by the implementation consultant before the measures were implemented (2015).

2) Impact assessment conducted by the implementation consultant after the project was concluded with figures from 2017, which recorded indicators 1 and 2 for all road sections. Indicator 3 refers to villages with water supply measures, and indicator 4 refers to the project's school locations

3) Traffic counting in 2020

4) Time measurement on roads travelled within the scope of the EPE

5) Survey of target groups and focus persons during the EPE

The project focused on rehabilitating the roads. Fifteen road segments with a total length of 86.5 km were rehabilitated (66 km to SLC settlements and 20.5 km to ICLT settlements). The roads can be used all year round. This was confirmed anecdotally by the surveyed users of the sections visited as part of the EPE. According to the final inspection, the technical design took aspects of climate adaptation into account so that the roads can still be driven on, even in extreme floods (most importantly by raising dams, with drainage and erosion control). The significance of the construction standard for year-round passability was confirmed by an impact assessment (2017) and affirmed with a site visit within the scope of the EPE. The project thus also contributes to the population's adjustment to climate change, although it remains open as to whether the building standard takes long-term climate projections into account.

Road infrastructure rehabilitated during the project directly benefited 3,250 households in the target villages according to the surveys performed within the scope of the impact assessment in 2017. Furthermore, the roads are also regularly used by residents, in villages located within the catchment area, and by other road users (e.g. vendors). The increase in traffic volumes on the project roads is significantly above the target value and clearly shows that the roads are usable and satisfy high demand. The increase in 2017 was already far above the target value shortly after completion of the road sections surveyed within the scope of the impact assessment. Systematic traffic-counting in 2020 confirmed the strong increase in use on most of the project roads. However, a declining traffic volume was also discovered on two project roads that make up one quarter of the total rehabilitated routes and were already strongly frequented before the project began. Overall, motorised transport both with cars and with motorcycles has increased significantly, while bicycles and ox carts now hardly contribute to traffic at all. The number of pedestrians only increased significantly in some cases on the access roads to indigenous settlements and to one SLC settlement. In contrast, pedestrians have nearly completely disappeared from the other roads. The changes in the transport sector reflected here are due to Cambodia's fast modernisation and economic development overall, which also benefits the project's target regions.

Specific travel times on all roads declined dramatically when compared to the baseline study. However, travel time statistics collected on the travelled roads within the scope of the EPE – compared to statistics collected in 2017 – indicate an increase in travel times since the end of the project, which, in the case of these roads, can be attributed to a degradation of the road surface due to heavy use, inadequate maintenance and erosion. For the connecting roads to Tipo (Kampong Thom) and Srae Preah (Mondolkiri), which were already very heavily travelled, the travel times that were registered at the time of the EPE were even higher than they were when the project began. Beyond the overall decline in travel times, there were anecdotal reports collected during the EPE that motorcycles only consume half of the fuel for the same route.

The project implemented measures for rural water supply for 925 households in 14 villages to improve living conditions for the target group. Of these households, 400 were located in five LASED villages and 525 were in nine indigenous communities. Furthermore, teachers, pupils and surrounding households benefited from the wells and sanitation facilities newly installed in the schools. The measures comprised 54 wells with hand pumps and two with solar pumps as well as 16 rainwater collection systems in areas where ground water is scarce. Their implementation and the associated water, sanitation and hygiene education measures (WASH) were performed by NGOs already active in the villages. Within the scope of the EPE, random site visits were made to the settlements and schools, the majority of the newly installed infrastructure was still in operation and use. With regard to the hand pumps, some of the target group expressed the wish to have solar pumps and service connections, and indicated willingness to bear the associated additional costs. Use of the water supply also seems plausible in view of the significantly reduced water-borne diseases (see impact). The water quality was checked before drilling. However, there is no information with regard to systematic testing of the water quality during operation.

In the four primary schools for which buildings with a total of 14 classrooms were newly built or rehabilitated and sanitation facilities were installed, the number of pupils (as a proxy for use) increased by 22 % between 2015 and 2017, from 338 to 411. The increasing demand was thus met. Site visits conducted during the EPE confirmed that schools continue to be utilised to full capacity. However, they were closed at the time of the evaluation due to preventative COVID-19 measures.

Overall, the implemented measures were effective and are heavily used. Use of the road infrastructure in particular significantly exceeded expectations overall. As roads also comprised the largest financial share of the investments, the effectiveness is rated as very good.

**Effectiveness rating: 1**

### Efficiency

The project was implemented in a shorter timeframe than planned. The quality of project implementation by the Cambodian partner and the implementation consultant was high.

The costs for road construction, schools and drinking water systems amounted to a total of EUR 7.4 million by the time the project ended. This means that the actual construction costs were 24 % higher than originally planned. This can be attributed to savings on consulting services. Originally, three construction phases were planned. However, as all the measures were fully completed after two construction phases, the implementation consultant's contract was adjusted accordingly. This reduced the consulting costs by around 18 %. The funds that this made available were then used for the construction of four additional road sections with a total length of 9.52 km and the new construction of an additional school building.

The specific investment costs for the roads amounted to EUR 80,000 per km. The costs that the engineer originally estimated at the time the project began were EUR 73,000 per km. The specific costs for road construction therefore increased by close to 10 %. Higher specific costs are generally associated with climate-adjusted construction standards (several bridges and passages as well as road embankments). However, the scale of the above-mentioned specific costs is comparable to other FC-financed road projects with a similar construction standard. From the 86.6 km, 10.5 km were built using bitumen due to expected heavy use or to reduce the formation of dust in villages.

The costs of the school buildings amounted to EUR 130,000, including road connections and sanitation facilities. These were also similar in scale to an FC-financed project to repair flood damage in Cambodia which also rehabilitated schools. However, it is difficult to compare specific costs for schools due to characteristics that vary greatly based on the measures (rehabilitation, new construction, etc.). The costs for wells and water supply, including the hygiene (WASH) and maintenance training measures, amounted to around USD 195,000, which is around USD 2,500 per installation, on average.

In view of the impacts derived from intense use of the infrastructure (roads, in particular), the allocation efficiency is rated as very good, as the transaction costs with regard to marketing local agricultural products and those associated with schools and health services decreased due to the year-round use and usability of the roads, thus strengthening economic and social participation. The supply of clean drinking water also had a positive impact on the health of the residents (see Impact). Intense use of the infrastructure implemented under the project, including schools and the water supply, also suggests that measures

with high benefits for society as a whole were realised. Although it is not typical for less heavily travelled rural roads, a macroeconomic cost-benefit analysis was performed as part of the final report from the implementation consultant (2018). For the 67 km of roads constructed during the first building phase, the economic rate of return was 37 %, which is remarkably high. Road projects usually require economic rates of return around 12 %, although the figure can be lower for rural roads as more focus tends to be placed on social and supply aspects here.

Overall, production and allocation efficiency were in line with expectations.

**Efficiency rating: 2**

**Impact**

The target based on the EPE at impact level was to improve the living conditions and resilience of population groups with little or no land and indigenous communities in the project region, thus contributing to securing land reform.

The target achievement is assessed using the following indicators:

Indicator	Status before the project (2015)	Target value	EPE (2017 data) <sup>2</sup>
(1) Household income of the target group	Baseline study <sup>1</sup>	+15 %	50 %
(2) SLC recipients who settle in the SLC villages benefiting from the project	Baseline study <sup>1</sup>	+20 %	+75 %
(3) Water-borne and hygiene-induced diseases	Baseline study <sup>1</sup>	-50 %	Roughly -60 %
(4) Time required for collecting drinking water	Baseline study <sup>1</sup>	Reduction	-60 to -75%

1) Baseline study conducted by the implementation consultant before the measures were implemented (2015).

2) Impact assessment conducted by the implementation consultant with figures from 2017. Indicators 1 and 2 were only surveyed in villages with project roads as the corresponding effects can be expected from improved road connections, in particular. Indicators 3 and 4 are related to villages with water supply measures.

The indicators were fully achieved or exceeded. The above-mentioned figures are based on an impact assessment that included nine SLC and seven ICLT settlements in 2017. Random locations were visited within the scope of the EPE which confirm the achievement of the indicators. In many respects, the rehabilitation of the project roads, in particular, contributed to improved economic conditions in the target communities. This included aspects such as lower production costs due to more affordable access to production resources such as fertiliser and seeds, as well as higher sales prices due to improved market access. A transition from subsistence to market production and to more profitable products could also be seen (here in particular, cassava/manioc and cashew nuts). In the course of the permanent settlement and agricultural management of the SLC areas, the use of agricultural areas expanded. Furthermore, some residents commute to factories and plantations, which makes it possible to earn higher incomes. The entire target group benefited from the effects caused by improving the road connections, but other parts of the population living in the catchment area of the roads also benefited.

In 2017, household income in the SLC villages that benefited from the project was USD 1,508 per year, increasing by 64 % between 2015 and 2017. This is significantly higher than the national growth of around 25 %. Villages with low income levels demonstrated particularly high growth rates. In eight SLC villages

assessed using this criterion, the average poverty rate according to IDPoor<sup>2</sup> was 100 % in 2015 when the project began, and between 10 and 25 % during the last surveys (2018/2019). Overall, it seems that the project was successful in providing support through various development measures to help SLC beneficiaries who previously had little or no land to develop better livelihoods. The infrastructure provided by the project made an important contribution in this respect.

The prerequisite for receiving a land title is settlement in or farming of the allocated SLC areas for at least five years. In 2017, 75 % more SLC recipients settled permanently in the SLC villages benefiting from the project than in 2015, which corresponds to a rate of 74 % of the total number of people who qualified. In 2017, all SLCs were utilised in villages with good preconditions for expanding productive agriculture; in villages with fewer suitable agricultural plots, the settlement was just above 40 %. Between 2015 and 2020, the number of permanently settled households in the SLC villages benefiting from the project more than doubled from 894 to around 2,370. However, the picture is not consistent in view of the settlement rate, as in some instances, the number of households qualifying for SLC increased overall, but land titles were also sold, to some extent. There were anecdotal reports during site visits under the EPE that high-quality land was sold after some residents received the land title and the people moved away again. Overall, the project created important incentives for the utilisation of land rights by developing important rural infrastructure together with the other supporting measures from German DC and LASED. However, one particularly critical factor for successful farming and settlement is the quality of the allocated land, and this cannot be leveraged by creating good framework conditions. That being said, the above reports about Kampong Chhnang show that unintended effects can also be associated with high-quality usable areas and areas in good location, in that these are sold again after the land title is received.

In the indigenous communities that benefited from the projects, the income increased from a significantly higher initial level (when compared to that of the SLC settlements) of USD 2,544 per year on average in 2015 to USD 2,738 in 2017, or by 36 %. This is higher than the national increase of around 25 % in the same period. Here, the villages that previously had very low incomes and were not well-connected had the highest growth rates, which means it is plausible that the project-led promotion had a positive effect. The strong effects were affirmed by the target groups within the scope of the EPE. The number of indigenous communities participating in the ICLT process nationwide increased between 2016 and 2019. By the end of 2019, 150 had successfully initiated the process and 30 had received the collective land titles. Further land registrations are currently being processed. It is plausible that this positive nationwide development is also connected to the numerous support projects for the indigenous communities that promote better livelihoods, health and education in the target groups. This project was part of this group of projects.

The impacts for the target group that resulted from use of the project measures were very good. Due to the improved traffic connections, schools are easier to reach, and attendance at secondary schools, which is often associated with travelling further distances, increased according to local anecdotal information from headmasters and village leaders. Information collected in target group interviews also indicated that visits to hospitals and health stations were equally made significantly easier and they are now even possible during the rainy season. Before the roads to the remote indigenous communities were improved, sick people sometimes had to be carried on foot to the nearest clinic, a journey that lasted several hours. The interviews within the scope of the EPE confirm that more births are attended by professionals. Furthermore, police and the local governments are now in a position to visit these villages more often and maintain contact with the population. The drinking water measures also demonstrate clear positive impacts. By improving the water supply and hygiene practices, water-borne diseases such as diarrhoea and typhus were reduced, for example. The decline recorded in 2017 was between 47 % and 84 %, depending on the location. The time that users – primarily women and girls – need to spend travelling to wells to collect water decreased from 10–15 minutes before to around four minutes. These positive impacts were confirmed during site visits within the scope of the EPE.

With these stated impacts, the project was in line with its target and plausibly contributed to sustain Cambodian land reform, the objective of which is to secure land use rights for marginalised groups through land titles. Some of the indigenous target groups in Mondul Kiri were relocated by the Khmer Rouge, and

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<sup>2</sup> IDPoor is a planning mechanism used by the Cambodian government for standardised identification of poor households using household surveys.



only received their traditional lands back after the Vietnamese occupation ended. In line with scientific literature and information outlined by a conservation NGO, secure land titles and improved living conditions make these communities more resistant to potential conflicts with regard to land use and natural resources. It is plausible that the provision of basic infrastructure and the successful implementation of the land reform had certain positive effects on trust in state structures – commonly eroded due to the civil war and the genocide period –, as this reform allows indigenous groups to benefit more from public education, safety and health services.

Land reform and development processes also increase the pressure on sensitive natural areas. The improved road conditions often associated with this – unintentionally – enable improved access to forest areas worthy of conservation and thus also encourage illegal deforestation as it is easier and faster to transport the wood. However, deforestation in Cambodia can also be attributed to other factors such as demand for valuable tropical woods, migration flows, the development of agricultural areas (within the scope of land reform, in addition to other reasons) and administrative shortfalls when implementing conservation measures, etc. the project region Keo Seima in Mondolkiri has been a deforestation hotspot for more than a decade, which is also connected to the construction of the national road through the conservation areas there. After the environmental and social impact assessment (ESIA) was performed, roads were rehabilitated and the villages of indigenous communities, among others, were connected with this national road under the project. The indigenous communities affected had already received the ICLT at the time of the PA or were already in the midst of the ICLT process. 20.5 of the 86.5 km of rehabilitated roads within the scope of the project are located in the provinces of Mondolkiri and Ratanakiri with sensitive forest areas. Improved access to the forest areas could possibly have reinforced the deforestation trend. However, this was also observed in other communities in this province where no road rehabilitation within the scope of the project was performed. It should also be noted in this context that the rehabilitation of the access roads for indigenous communities was a very high priority and critical to ensuring their social participation and contributing to their development opportunities. Indigenous communities are now also receiving support in the course of the LASED III project financed by the World Bank; the previous phases did not include this support. An international NGO locally involved in conservation is implementing development programmes (including road construction) near protected areas. Their aim is to win over the indigenous population for the conservation of natural resources. FC was in contact with this organisation during the project preparation and within the scope of the environmental and social impact assessment. This approach is based on the assumption that cautious development of indigenous communities, land use rights secured by collective and inalienable land titles and geographically limited land use rights encourage the sustainable management and protection of natural resources. In the overall picture, it is not possible to determine whether forgoing the rehabilitation of access roads to indigenous communities would have prevented or reduced advancing deforestation within the context of the general developments in rural Cambodia that are independent of the project. In retrospect, the accompanying implementation of proactive instruments for monitoring, environmental management and risk mitigation (including awareness-raising measures, concepts for conservation and management, environmental auditors, etc.) would have been possible with a corresponding budget.

Overall, the previously mentioned impacts exceeded the expectations at the beginning of the project. In contrast, potential unintended environmental impacts from the rehabilitated project roads should be viewed in the overall context of land reform, modernisation and development within the environment of the indigenous communities, not in isolation. The impact is therefore only rated as good overall.

### Overarching developmental impact rating: 2

#### Sustainability

The MRD and its entities at provincial level are responsible for the operation and maintenance of the rural road network. The national maintenance budget that was allocated to the MRD by the Ministry of Finance was increased gradually in recent years from USD 0.25 million (2016) to USD 22.1 million (2019). Despite these clear improvements, the maintenance requirements continue to exceed the available financing volume. As a result, it is still not possible to ensure maintenance that satisfies the needs.

For years, FC has made intensive efforts to address the existing deficits in the area of inventory, budgeting and maintenance of road infrastructure together with other donors. The intention is to establish a new

maintenance system with a transparent prioritisation mechanism using the Rural Roads Asset Management System (RRAMS). This is the result of many years of technical support from the Asian Development Bank and is due to be introduced shortly. It is expected to improve the prioritisation and budgeting of road maintenance measures. An informed overview of maintenance needs will create the basis for the MRD to obtain corresponding budget increases.

According to the final inspection, the overall construction quality for roads and schools was very good. The infrastructure viewed within the scope of the EPE confirmed this impression. The technical design took into account climate change adaptation aspects (see Effectiveness). In terms of the sustainability of the project roads, this can be assessed as positive. However, the high volume of traffic places large demands on the operation and maintenance of the project roads. Maintenance activities have not been systematically undertaken and performed to a sufficient degree on all project roads since completion. However, more than half of the project roads within the scope of the project have benefited from the provision of a maintenance budget as part of other FC-financed rural road construction projects. The condition of the bitumen sections of roads is still good, but heavy use and erosion in the laterite layers has already led to damage which adversely affects the functionality to some extent, and which are not regularly repaired. This was apparent during the site visits and is reflected in the increases in specific travel times.

In addition to the maintenance budget allocated at national level mentioned above, there are municipal development budgets that can also be used for roads. However, at most, these budgets are used for small repair works in the villages and not for the systematic maintenance of the rural roads. During the EPE, the Tipo community indicated that in 2019 it used funds from locals and wealthy village residents to repair the already highly degraded access road two times after the initial rehabilitation and in addition to the routine maintenance.

The school buildings were implemented by the MRD in line with the design standards from the Ministry of Education, Youth and Sports (MoEYS) within the scope of the project and then transferred to the MoEYS upon completion. There is no formal agreement between the MRD and the MoEYS with regard to maintenance for the schools. MoEYS' budget available for school maintenance is inadequate. Maintenance is organised almost completely at local level by school committees, which consist of teachers and parents, and it is financed using donations. In this context, systematic maintenance of the schools is not ensured. However, local visits as part of the EPE showed that the communities maintain the schools in a good condition.

The wells are operated and maintained by the communities themselves. They receive further support from the NGOs that also handled the implementation and the WASH training sessions under the project. In the majority of cases, the wells are functional and are used as planned. In several cases, it looks as though the installed hand pumps will no longer be needed as the communities have installed or are planning to install modern water supply systems with electric pumps and service connections. The educational measures have changed the use of water and sanitation facilities as well as hygiene in the target groups and thus reduced the associated diseases with sustained effect.

Despite systematic deficits regarding operation and maintenance of the roads and schools, the financed infrastructure is used as planned and continues to contribute to the impact of the project. The living conditions were sustainably improved for the indigenous communities, in particular, and the issuing of collective land titles gained significant momentum after the project ended. This increases social participation of this target group, as well as its resilience to pressure on the land and natural resources that they use traditionally.

The progress already achieved with regard to the maintenance capacities and budget increases as well as the intense ongoing efforts in inventory, budgeting and maintenance are affecting further improvements in the area of road maintenance. The involvement in maintenance aspects at local level is also rated as positive with a view to sustainability. Against this background, the sustainability is still considered satisfactory, despite the previously stated deficits.

**Sustainability rating: 3**

### 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 **sustainability**. The ratings are also used to arrive at a **final assessment** of a project's overall developmental efficacy. The scale is as follows:

<b>Level 1</b>	Very good result that clearly exceeds expectations
<b>Level 2</b>	Good result, fully in line with expectations and without any significant shortcomings
<b>Level 3</b>	Satisfactory result – project falls short of expectations but the positive results dominate
<b>Level 4</b>	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
<b>Level 5</b>	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
<b>Level 6</b>	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.

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).