

Ex post evaluation

Forestry development Anhui II and III, PRC



Title	A) Afforestation Anhui II B) Sustainable use of natural resources, Anhui III component		
Sector and CRS code	Forestry development (CRS code: 31220)		
Project number	A) BMZ no. 1999 65 542, B) BMZ no. 2007 66 386		
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)		
Recipient/Project-executing agency	People's Republic of China/Forestry authorities of the province of Anhui		
Project volume/ Financing instrument	A) 6.135 million (investment projects) B) EUR 8.49 million (investment projects)		
Project duration	A) 2001–2015; B) 2009–2018		
Year of report	2022	Year of random	A) 2019, B) 2021

Objectives and project outline

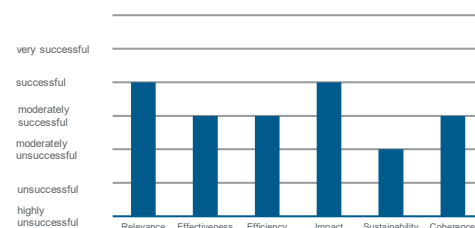
The objective at outcome level was to establish sustainable forest management in selected regions of the province of Anhui, China, by implementing suitable afforestation and forest management measures and introducing sustainable forest management plans. At impact level, the aim was to enhance production and regulatory ecosystem services and contribute to the livelihood of the local population as well as environmental sustainability in forestry.

Key findings

Both projects are highly relevant and were able to achieve a predominantly good development impact. However, sustainability is rated as moderately unsuccessful. The projects have been rated “moderately unsuccessful” for the following reasons:

- The project concept was to operate sustainable forestry based on forest management plans. The revenue should also cover the costs for management and forest maintenance in the medium term. Stagnating or falling prices for forestry products and rising wages and labour shortages due to migration to cities are also causing rising costs.
- In addition, there is the new Chinese forestry law from 2019, which focuses on resource conservation and has led to reduced logging quotas. This makes it difficult for forestry companies to continue implementing forest management measures and forest management plans.
- The problems addressed by the projects are still highly relevant. The relationship between resource conservation and income promotion will continue to be important in marginal areas in the future. The project has shown that, under suitable legislation, timber can be economically and sustainably harvested while the forest is able to be converted at the same time.
- Despite good developmental effectiveness, the sustainability is clearly below expectations, as forest conservation measures and other project measures continued to a limited extent. Overcoming the balancing act between ecological and economic sustainability was made much more difficult by external factors.

Overall rating:
moderately unsuccessful



Conclusions

- The risks of lower logging quotas and timber prices should be taken more into account in the design of sustainable forest management projects.
- The value chains for non-wood products and the potential for local further processing should be taken into account, otherwise income effects cannot fully develop.
- Income promotion projects should take into account the attractiveness of jobs compared to other regions.

Rating according to DAC criteria

Overall rating: 4

Ratings:

Relevance	2
Coherence	3
Effectiveness	3
Efficiency	3
Impact	2
Sustainability	4

Breakdown of total costs

EUR M		Anhui II 2000 (planned)	Anhui II 2022 (actual)	Anhui III 2009 (planned)	Anhui III 2022 (actual)
Investment cost	EUR million	12.27	12.27	12.25	10.95
Counterpart contribution	EUR million	6.135	6.135	3.725	2.46
Financing	EUR million	6.135	6.135	8.5	8.49
of which BMZ budget funds ¹	EUR million	6.135	6.135	8.5	8.49

Relevance

The project's aim was to conserve resources and generate income through reforestation measures as well as to rebuild or strengthen existing forests and to manage them according to the criteria of sustainable forestry. The Chinese government's strategies place a high priority on these objectives, as do the forestry authorities in the province of Anhui.

The project concept envisaged that companies or user communities should take over forest management in the project areas and offered these parties comprehensive training courses. At the same time, forest authorities should be empowered to provide expert advice and support even beyond the project term and receive support in the development of guidelines on sustainable forestry and the creation of forest management plans.

Low-cost loans were used to support afforestation and forest maintenance. In addition, financing was provided for equipment, infrastructure and demonstration areas. At the same time, forest authorities should continue to monitor the preparation, compliance and updating of forest management plans, in particular in forest areas supported by the projects. As a result, the forestry authorities should be able to offer extensive technical support even after the end of the project.

Further training, reforestation and thinning as well as compliance with forest management plans were intended to contribute to improving the ecological (increase in mixed forests, decrease in areas at risk of erosion) and economic conditions (potential for sustainable timber harvesting, income in the project region).

The expectations were that sustainable forestry would increase income in the structurally weak region in the south of Anhui province, while contributing to the ecological stabilisation of forests. The design of the project followed a valid rationale. Both afforestation and thinning make ecological sense in order to promote the transformation of degraded forests into intact mixed forests with multi-level forest structure. Afforestation reduces the risk of erosion, which is particularly acute for marginal agricultural land in steep locations. Mixed forests and the reduction of erosion ensure greater resilience to climate change. Even

¹ Grants

from today's perspective, the protection of natural resources and alleviating poverty by increasing income in marginal areas is highly relevant.

Relevance rating: 2 (both projects)

Coherence

The project was in line with the national five-year plans and is consistent with the activities of the forestry administration. At both national and provincial level, forest conversion towards mixed forests and afforestation are seen as important elements for resource conservation and thus adaptation to climate change. National reforestation programmes were also carried out on a large scale at the same time as Anhui II. Additional plantings in existing forest areas also play a major role in the activities of the provincial forestry authority.

In terms of internal coherence, the objectives at impact level contributed to the fulfilment of international agreements, albeit to a small extent and not systematically. Afforestation and the protection of ecosystems are prominently mentioned in the PRC's Nationally Determined Contributions. Mixed forests also contribute to biodiversity and thus to the Convention on Biological Diversity's objectives. A dialogue component brought the national forestry management together with local forest administrations and contributed, for example, to the fact that findings from the Anhui II project were incorporated into national forestry programmes.

However, coordination between KfW projects and national projects was not always optimal. Due to the national reforestation programme, which was carried out in parallel with Anhui II, and its attractive terms, there was not enough suitable land available for reforestation.

The project was incoherent with a World Bank commitment in Anhui. This incoherence does not necessarily have to be rated negatively. The World Bank had a reforestation project in Anhui that relied on monocultures. Monocultures are not very resilient to climate change due to the lack of biodiversity. This did not correspond to the KfW project's approach, which instead relied on mixed forests and various age structures in the forest, as suggested internationally and in Germany.

From today's perspective, there is internal coherence. The projects were thematically appropriate for the Chinese forestry programmes and the partner's concepts. However, coordination with the approaches of other donors or Chinese national forest programmes was limited, and external coherence was therefore limited.

Coherence rating: 3 (both projects)

Effectiveness

The project was able to partially achieve its indicators during the project term. One major challenge is the conceptually assumed interaction between resource protection and income as well as migration. A key feature of Anhui II and III is that the income from harvesting wood increases as a result of better tree growth and is economically sustainable in order to finance the forest management measures necessary for sustainable forest management. For the evaluation, the aspect of ecological and economic sustainability is handled separately under the criterion of sustainability and not under effectiveness.

According to the final report, EUR 222 to 1,564 could have been generated per hectare, depending on the price of wood. However, the socio-economic conditions and the forestry policy framework (reduction of the logging quota) have developed in a direction that makes the achievement of the indicators appear less relevant. The creation of forest management plans only makes sense for forest users if wood can also be extracted as planned, depending on the respective sustainable forestry system. Due to the state-imposed reduction in logging quotas and non-mandatory forest management plans, trees in easily accessible locations tend to be selected for felling rather than those that should be taken from a sustainability perspective. An elaborate Sustainable Forest Management (SFM) plan is therefore no longer profitable.

The target achievement at outcome level is summarised in the table below:

Indicator	Status PA, target PA	Ex post evaluation
(1) The provincial forestry administration provides regular training and information material on the implementation and techniques of sustainable forestry for forest users	n/a	Partially achieved
(2) The provincial forestry administration shall draw up forest management plans and enforce compliance with them. Regular follow-up and updates are guaranteed.	n/a	Partly achieved.

The forest management employees in the project area have received comprehensive training in the area of SFM and are able to professionally advise forest users. In addition, employees themselves were able to carry out additional training courses in more districts than planned during the course of the project. Practical training courses with forest users have also taken place extensively, including the creation of forestry management plans. In addition, several handouts have been created. Over the course of the project, the forestry authorities were able to gain experience at district and provincial level in creating and following up on forest management plans. The consultant developed a monitoring system that was applied in cooperation with the forestry administration during implementation.

The activities at output level were extensive and thematically appropriate. While the result of the training and technical support is rated positively, there are doubts that the forest management plans and the follow-up of systematic forest management measures have been permanently incorporated into the practice of forest management. In addition, it is unclear whether the forest authorities at district level have the human resources capacity to systematically continue offering further training.

Effectiveness rating: 3 (both projects)

Efficiency

Project expenditures for Anhui II were largely in line with the planned budget. In terms of time, the project significantly exceeded the planned project duration of eight to nine years. This is not unusual for an open-ended project involving local actors. Rather, the fact that the target group received close technical support and that no superficial decisions were made when selecting users should be applauded. It is also positive to note that, due to the high level of partner interest, other districts were included in the training measures. To this end, in order to create synergies, multipliers were trained by local forestry offices to carry out further training.

Anhui III was designed as an open programme, the project duration was not fixed at the start of the project. Both programmes had to substantially decrease the area for reforestation and forest management measures planned at the time of the appraisal. This was due to cost increases and currency fluctuations.

Production efficiency is similar to the efficiency of other projects. For example, the consultant costs for Anhui II (III) were within the usual range at 8% (6%) of the project costs. The cost of afforestation per hectare was EUR 238. This is at the lower end of prices for comparable projects in other Chinese provinces (EUR 236–328 per ha). Stagnant or falling prices for forestry products as well as increased wages lead to higher unit costs and poorer production efficiency for forest users.

On the one hand, the allocation efficiency is rated positively due to its potential positive ecological effects. In addition to the potential yield, projects in the area of resource protection also produce key ecosystem services that are difficult to gauge in monetary terms. These include avoided costs from natural disasters through erosion control, ecosystem filtering functions and aesthetic values. On the other hand, not enough afforestation areas were identified in Anhui II, as forest users had already participated in a Chinese afforestation programme that offered better conditions. Anhui III took this into account by investing exclusively in forest maintenance.

It is difficult to assess the economic costs and benefits by linking ecological and economic objectives. The microeconomic assessment paints a negative picture. A brief visit to individual project sites has shown that timber production is barely economically worthwhile. Bamboo, tea or chestnuts are also barely profitable or are unprofitable. Nuts are an exception. The cost efficiency in project implementation is positive. Allocation efficiency shows a mixed picture. While environmental added value through improved resilience of ecosystems and potentially avoided damage from natural disasters is socially significant, the funds for individual components could have been used more efficiently. Since Anhui II had to compete with a Chinese afforestation programme with better conditions, the project was redirected and more land was thinned out.

Efficiency rating: 3 (both projects)

Impact

The project's contribution to enlarging forest areas in the province of Anhui and the contribution to forest conversion towards sustainable forestry were particularly relevant. The income effects in particular were less successful, especially in the long term, as the Chinese government significantly reduced the case rates. While the ecological impacts can be evaluated positively, particularly with regard to resilience to climate change, the economic impacts are modest. This was examined more closely and separately under the criterion of sustainability.

Target achievement at the impact level is summarised in the table below:

Indicator	Status PA, target PA	Ex post evaluation
(1) The potential for sustainable timber harvesting has increased	n/a	Partially achieved
(2) Forestry activities contribute to the prosperity of the population in the project area	n/a	Partially achieved
(3) The proportion of mixed forests in the project region has increased	n/a	Achieved.
(4) The proportion of area at risk of erosion in the project region fell due to afforestation	n/a	Achieved.

By reforesting 15,769ha. (Anhui II) and forest management measures (forestation, enrichment planting, etc.) on 34,628ha. (Anhui II) and 17,523ha. (Anhui III), the potential for sustainable timber harvesting has increased, especially since forest conversion towards multilevel mixed forests has been initiated through enrichment planting. The potential for sustainable timber harvesting has increased. It was possible to show that sustainable forest management is generally economically possible if the legal framework conditions allow it.

Local income increased during project implementation. However, the random samples within the scope of the evaluation show that it was only possible to generate limited income from forestry-related activities after the end of the project. This does not affect the continuous growth of the trees and thus the growing capital in the form of wood, which can be realised in income in the medium term. This is due to low logging quotas and the development of timber prices as well as higher wages. Timber production, but also bamboo, tea and chestnuts, are barely profitable or are not profitable at all at the time of the evaluation at the sites visited.

Various tree varieties were introduced during both afforestation and forest management measures. The proportion of multilevel mixed forests has therefore increased. However, there are also examples of unfavourable practices. For example, bamboo was planted in a part of the forest that suffocates young trees and other plants. This underlines the importance of regular and expert forest maintenance in order to sustainably convert forests into mixed forests and preserve them. Especially in times of climate change,

forests are struggling with extreme weather events and increased pest infestation. Necessary supplementary planting should be carried out regularly.

Erosion was counteracted by reforestation and the rehabilitation of barrier forests, especially on slopes. This also strengthens the resilience of the local population to extreme weather events.

The programmes can largely be evaluated as positive in terms of their developmental impacts. There are concerns about the continuation of forest management and the economic effects. These are discussed under the criterion of sustainability.

Impact rating: 2 (both programmes)

Sustainability

The projects aimed to reconcile ecological and economic objectives. On the one hand, the aim was to improve the ecological potential in the project area (erosion control, stabilisation of the forest through diversification of species composition and structure and sustainable management). On the other hand, the introduction of sustainable forestry practices (including conserving felling methods, forest conversion to multilevel mixed forests, permanent forest instead of clear cutting) was intended to enable better quality and more valuable timber production in the long term.

From today's perspective, afforestation and forest conversion in the project area were predominantly successful if the usual risks such as extreme weather and pest infestation are not included, some of which have occurred. The ecological objectives were sustainably achieved through afforestation. Thinning has at least triggered forest conversion and will have more positive ecological effects, such as more mixed forests and diverse age structures. The contribution to erosion control continues to be successful, even if it is not possible to quantify the damage avoided by prevented flooding or landslides.

By contrast, the economic objectives were only achieved to a limited extent. Usage contracts with the local population, establishment of forestry businesses and their professional advice and support by the forestry authorities, even after the end of the project, should ensure an increase in local income. However, further training was only offered until the end of the project in order to meet the project's specifications. After the end of the project, very limited further training was continued. The same applies to forest management plans, and their follow-up was only continued in state-owned forestry operations after the end of the project. Government forestry businesses have a forest area share of less than 2% for Anhui II and less than 45% for Anhui III, based on the project areas. Private forest users have not continued or updated the plans. The follow-up for the forest management plans was also discontinued. The reasons for this are the limited personnel capacities of the forestry authorities and the reduced logging quotas, which deviate from those provided for in the SFM plans.

The future economic development of forestry in Anhui was assessed negatively by the interviewees (both in the lower forestry authority and among forestry businesses) during the evaluation. This is particularly important for Anhui II, where the focus is on self-help-oriented poverty alleviation through the creation of income opportunities. Without economic sustainability, there will be no follow-up on the SFM plans, and the sustainable forestry concept developed in the project will no longer be continued. Statements on site confirm the increased deforestation at more accessible locations instead of locations included in the SFM plan. Several factors mean that a significant positive development in the economic efficiency of timber production in the near and medium-term future seems unlikely.

1) Chinese forestry policy focuses on resource conservation and not timber production. It should be expressly noted that sustainable management of the forest in Anhui made significant timber yields possible, without overexploitation of resources or clear cutting. This was also assessed by other external experts outside the project and evaluation team.

2) The reduction in the number of logging licences led to a loss in the viability of the costly forest management plans and thinning measures. If investments in forest maintenance are no longer made, this will be at the expense of the concept of future trees. In addition, there is a risk that fewer enrichment plantings will be carried out, slowing down the conversion to mixed forests. The low quotas can be harvested more cost-effectively at easily accessible locations (at the expense of those tree locations that should be selected from a sustainability perspective). In addition, forest management plans are only mandatory for

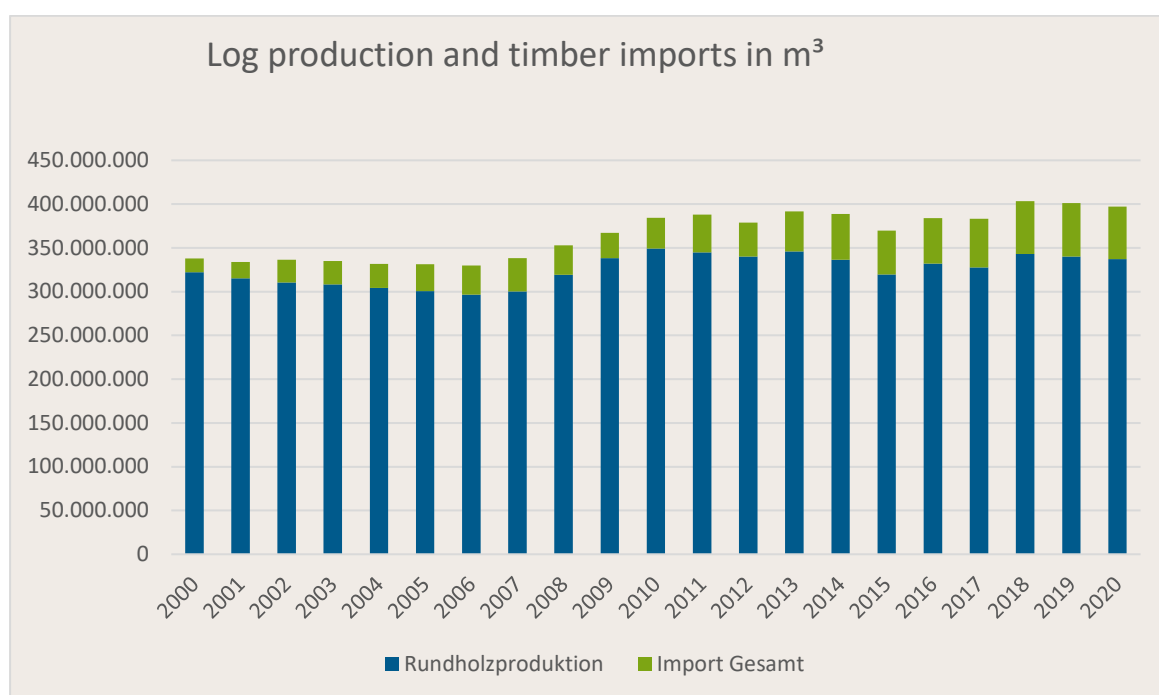
state-owned enterprises, and there is therefore hardly any follow-up by the forestry authorities with regard to private enterprises.

3) Lower wood prices exacerbate the problem. These are probably also linked to rising imports. While timber imports increased, domestic timber production fell and has stagnated since 2008, despite the increase in forest area in China.

4) Wages have increased in China and Anhui. This also applies to the forestry sector, albeit not as strongly as in other sectors. This makes local production more expensive.

5) Migration to cities continues, contributing to labour shortages in rural areas and less attractive sectors such as forestry.

These economic conditions call the sustainability of the project into question. The macro-economic developments were certainly not foreseeable to this extent during project appraisal. However, some of the basic assumptions would have to be changed from today's perspective. The increased timber imports and stagnating log production (see chart below) show that imported timber represented an increasing proportion of timber demand. This suggests that the Chinese government has implemented reforms in the forestry sector that focus on the protection of native forests.



Source: <https://www.fao.org/faostat/en/#data>

This puts the entire model of private forest use contracts into question economically, especially for Anhui II, unless the Chinese government pays subsidies for forest maintenance. Some operations can no longer service the loans from the project. Other examples show that businesses do not repay their loans because they hope that the state will then take over the repayment.

The forest in the project area could create other income opportunities, for example from tourism or non-timber forest products. Some case studies within the framework of the evaluation have shown that wood production or bamboo have less favourable economic prospects than yields from products such as nuts. Some non-timber forest products have worse prospects. For example, chestnuts or tea are no longer profitable. Furthermore, the partner now believes that tourism has the greater future economic potential for the project region than forest management. Natural parks in other Chinese regions show that landscapes in tune with nature have the potential to attract tourists and thus increase local incomes.

The secondary component of energy-saving stoves became obsolete due to the communities' connection to the energy supply. There was already little demand for the backyard trees during implementation. Many of the trees were felled as part of village beautification measures.

Environmental sustainability is predominantly present, but depends on the specific effects of climate change. Measures such as forest conversion in the direction of multilevel mixed forests serve to spread the risk of extreme weather events and pest infestations. Due to the low logging quotas, management plans are losing importance and there is a threat that forest maintenance is going to be neglected. Lack of forest management measures can have a negative environmental impact, as fewer enrichment plantings are implemented and forest conversion slows down. Another risk is that forestry businesses shy away from the costs of removing infested trees in the event of pest infestation.

Economic sustainability is not ensured with consistent forestry policy and the current international offer. In the future, sustainability could look different if, for example, timber production falls as international and national demand increases and thus prices rise. Despite positive ecological sustainability, the projects are subject to expectations with regard to bridging the ecological and economic conflict of sustainable forest management objectives.

Sustainability rating: 4 (both projects)

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

Projects (and programmes) are evaluated on a six-point scale, the criteria being **relevance**, **coherence**, **effectiveness**, **efficiency** and **impact**. The ratings are also used to arrive at an **overall rating** of a project's developmental efficacy. 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

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 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 (“impact”) **and** the sustainability are rated at least “moderately successful” (level 3).