China: Forest Programmes in the North and South (Phase 1)

Ex post-evaluation report

OECD sector	31220/Forestry development	
BMZ project number(s)	1995 65 9877 1996 70 027: Afforestation Hebei (Three North Project) (investment/complementary measure) 1994 66 210: Afforestation Ningxia (Three North Project) 1993 65 313/1993 111: Afforestation Shaanxi I (investment/training) 1993 66 246/1994 123:Afforestation Yanqing County (investment/training) 1995 65 979/1995 70 474: Afforestation Anhui (Yangtze protection forest) (investment/complementary measure) 1994 65 832: Afforestation Yangtze (Yunnan, Hubei)	
Project executing agency	The forest departments of the individual provinces as well as Yanqing County/Beijing City	
Consultant	GITEC/GWB/CIAD group	
Year of ex-post evaluation	**2006**	
	Project appraisal (planned)	**Ex-post evaluation (actual)**
Start of implementation	4th quarter 1993- 1st quarter 1996	4th quarter 1993- 2nd quarter 1996
Period of implementation	5 years	5-7 years
Investment costs (total costs)	EUR 65.30 million	EUR 71.20 million
Counterpart contribution	EUR 24.35 million	EUR 30.25 million
Finance, of which FC funds	EUR 40.95 million	EUR 40.95 million
Performance rating	Ningxia: Rating 2 Anhui, Hebei, Hubei, Shaanxi, Yunnan: Rating 3 Yanqing: Rating 4	
• **Significance/Relevance (subrating)**	Anhui, Hebei, Hubei, Ningxia, Shaanxi, Yunnan: Subrating 2 Yanqing: Subrating 4	
• **Effectiveness (subrating)**	Ningxia, Yunnan: Subrating 2 Anhui, Hebei, Hubei, Shaanxi, Yanqing: Subrating 3	
• **Efficiency (subrating)**	Anhui, Hubei, Ningxia: Subrating 3 Hebei, Shaanxi, Yanqing, Yunnan: Subrating 4	

Brief Description, Overall Objective and Project Objectives with Indicators

With altogether 28 programme components in 17 provinces Sino-German Financial Cooperation (FC) is the longest standing international cooperation in China's resource conservation sector besides the World Bank programmes. This ex-post evaluation will only group and assess the six projects implemented in 7 provinces that belong to the oldest generation of this cooperation (Phase 1). The set of objectives of the six projects are similar: All overall objectives comprise the stabilization of ecologically endangered areas as a contribution to resource conservation and in five of the six projects there are additional overall objectives for poverty reduction and improving target group income in poor rural regions. The overall objectives were to be achieved in all projects by the sustainable management of the afforested, rehabilitated or protected areas (project objective). Altogether, 220,000 hectares of protection and commercial forestland has been laid out. The indicators for project objectives achievement were specified as the survival rates of forest plants and, at the overall objective level, the size of afforested and protection zones and targets for increases in average household income.

Project Design/Major Deviations from Original Planning and Main Causes

The projects started during the great national afforestation phase in the mid-nineties. At that time, the sector was not yet acquainted with any modern sustainability principles in forest management (participation, long-term secure use, definitions of forest management goals, management and cultivation plans, etc.). The Sino-German afforestation projects in all 7 provinces were the first larger-scale projects to be implemented with international cooperation in the forestry sector at provincial level. They were conceived as pilot projects and as alternatives to the conventional approaches of monodisciplinary, centrally planned, national large-scale programmes (partly supported by the World Bank). Many FC principles were therefore genuine innovations for the Chinese partners. In the *South*, the programmes were closely coordinated with the national Yangtze River Watershed Protection Forest Project for the rehabilitation and ecological stabilization of the Yangtze watersheds and in the *North* with the implementation of the so-called Three North Forest Protection Project. Moreover, the projects in *Hebei* were a major component in the national programme to protect Beijing against sandstorms. Altogether, the land unit performance of the national afforestation programmes is impressive and also visible in the field. The so-called logging ban that applies for most national forestland imposes considerable usage and felling restrictions on the sector. This does not, however, apply for fruit-growing and special crops that also officially belong to the Chinese forest sector.

The project measures comprised (1) the afforestation of about 125,700 hectares including fruit-tree plantation, (2) the placement of 94,000 hectares under protection, (3) flanking mechanical and biological erosion control measures, (4) the improvement of seed and plant material quality, (5) measures to improve infrastructure (forest roads, fire prevention), (6) expansion of the building infrastructure, (7) equipment supplies and (8) training measures for the project executing agency and the target groups (capacity building). The following project measures recorded the most significant impacts: afforestation of protection and commercial forestland, planting fruit and special crops and the placement of existing tracts of land under protection.

The target figures estimated at project appraisal were reached with astonishing precision or surpassed. In many cases, considerable additional plantings had to be made to achieve the requisite survival rates, an indication of inefficiency at least in part. Work contracts (for afforestation) and the participatory involvement of the users (plant species and site) as well as the project management scheme (organisation, monitoring and financial management) were completely new approaches in the sector. They were adopted in other programmes later, so they had an innovative and capacity-building effect.

At present, most of the stock is vital and robust and has not suffered any great losses. There is either full vegetation cover or adequate undergrowth. In *Ningxia*, the *Helanshan* component to place 30,000 hectares under nature reserve protection, was very successful. The targets were also met or surpassed in the complementary measures in erosion control and infrastructure development.

In some projects, funds were not properly employed and were reimbursed by the Chinese side (no loss to the German taxpayer), but the misallocation was detrimental to efficient project implementation.

Key Results of Impact Analysis and Performance Rating

The *overall ecological objectives* have been met at all locations. All afforestation and protection measures were carried out at the planned scale and are still in evidence today, an impressive outcome for the sector, which highlights the high status accorded the project by the project partners but which is also partly due to the Chinese mentality of meeting targets. The protective measures brought about a clear reduction in erosion and lessened the productivity risk for agricultural land. The measures for protecting the Helanshan nature reserve in *Ningxia* have been effective and sustainable. Altogether, management in all measures where ecological protection was the main concern can safely rate as sustainable. This applies for at least 42.8% of the total land area (just protection forests) and beyond this large expanses of the land classified as commercial and protection forests also perform an extensive protective function.

For the most part, the *overall economic objectives (income*) have been fully met for fruit and special crops (11.4% of the total area). The increased income generated can be sustained and operations are assured. They have only been achieved in part in the commercial forests as the income effects are almost solely due to wage payments for planting, although a longer-term contribution to improving income can be expected. This, however, presupposes adequate cultivation measures. This is a deficiency in the whole forestry sector in China, however, which could not be addressed by the FC projects. The management of the commercial forests must therefore rate as deficient in part, so that the objective of *sustainable management* has not been fully achieved (yet). The reasons for the lack of cultivation measures are:

- Lack of land use and management plans: There are no targets and guidelines for forest management.
- Lack of knowledge and experience in forest cultivation: Owners and advisers in the forest departments cannot draw on the requisite know-how.
- Too little capital: Households and municipalities cannot carry out the work; there are no systems of incentives or credit lines.
- Logging ban quotas: The restrictive application prevents clearcutting and thinning. The issuance of permits is in part very restrictive.

Deficits in forest thinning do not endanger the present forest stock but they do hamper its maximum development due to later and smaller harvests. Subsequent FC projects have already addressed this issue (e.g. Anhui), however.

Macroeconomic assessment: In purely quantitative terms, the contribution of the FC projects to the long-term development of globally significant forest resources is almost negligible compared with the impacts of the large national programmes. The same holds for the economic impacts. All the more important have been the sustainable capacity effects on the forest departments at all levels, on sector modernization and the national programmes. First of all, the planned measures have strengthened efforts to conserve China's natural resources in the region. It is difficult to make a macroeconomic assessment of resource conservation as international public goods such as biodiversity/ecosystem protection cannot be valuated in monetary terms for lack of a market. Its qualitative value is, however, beyond dispute, particularly as conserving China's natural resources is of global significance. Moreover, increasing forest resources in China reduces pressure on other international timber stock. Forest measures also absorb emissions that are harmful to the climate. Regionally and locally, there has been a discernible substantial improvement in the natural conditions of life in underprivileged and remote areas. In the long run, Beijing can expect to suffer from fewer sandstorms. A simple indicator for the ecological impacts is the massive change in the landscapes in all provinces. This is impressive in the arid northern provinces, where the spread of gullies has been stopped in many places and previously bald mountain slopes are now fully covered in vegetation again. In the southern provinces as well, the share of forestland in total territory has risen considerably and the considerable previous

erosion has been clearly contained in most project locations. So locally at least, significant improvements in the environmental situation have been achieved through the geographical concentration of the measures.

As to the economic project impacts, in a period of economic development in China and the attendant income disparities, the projects have made a contribution to improving the economic situation in the relevant rural areas through transfer payments for the households involved. For households with fruit tree plantations, earnings from marketing the products make a significant contribution to family income. Altogether, though, with progressive economic development, the role and the share of these earnings from the tracts of land initiated by the project is on the decline. Of importance for the socio-economic impacts are the changes effected in the sectoral framework (access to land and land use rights, participation, advice and information, technical and organizational development of forest departments). If we take the initial conditions at the start of the first project in *Shaanxi* as a frame of reference, the developments can be compared with a quantum leap, to which the FC programme has given a clear impetus, particularly through payments for the labour input in national forest programmes and the participation of those affected in planning and deciding on the implementation approach. Altogether, the project can be classified as contributing to direct poverty reduction, as the population lay well below the poverty line in comparison with the Chinese average at project appraisal in the specific programme regions, the transfer payments under the project benefited the poorer sections of the population in particular and the individual forest enterprises can generally be expected to earn more income in the long term. Men and women alike have had access to the project measures, which was quite new at project start in the rural areas populated by minorities. Moreover, both genders have benefited alike from the ecological and economic impacts achieved. In our view, all the projects afforded scope for contributing to gender equality.

The participatory approaches cited are part of the capacity impacts of the projects that have proved to be significant at all levels for the forest departments involved, sectoral modernization and thus also for the quality of the national programmes, which were extremely effective in terms of quantity. Another robust assumption in the ex-post evaluation is that major components of professional project management as initially developed in Shaanxi have been assimilated into the subsequent FC projects as well as in nationally or internationally sponsored development projects. Furthermore, major impacts have been recorded in the quality of technical-forestry operations in the forest departments.

Altogether, the projects have been accorded prototype status in China. The German FC profile is accordingly held in high regard in the sector. The projects have had a broad impact, as much experience has been replicated in other programmes. They have had a capacity-building impact at provincial but also at national level, which has been strengthened by the successful development of management capabilities amongst counterpart personnel. Specific cases in point include the influence exerted on the national programmes in the forest sector in China, which started in 2001 and have adopted management practices and participatory approaches in large measure from the SGAPs and multiplied the impact; other examples are the new forest practices introduced and the planting of mixed forests. When assessing the transferability of experience, however, one reservation is that in many cases the exact total costs of the measures are unknown; nor has the issue been broached of when increased costs are warranted.

The extremely dynamic, increasingly liberal (political) environment in China afforded the opportunity during project implementation to discuss aspects of forestry modernization, which were not accepted by the Chinese at the outset (e.g. sustainable forest management on existing forestland). These discussions then made themselves felt in the design for the second FC phase. Altogether, the role of international cooperation in sector modernization has proved all the more important as there is virtually no non-governmental lobby from the private sector, the research community or the target groups, for example, or these can only exert very limited influence.

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considerable by Chinese standards, though comparatively low by international comparison.

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The programme has made a direct contribution to environmental protection and resource conservation. No large adverse environmental impacts are expected as monocropping was avoided and the cultivation schemes were explicitly geared to integrating the natural rejuvenation in stock. The small (due to poverty) application of chemicals for fruit-tree and special crops and for better retention of humidity in the soil could have adverse local effects. The latter method was only applied in extreme situations (desertification control in very dry years) but the possible impacts are minor.

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Overall assessment: The extreme pace of development in China overlaps substantially with the project impacts, resulting in a massive rise in the national forest budget, steady subsidy payments and improved income opportunities for farmers, etc. So in many cases it was impossible to attribute impacts to FC measures or make an objective measurement at reasonable expense. Nevertheless, we consider the following evaluations of the projects as sound, particularly since the assessments of the ex-post evaluation mission tally with the findings of experts.

Effectiveness: The ecological project objectives have been met throughout. They also seem to us to be assured for the long term. The economic objective (increase in income) has only been met in part: The established fruit and special crops generate significant, long-term income growth. This is not the case in the commercial forests, where income has only been raised in the short term so far (wages for planting work); in the long run, we expect the logging ban to be eased so that income will be earned from the timber stock already available (capital increase). Orderly operations have not been ensured (as yet), partly due, however, to deficits in forest management, insufficient funding to carry out inititial cultivation measures and the current legal position (logging ban). Access to long-term income opportunities (fruit, special crops, favoured forestland) has been regulated through sale/auction. Poor sections of the population have been partly excluded, although the project regions generally belonged to the poorer regions of China. In the irrigation infrastructure measures in Ningxia there are some doubts about the regular maintenance of some of the buildings. Another point is that in Ningxia raising income was not specified as an objective and in Yunnan it was of subordinate importance to resource conservation due to the massive erosion hazards. Of relevance also for assessment is that pilot measures in forest management had already been implemented in Anhui (though not in the areas financed by the project) and in Hubei and Yunnan they are in direct preparation or with a view to the current pending/ongoing second and/or third phase of the FC forest programmes. Owing to their closer alignment with protection in general, we judge the effectiveness of the meaures in Yunnan and Ningxia as satisfactory (Subrating 2) and in all other projects as sufficient overall (Subrating 3) due to the management deficits on commercial forestland.

Efficiency: In the South, the costs of the projects (production efficiency) are comparable with national projects. In the North as in the South, however, many plots incur higher costs due to (quality) problems in planting and the subsequent young plant cultivation, which could have been avoided. In the arid North, the costs are high by national standards due to considerable subsequent plantings (counterpart resources). In hindsight, the survival indicators were over-ambitious. The binding nature of the international cooperation agreements and their inflexible

command-economy interpretation also played a role in pushing up costs. Typical of the command economy approach was also that this costly process of meeting targets enhanced project acceptance amongst the Chinese partners, which in turn was a precondition for the marked capacity impacts (see significance). Another contributory factor is that in all projects the typical afforestation costs could in part be reduced through new technologies prior to project start and the efficiency of fruit and special crops can be gauged as adequate. Costs could have been lowered by choosing project locations less far apart. The unit costs for infrastructure were reasonable and their maintenance is generally assured.

As the ecological impacts have been secured in all projects for the long term, the allocative efficiency merits a positive assessment. One reservation here is that costs could have been lowered with the same impact by a consistent application of natural regeneration (e.g. by restricting use). This holds in particular for the northern projects but also in part for Anhui and Hubei. The costs could have been reduced in some commercial forests if greater account had been taken of growth potential when selecting land. Altogether, owing to some shortcomings in production and allocative efficiency in Anhui and Hubei, we assess the efficiency of the projects as sufficient (Subrating 3), the efficiency in Yunnan and the northern projects (apart from Ningxia) as slightly insufficient overall due to some substantial efficiency losses (Subrating 4). Since the costs incurred for the effective protection of the zones in the Helanshan nature reserve in Ningxia turned out to be low, efficiency there is also assessed as sufficient (Rating 3).

Relevance: The core problems of environmental destruction through deforestation and erosion that are still acute today are directly addressed by the overall ecological objective as defined. Altogether, the overall objective of poverty reduction is generally less relevant than at project start due to economic development in China. The project design is inconsistent when it comes to earning income from forestry: Deficits in cultivation of the previous commercial forests already posed a relevant problem at project start. Securing forest income has nevertheless been neglected and may not be assured due to the short project term of three years. These deficits are less relevant in Ningxia as the project was geared more to protective measures.

Significance: The afforested territory is almost negligible compared with total afforestation in China. However, the sectoral impacts are significant: The projects have contributed to sectoral modernization by successfully providing international know-how and appropriate innovations. They have been accorded prototype status and replicated. This impact as transferable pilot projects is limited only by the incomplete costing. The project in Yanqing, however, was unable to have any sectoral impacts because there was no interest at national level in particular. In our general assessment, applying the criterion relevance/significance, we attach greater weight to significance due to the considerable external impact of the projects and gauge relevance and significance altogether for all projects except for Yanqing as satisfactory (Subrating 2) and in Yanqing as slightly insufficient (Subrating 4).

Overall assessment: Experience gained in Sino-German FC has borne fruit in sector policy and in the implementation of national sector programmes. Considerable shortcomings in efficiency have been recorded in the evaluated projects in the first phase, however. Nor is the sustainable management of the commercial forest components sufficiently assured as far as the economic objectives are concerned. Altogether, we therefore judge the developmental efficacy of all projects in the first phase except for Ningxia and Yanqing as sufficient overall (Rating: 3). Owing to the above-mentioned impacts, we assess Ningxia overall as satisfactory (Rating: 2) and Yanqing as slightly insufficient (Rating: 4) due to lack of significance.

The ensuing FC forest projects in the remaining phases have explicitly taken up the most important critical points cited here. The atmosphere of trust created by the first generation of FC projects has laid the cornerstone for current and future cooperation. A joint assessment of both phases can be expected to yield a performance.

General Conclusions

We can learn the following lessons from the ex-post evaluation:

- In similar projects, more use should be made of comprehensive knowledge management: The core of this could be the SGAP province networking, which came about through the

Sino-German afforestation programme. More regular meetings (e.g. of the project managers) could be arranged and regular information exchange between national and provincial administrations institutionalized, culminating in formal communication mechanisms in the shape of a platform for exchanging experience and/or knowledge and for forest-policy dialogue.

- In this kind of extensive sectoral engagement with a large number of projects an inter-project setup should be established for more effective capacity building in the whole sector. For example, project management offices (PMOs) were established at almost all levels during project implementation, but this was not done for coordination at national level. In future, this deficit should be remedied through a coordination unit at the State Forestry Administration (SFA) to improve direct avenues of influence at national level. This would improve the framework for sustainable forest management (SFM).
- Additional pilot and training measures at provincial and district level for forest departments and target groups geared to sustainable forest management could reduce business risks decisively. These measures could also be integrated into the implementation of follow-on phases.
- A reform of the forestry sector should also aim at correcting the incoherent Chinese forest classifications and draw a clear distinction between forests that solely perform a protective function and commercial forests (with and without a protective function). This new definition is of prime relevance for a suitable alignment of the regulatory framework for Chinese forest policy: Social interest (e.g. erosion control, pasture restrictions) is of prime importance for operators of protection forests where the current framework does not permit these areas to be managed for a profit. These protection zones should therefore remain in public hands for the time being and suitable remuneration paid for their management (e.g. payments for environmental services). In contrast, arrangements should be made for the cultivation and use of stock on sustainable forest management land so as not to impair either the protective functions or opportunities for earning long-term income from forest resources by private-sector operators (farmers, interest groups, collectives). A redefinition of forest criteria is at least under discussion in China and the German side should press more on this issue.
- In future projects, more attention should be paid to ascertaining whether cost-intensive subsequent planting activities can be avoided through the use of natural regeneration with the same ecological impacts in the long run. So the failure to reach command-economy targets due to unfavourable cost/benefit ratios need not necessarily be a bad thing. To achieve high efficiency in project implementation in the Chinese setting, we therefore recommend ongoing impact and cost monitoring for individual measures and an adaptable approach to planned packages of measures (and thus also to targets). This is not easy, particulary in command economies, but it is all the more effective for setting learning processes into motion in systems with pronounced hierarchies.
- The broad capacity-building impacts of the SGAPs are very important for modernizing the Chinese forestry sector. Essential here are successful long-term working relations in the first and second phase of Financial Cooperation. Technical and interpersonal confidence has been built up this way. In a 'normal' ex-post evaluation, however, the causal chain leading to the structural changes and the attribution of impacts to the different phases (partly for lack of time) can hardly be verified. A possible remedy here could be a thematic concentration in the shape of a special multiphase evaluation concentrating on the criterion of sectoral significance, for example. This could afford the opportunity to infer more general conclusions and include major multiphase impacts that only take effect after the ex-post evaluation. Ongoing long-term impact monitoring beyond ex-post evaluation would also seem warranted owing to the specific features of the forest sector.

Assessment criteria

Developmentally successful: Ratings 1 to 3	
Rating 1:	Very high or high degree of developmental efficacy
Rating 2:	Satisfactory developmental efficacy
Rating 3:	Overall sufficient degree of developmental efficacy
Developmental failures: Ratings 4 to 6	
Rating 4:	Overall slightly insufficient degree of developmental efficacy
Rating 5:	Clearly insufficient developmental efficacy
Rating 6:	The project is a total failure.

Performance evaluation criteria

The evaluation of the "developmental effectiveness" of a project and its classification during the ex-post evaluation into one of the various levels of success described in more detail below concentrate on the following fundamental questions:

- Have the **project objectives** been achieved to a sufficient degree (project **effectiveness**)?
- Does the programme generate sufficient significant **developmental effects** (project **relevance** and **significance** measured in terms of the achievement of the overall developmental policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the **funds/expenses that were and are being employed/incurred appropriate** with a view to achieving the objectives and how can the programme's microeconomic and macroeconomic impact be measured (**efficiency** of the programme design)?
- To the extent that undesired **(side) effects** occur, can these be tolerated?

We do not treat **sustainability**, a key aspect to consider when a project is evaluated, as a separate evaluation category, but rather as an element common to all four fundamental questions on project success. A programme is sustainable if the programme executing agency and/or the target group are able to continue to use the programme facilities that have been built for a period of time that is, overall, adequate in economic terms, or to carry on with the project activities on their own and generate positive results after the financial, organizational and/or technical support has come to an end.