

Ex-post evaluation

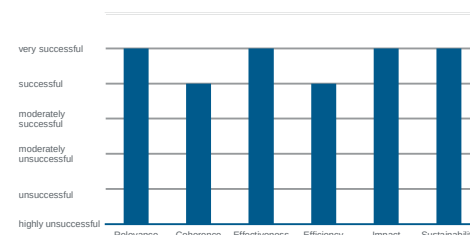
Adivasi Development Programmes Maharashtra and Gujarat II, India

Title	Adivasi Development Programme Maharashtra (ADPM) and Adivasi Development Programme Gujarat II (ADPGII)		
Sector and CRS code	Agricultural land resources 31130		
Project number	ADPM: 1997 65 165, ADPG II: 2002 66 551		
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)		
Recipient/Executing agency	National Bank for Agriculture and Rural Development (NABARD)		
Project volume/Financing instrument	ADPM: 14.320.000 EUR, ADPG II: 7.000.000 EUR (both budget grants)		
Project duration	ADPM: 1998-2017, ADPG II: 2006-2022		
Reporting year	2024	Year of random sample	ADPM: 2019 ADPG II: 2023

Objectives and project outline

Both projects aimed at the outcome level to increase the soil productivity of the established agroforestry plots (Wadis) in order to improve the living conditions of the indigenous Adivasi (target group) at the impact level. To achieve this, the establishment of small, productive agroforestry plots called Wadis (main measure), the construction of simple irrigation systems, erosion control measures, and processing facilities for agricultural products were financed. Intensive consulting, awareness-raising, and training measures accompanied the investments.

Overall rating:
very successful



Key findings

The projects have achieved the desired effects at both the outcome and impact levels, partially exceeding expectations. They have contributed to a significant improvement in the living conditions of Adivasi families. For this and the following reasons, the projects are rated as very successful:

- Both projects pursued a holistic approach with a clear focus on the needs and capacities of the target group. This was an important success factor.
- The projects have led to significant increases in productivity and income for the target group.
- Migration patterns have sustainably changed for the target group. The previously forced migration due to poverty and necessity for survival has transformed into selective migration, primarily serving income diversification during the agricultural off-season.
- Thus, the projects have succeeded in leveraging the development potential of rural areas and countering rural exodus.
- The effects achieved are lasting: even ten years after the establishment of the Wadis, they are maintained and used as primary sources of income.
- The projects were structurally effective. The Wadi approach has been replicated in many parts of the country and continues to be implemented to this day.

Conclusions

- The holistic project approach is a strength of the projects. Complementary measures have created the conditions for the long-term utilization of the agroforestry plots.
- Training for landless individuals in activities needed for the maintenance of the financed infrastructure has strengthened sustainability, social cohesion, and local value creation.
- The local knowledge and presence of the implementation partner have fostered trust with the target group and enhanced sustainability.

Ex post evaluation – Rating according to DAC criteria

Overview of Rating:

Relevance	1
Coherence	2
Effectiveness	1
Efficiency	2
Impact	1
Sustainability	1
Total rating:	1

List of abbreviations:

ADPG	Adivasi Development Program Gujarat
ADPM	Adivasi Development Program Maharashtra
AK	Final Control
BAIF	BAIF Development Research Foundation
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
CfW	Cash for Work
DAC	Development Assistance Committee
Dhruva	Dharampur Utthan Vahini
EUR	Euro
FC	Financial Cooperation
FC E	FC Evaluation
GDP	Gross-Domestic Product
INR	Indian Rupie
MITTRA	Maharashtra Institute of Technology Transfer for Rural Areas
NABARD	National Bank for Agriculture and Rural Development
NGO	Non-governmental organization
PP	Project proposal
SHG	Selfhelp groups
SSEP	Sustainability Strategy and Exit Plans
TDF	Tribal Development Fund
ToC	Theory of Change
TC	Technical Cooperation
USD	US Dollar

Overall context

The projects to be evaluated, Adivasi Development Programme Maharashtra (ADPM) and Adivasi Development Programme Gujarat Phase II (ADPG II), are follow-up phases of the Adivasi Programme, which began in 1993. It spans several Indian states and is now being replicated in many states of India using local resources. The Adivasi approach aims to improve the living conditions of the marginalized indigenous group of Adivasi. This is pursued through the development and expansion of agricultural production using the Wadi approach and the establishment of agroforestry plantations. The measures and target systems of the two projects ADPM and ADPG II are largely identical, but the implementation took place in different regions (Maharashtra and Gujarat).

The National Bank for Agriculture and Rural Development (NABARD) acted as the program implementer at the national level, with which there has been a long-standing collaboration of German development cooperation in the field of environmental and resource protection. NABARD's main tasks included the strategic and overarching coordination of the program, the management of the program account, advising and supporting the local non-governmental organizations (NGOs) responsible for project implementation, evaluating the semi-annual reports prepared by the NGOs, and overarching program monitoring through regular on-site visits. The project in Gujarat (ADPG II) was implemented by the local NGO Dharampur Utthan Vahini (DHRUVA), while the one in Maharashtra was carried out by the Maharashtra Institute of Technology Transfer for Rural Areas (MITTRA). Dhruva and MITTRA are sub-organizations of the NGO Development Research Foundation BAIF, which already had several years of experience with the project approach from previous projects at the time of the project evaluations.

The two projects built on the first phase of the Adivasi Programme in Gujarat (ADPG I) and thus on a proven approach.¹ ADPG II began in 2007 and was originally scheduled to be completed in 2014. However, due to early indications of significant remaining funds due to exchange rate gains, the design was adjusted several times, and the project was expanded to include additional components. The final measures were completed in 2020. Due to the outbreak of the COVID pandemic, the final control could not be conducted on-site. The final control report was submitted in 2022. The project in Maharashtra (ADPM), which was originally planned for 11 years, lasted a total of 15 years (from 1998 to 2015). Here, too, additional follow-up and consolidation measures were implemented. The project was completed and audited in 2017.

Project Summary

The projects aimed to improve the living conditions of the marginalized indigenous group of Adivasi by supporting them in the development and expansion of agricultural production using the Wadi approach established in previous phases.

Specifically, the establishment of small, productive agroforestry plots (Wadis) was financed. In parallel, nearby water resources were developed, and simple irrigation systems were installed. Production cooperatives (Vibhags) were established for the processing and marketing of harvested crops, and processing facilities were financed at the village level. The investment measures were accompanied by intensive advisory services for participating farmers, as well as funding for training, awareness-raising, and basic health promotion activities. Landless individuals received vocational training courses, advisory inputs, and capital for initial investments to create the foundations for alternative employment opportunities and income generation.

At the module target level, the measures primarily aimed to increase soil productivity. As a result of increased income and greater resilience to the effects of climate change, a sustainable improvement in the living conditions of smallholder and landless families of the indigenous Adivasi (target group) in the project regions was to be achieved at the impact level. In total, approximately 19,500 families benefited from the supported measures of the two projects. The projects were implemented by local NGOs.

The implementing agency for both projects was the National Bank for Agriculture and Rural Development (NABARD), a state development bank promoting rural areas.

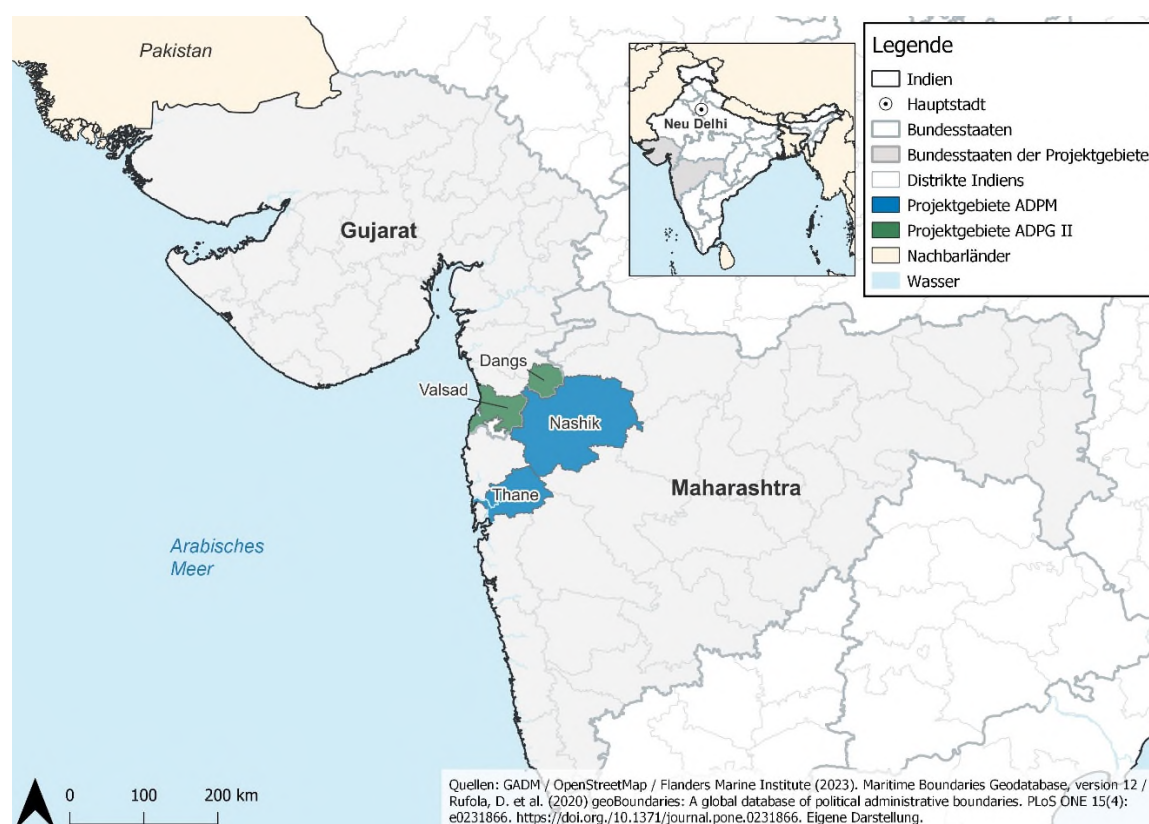
¹ The first phase of the project in Gujarat was evaluated ex-post and rated as "very good."

Total cost

		ADPM (Planned)	ADPM (Actual)	ADPG II (Planned)	ADPG II (Actual)
Total cost	EUR million	15,10	14,15	7,8	5,8
Counterpart contribution	EUR million	0,78	0,78	0,8	1,0
Financing	EUR million	14,32	13,37	7,0	4,8
<i>of which BMZ funds</i>	<i>EUR million</i>	14,32	13,37	7,0	4,8

Map/Satellite image of project country incl. project area/locations

Figure 1: Map of project region



Rating according to DAC criteria

Relevance

Alignment with policies and priorities

The projects evaluated here, Adivasi Development Programme Maharashtra (ADPM) and Adivasi Development Programme Gujarat Phase II (ADPG II), aimed to secure the livelihoods of smallholder and landless families of the indigenous Adivasi population by developing and expanding agricultural production. The Adivasi are the descendants of the indigenous people of India and belong to a socio-economically disadvantaged population group. Despite significant successes in poverty alleviation, around 170 million people in India still lived in extreme poverty in 2022, and approximately 16% of the population were considered undernourished even in the year of evaluation in 2024. India's indigenous population is disproportionately affected by poverty. At the same time, the pressure on natural resources in India is high and is expected to increase further due to ongoing high population

growth (1.2% per year) and the effects of climate change. Given this situation, the thematic focus of development cooperation between India and Germany is understandable and remains relevant.

The approach and objectives of the projects were in line with national strategies for promoting the indigenous population as well as for promoting agriculture and rural development. Furthermore, the approach aligns with India's national climate action plan, which is explicitly designed to be cross-sectoral. The promotion of so-called "scheduled tribes" is enshrined in the Indian Constitution of 1950 and has since been a goal of Indian policy. The relevant national strategies at the time of project evaluation and implementation focused on bridging the gap between registered castes/tribes and the rest of the population, emphasizing micro-planning through community participation, transparency, and accountability, as well as the protection of natural resources such as water, land, and forest resources. In the area of rural development and agriculture, national strategies aimed at poverty reduction through the promotion of sustainable agricultural practices, economic growth, and the development of local infrastructure. A declared goal of the Indian government is also to counteract rural-urban migration. The relevance of the projects is further demonstrated by the fact that the Indian government explicitly refers to the Wadi programs as pioneering projects to be replicated in its agroforestry policy of 2014.

The fight against poverty as well as environmental and resource protection have been and continue to be priority goals of German development cooperation. The projects also pursued the secondary objective of promoting gender equality, which was already an important goal at the time of evaluation and has become a central pillar of German development cooperation since the adoption of the feminist development policy strategy in 2022. The focus of the projects on supporting socially and economically marginalized groups and their close involvement in implementation corresponds to the fundamental principle of the international development agenda 2030 ("Leave no one behind"). The afforestation measures carried out on degraded land also align with the goals of the Paris Climate Agreement of 2015, which both India and Germany have signed.

Alignment with needs and capacities of persons concerned

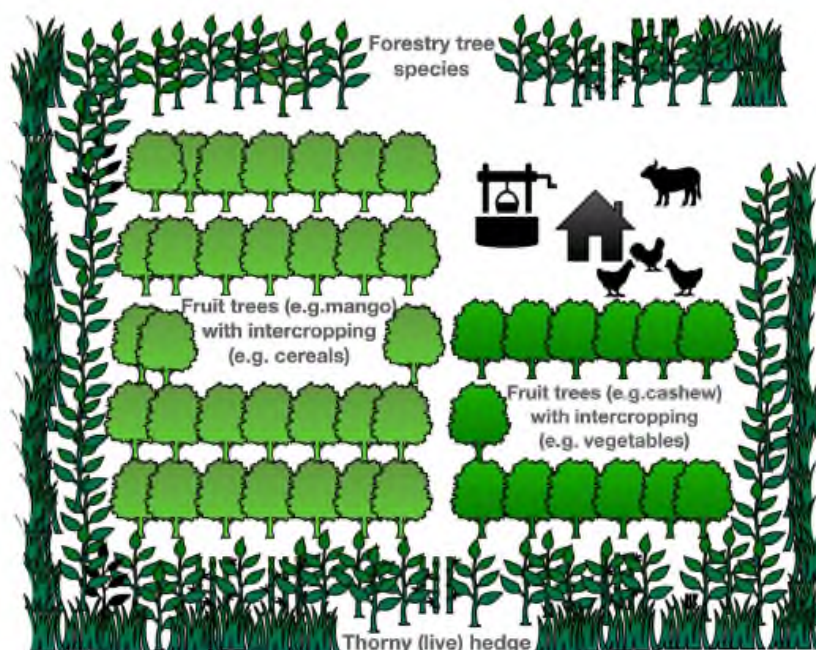
As a core problem, the increasing impoverishment of the already marginalized Adivasi (target group) was identified at the time of evaluation in 1997 (ADPM) and 2002 (ADPG II), who were then largely dependent on seasonal migration to urban centers in addition to subsistence agriculture. According to the evaluation documents, the causes included inadequately developed agricultural operating systems, almost non-existent irrigation facilities, lack of storage options leading to harvest losses, and the cultivation of local grain varieties with low yield potential (Maharashtra, ADPM) or low yields due to a lack of input factors (Gujarat, ADPG II). Additionally, the increasing destruction of forest areas and advancing land degradation due to largely uncontrolled livestock farming threatened the livelihoods of the Adivasi. The poor living conditions of the population in the project areas were reflected in an above-average child mortality rate, malnutrition, and illiteracy. The intended Wadi approach aimed at resource-conserving intensification and diversification of agricultural production and improvement of soil productivity, making it appropriate to address the core problems.

By promoting the Adivasi, the projects focused on a marginalized and particularly vulnerable group in Indian society. The projects pursued a holistic approach that was closely aligned with the needs of the target group and was implemented participatively. Eligible families had a say in the design of the Wadi plots; many of the tasks were carried out by the participants themselves and were compensated.

Despite the focus on promoting agricultural production, the projects also included support for landless families through training and loans to create alternative employment and income sources. In ADPM, the establishment of community vegetable gardens, the promotion of women's groups, and income-generating group activities (kitchen gardens, nurseries, small crafts) aimed to improve the living situation and decision-making opportunities for landless women. In the later-implemented ADPG II, this approach was not pursued further due to the lack of suitable land.

To build trust and simultaneously prevent the risk of limited participation by the population due to their poor health status, the core measures were supplemented by various basic health services. Their implementation was to follow the principle of self-help, with health workers from the target group being trained and employed.

Figure 2: Illustration of Wadi



Source: Nienkerke et al. 2022, Escaping chronic poverty: long term impacts of an agricultural development program. Environment, Development and Sustainability

Suitability of project concept

The projects were conceptually nearly identical. The main measures of both projects involve the establishment and management of Wadis (agroforestry plantations) with marketable perennial crops such as mango, cashew, and alma on the land of participating families. This was intended to enable a resource-conserving intensification of traditionally extensive agriculture. Additionally, soil protection and water provision measures were to be carried out, and a forest belt was to be established around the Wadis to improve the microclimate of the soils, protect against animals, and serve as a sustainable source of timber (see Figure 2). Accompanying advisory and training measures were also intended to strengthen the competencies of the target group for the sustainable utilization and maintenance of the Wadis and the erosion control and irrigation systems.

The described measures aimed to increase soil productivity and thus agricultural yields as a module objective (outcome level). The higher agricultural yields were expected to increase income and thus contribute to the overarching goal of improving the living conditions of the socio-economically disadvantaged Adivasi (impact level). The planned establishment and promotion of production and marketing cooperatives, as well as the construction of processing facilities for mangoes and cashews, were also intended to lead to an improvement in living conditions through higher incomes and strengthened advocacy.

In addition to the income effects as a direct mechanism of action, the resource-conserving measures enable a more sustainable, climate-adapted management and the securing of essential ecosystem services (erosion control, water balance, improved microclimate, CO₂ sequestration). Additionally, the strengthening of self-help capacity through the participatory approach could indirectly improve living conditions and thus facilitate the achievement of objectives. By creating a sufficient livelihood, the secondary goal was to reduce poverty-induced seasonal migration to urban centers—whose infrastructure was already overloaded at the time of evaluation—and to counteract further uprooting of the Adivasi.

In the originally formulated objective system of the two projects, the planned support measures for landless individuals and the accompanying health measures were not explicitly considered, even though they could contribute to achieving the impact-level objectives. Accordingly, no indicators were established for these aspects. From today's perspective, the potentially positive climate effects—particularly CO₂ sequestration—would also be included in the objective system.

A risk to the sustainability of the approach was the long time span of 4 to 7 years until the trees bear fruit and thus generate income, as well as the small size of the agricultural areas (0.4 ha per Wadi). To secure the cash

flow of participating families until the first harvest yields, they received cash payments for work performed. The cultivation of agricultural interim crops was also promoted.

While ADPM was designed as an open program, ADPG II was part of the development cooperation program "Climate and Environment in Rural Areas of India." In terms of content, ADPG II fit well into the program's objective formulation.²

Reaction to changes/adaptability

The measures were largely implemented as planned. ADPG II could be supplemented with the following components due to significant exchange rate gains: (1) pilot implementation of the Landscape Approach "Integrated Adivasi Development Programmes," (2) consolidation measures to increase harvest yields, and (3) the development and implementation of a Sustainability Strategy and Exit Plan (SSEP) to ensure a smooth phasing-out and to enhance sustainability (see Effectiveness and Sustainability).

Furthermore, it was originally planned within ADPM that 25% of the investment costs for the establishment of the Wadis would be provided as loans. However, this did not meet with sufficient acceptance from the risk-averse target group. Therefore, an alternative credit component for the procurement of production goods to intensify agricultural cultivation (e.g., irrigation pumps, machinery) was decided upon. This sensible change to the project approach, tailored to the conditions of the target group, also underscores the adaptability of the project.

Rating summary:

Both projects pursued a holistic approach with a clear focus on the needs and capacities of the target group. The underlying objective system and the theory of change plausibly address the solution to the core problem. Particularly impressive is the transformative ambition of the approach. The project envisions more than short-term poverty alleviation through direct support measures (for example, through cash transfer approaches) but aims for a long-term change in the living conditions of Adivasi families through the sustainable utilization of the only available capital of the target group, namely agricultural land. The projects thus combine two major priorities of German development cooperation and India: poverty reduction and sustainable resource protection. At the same time, the design was holistic in that further measures were planned to enhance and sustain the impact of the main measures. Therefore, both projects are classified as highly relevant.

Relevance: 1

Coherence

Internal coherence

The goal of the German contribution in the focus area of "Environmental and Resource Protection" is the protection and sustainable management of the natural resource base, the strengthening of climate adaptation capacities, and the associated increase in productivity and income in rural areas. The Adivasi Development Programs fit both content-wise and geographically into the long-standing engagement of German development cooperation in India. This engagement addresses the following additional themes in the focus area of natural resource management: (i) rehabilitation of watersheds, (ii) management of natural resources, (iii) adaptation to climate change, and (iv) environment and biodiversity. The measures that fall within these thematic areas are primarily implemented in rural regions, very often in the rural areas of Maharashtra and Gujarat (geographical coherence).³

The Adivasi Development Programs ADPM and ADPG II are directly related to the predecessor program ADPG I. The WADI approach was successfully piloted within ADPG I, and the insights gained were incorporated into ADPM and ADPG II. The geographical proximity of the projects facilitated intensive exchange between the beneficiaries and between the staff of the implementing NGO BAIF. This led to an increase in the target group's trust

² The goal of the development cooperation program was: Public and private interventions improve the sustainable management of natural resources, minimize the risks of climate change, and increase productivity, income, and employment in rural areas.

³ Concrete examples include the financial cooperation projects Erosion Control Maharashtra Phase III (BMZ No.: 2000 66 506), Rehabilitation of Watersheds in Andhra Pradesh (2000 66 258), and Rehabilitation of Watersheds in Gujarat (2002 65 629). The latter builds on ADPG I and is part of the NABARD Umbrella Programs for Natural Resource Management funded by financial cooperation (e.g., 2005 666 646 and 2007 70 263).

in the measures, thereby strengthening the ownership of the beneficiaries and allowing for more efficient implementation of the measures.

Within the framework of the joint development cooperation program "Management of Natural Resources," the portfolio of German development cooperation was established in a complementary and synergistic manner. For example, GIZ was engaged in the area of natural resource management and sustainable, climate-adapted agriculture, which enabled continuous professional exchange on these topics relevant to ADPM and ADPG II. However, broader synergy effects that could have been generated through a stronger integration of the projects remained untapped.

With the participatory support of economically and socially disadvantaged people and a focus on resource protection, the projects are consistent with international norms and standards to which German development cooperation is committed (Universal Declaration of Human Rights, ILO Convention 169 of the International Labour Organization for the promotion of indigenous groups, Paris Climate Agreement, and Agenda 2030).

External Coherence

It is not known that other sector-related projects were being implemented in the target regions at the time of execution. Thus, no synergy effects were achieved with other projects, nor was there a risk of inefficient overlaps. Ideally, the implementing agency and organization could have relied on a state monitoring and evaluation system to coordinate the Wadi projects with other activities in the regions. However, such a system did not exist at the time of implementation of both projects.

Due to the significant successes of the Adivasi Development Program, the Tribal Development Fund (TDF) was established in 2003-04 with the goal of rolling out the Wadi approach nationwide (see Impact). By March 2023, 968 projects had been approved in 29 states. All projects under the TDF are carried out in collaboration with state governments, the Indian government, NGOs, and businesses. The TDF thus ensures coherent scaling and further development of the approach.

Additionally, the number of other complementary state and non-state/philanthropic projects and services for rural development and support for Adivasi families has increased in recent years. These projects provide agricultural production means (e.g., solar pumps or processing machines for cooperatives) and thus contribute to the sustainability of the projects evaluated here.

However, the evaluation team was informed in discussions with BAIF about a lack of information exchange and coordination between individual state and non-state projects and services, which has prevented synergies from being fully realized to this day. These could potentially be achieved through stronger steering and harmonization of support services by NABARD or central government actors.

Rating summary:

The projects were meaningfully integrated into the existing development cooperation portfolio both content-wise and geographically. However, it cannot be ruled out that synergy effects with initiatives or projects from other donors or the Indian government could have been achieved through better management and coordination. The TDF serves to strengthen the coherence of the nationwide implementation of the Wadi approach while synergistically working with other projects in rural areas and supporting marginalized groups. To fully exploit the associated potentials, stronger central management and harmonization of further support services are required.

Coherence: 2

Effectiveness

Achievement of (intended) goals

The adjusted objective at the outcome level within the framework of the evaluation was: The soil productivity of the established Wadis is sustainably increased in the supported areas.⁴ The achievement of the objective can be summarized as follows:

Table 1: Achievement of outcome objectives

Indicator	Status at PP	Target value according to PP/EPE	Actual value at Project Closure	Actual value at evaluation (2023)
(1) ADPM: Percentage of established Wadi areas that are managed 5 years after project completion (in %). ADPG II: Survival rate of planted fruit trees (in %).	-	ADPM: At least 90% of the areas are managed. ADPG II: At least 70% of the planted fruit trees.	ADPM (2016): > 92% of the established Wadis are actively managed. Nearly 77% of the Wadis were rated as good or excellent, and another 15.6% as satisfactory. ADPG II (2019): 76%	Value achieved Current quantitative data was not available at the time of evaluation.
(2) Percentage of intact soil protection and water extraction facilities (in %).	-	70% of soil protection and water extraction facilities are intact 5 years after construction. (ADPM: 2014, ADPG II: 2019)	ADPM: No data available ADPG II: 90% of soil protection facilities and 85% of irrigation facilities are intact	Value achieved
(3) Annual average yield of main crops (in kg/acre).	-	ADPM: 1000 kg/acre mango after 10 years (2008) and 600 kg/acre cashew after 9 years (2016) ADPG II: 60 kg per mango tree and 7 kg per cashew tree, 5 years after program completion (2019)	ADPM (2016): 610 kg/acre mango and 110 kg/acre cashew. Additional yields from vegetable cultivation. ADPG II (2019): Mango 14.2 kg; Cashew 2.8 kg per tree. Additional yields from vegetable cultivation.	Value partially achieved Yield targets for mango and cashew were missed but compensated by yield increases due to more frequent harvests and multiple cropping practices.

Contribution to goal achievement

Indicator 1: Management of the Wadis

The core activity in both projects was the establishment of the Wadis, including soil protection and water provision facilities to enhance the agricultural production base. In ADPM, a total of 14,317 Wadis (target at evaluation: 14,000) were established over an area of 4,975 hectares (12,293 acres), resulting in an average Wadi size of

⁴ Originally, the module objectives were "Increase in soil productivity and securing site potentials" (ADPM) and "The farm productivity of participating farmers is increased, soil erosion is noticeably reduced, and active self-help groups and a functioning Wadi maintenance system at the village level are established" (ADPG II). Both objective formulations logically stemmed from the problem analysis and were fundamentally appropriate in content. Since, according to the revised BMZ procedural information VI083 from 2024, the mention of multiple facts is no longer permissible, the objectives were adjusted accordingly within the framework of the evaluation.

0.34 hectares. On average, 20 mango, 30 cashew, and 10 alma trees, as well as 600 to 1,000 seedlings for the surrounding tree belt, were planted per Wadi. For sites with insufficient potential and/or high erosion risk, the establishment of pure timber plantations was planned at the time of project evaluation. However, pure forest plots faced low acceptance from the target group due to the associated loss of grazing land, which is why, contrary to the original plan, forest plots were established on only 278 hectares instead of 810 hectares. Nevertheless, the area targets of the project were exceeded by nearly 2% overall. Additionally, community fields for women were planted over an area of approximately 250 hectares. Around 13,848 families benefited from the establishment of the Wadis in Maharashtra.

In Gujarat (ADPG II), Wadis were established for 5,629 families (target: 4,700) over an area of 2,232 hectares (target: 1,880 hectares), with an average of 25 mango and 30 cashew trees, as well as around 600 seedlings. The target objectives were thus significantly exceeded.

The establishment of the Wadis primarily took place on degraded land, which helped keep the opportunity costs for the participating families low. The planting, soil protection, and water management measures were partially carried out by the beneficiaries themselves, for which they received compensation payments from project funds.

At the time of evaluation, no current data on the operation and condition of the Wadis were available. The last quantitative data collection occurred during the final evaluations. According to this, in Maharashtra in 2016, the condition of more than three-quarters of the established Wadis was rated as good or excellent, with another 15.6% rated as satisfactory. About 8% of the Wadis were not actively managed. For ADPG II, no directly comparable values are available. Instead, the survival rate of the approximately 303,000 planted fruit trees was recorded. In September 2019, this was reported by the consultant's final report to be around 76%, which is a remarkable result given the local water and soil conditions. Impressions from the ex-post evaluation mission suggest that the survival rate is still above 70%. Conversations with Adivasi families revealed that they continue to earn their income from agroforestry cultivation. Many families also reported that after the project ended, they expanded the Wadi facilities by planting additional trees and developing further irrigation perimeters.

Indicator 2: Maintenance of Soil Protection and Water Extraction Facilities

In both projects, labor-intensive soil protection and water provision measures were implemented over 4,244 hectares (ADPM) and 2,086 hectares (ADPG II).⁵

Quantitative data on the condition of the supported water infrastructure were only collected for ADPG II during the final evaluation, but not for ADPM. At the time of evaluation, no updated data were available, which is why we must rely primarily on the statements of the interviewed stakeholders and on-site impressions for the assessment. These present a positive picture. At the visited Wadi facilities, the established irrigation infrastructure was mostly maintained. Some Adivasi families had also invested in more modern systems, including the construction of larger water collection basins or technical equipment such as solar pumps.

In both projects, extensive measures for agricultural consulting and support were promoted, aimed at strengthening the technical and professional know-how of the target group, enabling them to maintain the Wadis as well as the soil protection and irrigation facilities. Training measures for farmers, local planning committees, and local program staff focused on the areas of cultivation and care of the Wadis (aftercare), soil protection, plant protection, fertilization techniques, and maintenance of soil protection and irrigation facilities. A significant contribution to the maintenance of the supported infrastructure measures was made by the so-called Wadi Tukadis and water user groups, which were formed and trained within the framework of the projects. Wadi Tukadis are local planning committees that take on essential management, coordination, and information tasks in the Wadi development process and implement awareness-raising and information measures to increase harvest yields and the sustainability of the Wadis, including the maintenance of soil and water protection as well as irrigation infrastructure. In the context of ADPG II, additional informal water user groups were established to accompany the cultivation planning, management, and allocation processes of communal irrigation infrastructure and to manage maintenance or repair funds.

Indicator 3: Average Yields

The ambitious yield targets for mangoes and cashews were not met in either region. The difficult soil and climate conditions were particularly responsible for this. Additionally, yields from the cashew plantations fell significantly short of expectations due to pest infestations, which could not be prevented even with organic pesticides.

⁵ In ADPM, erosion control measures were additionally implemented on 2,580 hectares of land that were not part of the Wadi program.

Although farmers still achieved solid yields from the harvested cashews, they increasingly focused on expanding their mango plantations, as cashew trees posed a higher risk of pest infestation and there was a good and stable demand for mangoes. Farmers also focused particularly on the cultivation of vegetables and flowers. The cultivation of gooseberries, which was also promoted at the beginning of the projects, was abandoned after two years in favor of a stronger focus on cashew and mango.

Despite this, both projects achieved a significant increase in agricultural production through multiple harvests and the combination with vegetable cultivation, which compensated for the missed yield targets for mango and cashew. Most Wadi farmers interviewed during the evaluation mission confirmed an increase in their Wadi production of up to 150% since the completion of project activities. The expansion of production after the project ended was achieved through reinvestment of profits into productive facilities, often with additional support from state or non-state programs. Some farmers integrated nurseries and livestock breeding into their agricultural activities as additional sources of income. Nurseries also provided farmers with the opportunity to expand their Wadi production in the long term.

The productivity increases can be plausibly attributed to project measures. In both projects, nearby water resources were developed, and simple irrigation systems were installed, thus transforming partially dry, degraded fallow land into fertile areas. In ADPM, soil and water conservation measures were implemented over an area of 5,260 hectares (13,000 acres) in participatory collaboration with the target group in the Wadis and on additional land. During this process, 1,600 springs were developed, and 72 permanent and 2,899 temporary dams were constructed. In ADPG II, the share of irrigated cultivation areas increased from 1.42% at the time of evaluation to 34% due to irrigation construction measures.⁶ With the establishment of irrigation infrastructure, harvests can now also be obtained during the dry season, achieving the transition from 2 to 3 harvests.⁷ Productivity increases were also achieved through the cultivation and sale of additional promoted crops and intercropping.

Holistic Program Approach to Promote Objective Achievement

The package of measures for both projects also included the establishment of production cooperatives and the construction of processing facilities, the establishment and strengthening of self-help groups, support for landless families, and the implementation of a basic health component. These additional measures aimed to empower Adivasi families to manage the Wadis and engage in further productive activities, significantly influencing the achievement of the listed objective indicators.

In the context of establishing production cooperatives and building processing facilities, successful producer organizations for fruits and vegetables, known as Vibhags, and processing units for cashew processing were established, achieving high profit margins and reaching markets. Although mango processing was not part of the project, the fact that the producer organizations for fruits and vegetables competed directly with local traders when purchasing mangoes helped farmers improve their negotiating position and achieve higher prices for selling mangoes. Vibhags in nearby locations function as production cooperatives. Within the framework of ADPM, 7 cooperatives with a total of 76 Vibhags were established; in ADPG II, there were 3 cooperatives. The umbrella organization (VAPCOL) established as part of the Adivasi projects has developed into a national marketing organization for all cooperative units and is also active beyond the Adivasi programs. This means that the producer organizations have a customer with a secure and large market, which is reflected in the generation of competitive prices. Processing also created jobs locally, with women primarily employed in cashew processing.

Self-help groups (SHGs) (mostly women's groups) were promoted with the main goal of creating additional income and improving the living conditions of their members. They received a comprehensive range of economic, health, and education-promoting training. A focus was placed on training measures for health promotion, such as training on nutrition and reproductive health. The final evaluations of both projects confirmed that SHGs enabled many women to access loans, partly through commercial banks or mutual lending structures. At the same time, the organization in SHGs led to increased independence and decision-making power for women, as well as improved access to financial resources for children's education, medical care, and agricultural inputs.

Observations from site visits and exchanges during the evaluation mission largely confirm these results, but present a somewhat differentiated picture regarding the engagement in economic activities for ADPG II and ADPM. These were taken up by women from the SHGs in Gujarat, but not by SHG members in Maharashtra (due to the relatively small sample size, biases cannot be ruled out). Reasons cited included that women were too busy with work on

⁶ Additionally, in ADPG II, irrigation plans were developed for 865 previously unirrigated Wadis.

⁷ In the project region in Gujarat (ADPG II), productive agriculture would hardly be possible without irrigation during the eight-month dry season.

the farms and lacked financial capital. Whether there are further reasons for the differences could not be determined during the mission. Nevertheless, women emphasized the health benefits, the improvement of kitchen facilities, and even the fact that they could leave the house for longer periods to participate in the project's SHG, with some also noting that it helped them speak in public.

In both projects, landless families received support in the form of vocational training courses, consulting services, and the provision of capital for small investments. The measures aimed to develop alternative employment and income-generating opportunities. Implementation focused on valuing the skills acquired through migration work. At the same time, activities that met local demand as much as possible and were beneficial to the sustainability of the Wadi facilities were specifically promoted (e.g., training landless individuals with a craft background in the maintenance of irrigation systems, or further training and equipping traditional healers to ensure local health care). Thus, the measures were highly aligned with the capacities of the participants and holistically integrated into the overall concept of the project. In ADPM, nearly 2,000 individuals from landless families were supported, and around 100 families were additionally employed in cashew processing facilities. In ADPG II, only 30 landless families were reached. This was justified in direct exchanges with the implementing agency and the NGO by prioritizing the establishment of Wadis.

Additionally, numerous basic health measures were implemented: prenatal check-ups, mother-child care, vaccinations, cultivation and application of medicinal herbs, chlorination of drinking water from wells, deworming treatments, health education, and initial treatments for critical cases of severe malnutrition.

In both projects, follow-up activities and consolidation measures were financed from residual funds. In ADPM, these included (i) soil and water conservation measures, (ii) activities to improve agricultural cultivation systems and increase agricultural productivity, (iii) capacity development and business support, (iv) promotion of networking with government programs and other institutions, and (v) provision of and access to drinking water and sanitation facilities. Through capacity building and the establishment of processing and marketing units, value addition to cashew products could be generated. In the area of water supply, an additional 327 tube wells and 311 hand pumps were installed. Additionally, 285 sanitation facilities were built. The gradual and demand-oriented adjustment of the measures corresponds to the design of the project as an open program. In ADPG II, in addition to the consolidation measures, the development of irrigation plans for 865 Wadis was financed, the Landscape Approach "Integrated Adivasi Development Programmes IADP" was piloted, and the development and implementation of the "Sustainable Strategy and Exit Plan" (SSEP) was promoted, which aimed to ensure a smooth phasing out of the measures and increase their sustainability.

Quality of implementation

The implementing agency for both projects was NABARD. The project implementation on-site was carried out by the NGOs Druhva (ADPG II) and MITTRA (ADPM), both sister organizations of BAIF Development Research Foundation. NABARD took on the strategic coordination and monitoring of the projects, as well as budget management. The NGOs responsible for implementation were in charge of raising awareness among Adivasi families, interacting with beneficiaries, the actual establishment of the Wadis and accompanying infrastructures, as well as conducting numerous training and other "non-investitive" measures. Additionally, a strategic program steering unit (PCSC) was established, composed of representatives from BAIF, NABARD, KfW, and the Indian government (at both national and regional levels), which analyzed the implementation progress of the projects and the associated potentials, risks, and challenges during semi-annual meetings to jointly determine necessary strategic changes.

The management and implementation quality of BAIF and its sister organizations were overall rated as very good during direct exchanges with beneficiaries during the evaluation mission. In particular, the spatial and cultural proximity to the beneficiaries, maintained through local offices in the project regions and the involvement of local staff, helped Adivasi families gain trust in the implementing partners and the projects.

Unintended effects (positive or negative)

Due to the expansion of the WADI by the beneficiaries themselves (sometimes by up to 150%), the demand for irrigation has increased significantly and cannot be fully met by the built infrastructures. Therefore, Adivasi families are making their own efforts to expand the irrigation infrastructure. In the long term, this could have negative impacts on water availability and/or social cohesion. However, there were (as yet) no concrete signs of this during the evaluation mission.

At the same time, water collection reservoirs and other irrigation infrastructure were established, both independently and as part of the projects, which pose ecological and social risks (e.g., health risks due to increased occurrences of mosquitoes and diseases transmitted by them, or accidents/drowning due to a lack of safety

barriers). According to current USSV standards, these would not be permissible. At the time of project implementation, there was no mature framework for environmental and social standards.

Rating summary

The objective at the outcome level was achieved in both projects and can be plausibly attributed to the successfully implemented project measures. Key success factors included the demand-oriented project approach, the participatory involvement of the target group coupled with close, interactively designed support and consulting. Additionally, the value creation of the cultivated products and access to the market were strengthened. Another key factor for success was the holistic project approach. Integrated measures to strengthen health and self-confidence have empowered Adivasi families emotionally and physically to undertake the efforts associated with the establishment of the Wadi. The inclusion of landless individuals in the project approach further promoted social cohesion and enabled the establishment of local structures that were beneficial for the maintenance of the Wadi facilities and the settlement of Adivasi families.

Effectiveness: 1

Efficiency

Production efficiency

The total costs of **ADPG II** were estimated at €7.79 million during the review (see Table 2). In reality, they amounted to €5.79 million, which was therefore nearly 26% lower than originally planned. The low costs, which were mainly incurred as domestic expenses, can primarily be explained by significant exchange rate gains. The resulting remaining funds were used for additional measures to strengthen sustainability. Additional measures to promote a sustainable exit strategy were already planned during the project conception. Since these were to be adapted to the specific needs of the local population, which were not known at the time of the appraisal, the cost item "Contingencies" was set relatively high at €2.9 million. The implementation of the additional measures extended the project duration from the originally planned 7 years to a total of 13 years, an increase of 85%. This extension led to an increase in administrative costs of an average of €10,000 per year, which is only a minor consideration in relation to the total budget. Furthermore, additional indirect costs arose (e.g., for KfW project management, administration by the implementing agency, etc.).

The actual investment costs amounted to approximately €4.66 million, representing 80.5% of the total costs. In this case, investments also include non-investment measures (e.g., the health component, some additional measures). About 65% (52%) of the investment costs (total costs) are attributed to the "Horticulture and Agricultural Development" component, thus to the most important activity, the Wadi facilities. The implementation costs (personnel, overhead, M&E, international consultant) amounted to €1.12 million or 19% of the total costs. This is a relatively low and therefore satisfactory share for a project that is very close to the target group, intensive in consulting, diverse, and tailored to the individual needs of the beneficiaries. Additionally, the project was implemented in remote and hilly areas of India with poor access roads and long distances, which naturally increases the implementation costs.

The beneficiaries' own contribution amounted to approximately €1.04 million or 18% of the total costs. This significantly exceeds the planned share of 10% at the project review. The own contribution was to be made 27% in voluntary labor by participants in construction work and similar activities, and otherwise through the acquisition of local loans (25% investment costs for Wadi development, 75% costs for setting up processing facilities at the village level).

The average specific investment costs per Wadi amounted to €2,592/ha. During the review, €2,601/ha was estimated. The calculated annual funding corresponds to less than €104 per Adivasi family. The support provided is appropriate; for comparison, the national COVID-19 aid was approximately €160 per year per family.

The relatively low input costs are partly due to the moderate operational costs explained in the previous section. They are also a result of the coherence efforts of the project with ADPG I. Due to the short distance between the project sites of ADPG II and ADPG I, seedlings from ADPG I were purchased for the establishment of the ADPG II Wadis. This significantly reduced transaction costs. Finally, particularly due to the remoteness of the project sites and the limited financial capacities of the Adivasi, care was taken to use locally available and comparatively cheaper materials (for example, for the establishment of irrigation infrastructures).

The total costs of **ADPM** were estimated at approximately ₹757.5 million or €14.33 million during the project review. Almost 95% of the total costs, or €13.6 million, were to be financed from the FZ contribution, and the remaining 5% (almost €0.8 million) from the beneficiaries' own contributions. Of the FZ funds, €13.4 million was disbursed (see Table 2).

The beneficiaries' own contributions were to be made in the form of a planned loan component. It was intended that 25% of the investment costs for the establishment of the Wadis would be granted as loans. However, due to the risk aversion of the target group, no contractual agreement could be reached between the implementing agency and the target group. Alternatively, a loan component for the procurement of production goods to intensify agricultural cultivation (e.g., irrigation pumps, machinery) was decided.

Exchange rate gains were also achieved in ADPM. These amounted to approximately ₹130 million. The gains were partly offset by inflationary cost increases; on the other hand, similar to ADPG II, investments were made in follow-up and consolidation measures. The total costs of the project were still nearly €1 million below the planned costs at €13.38 million. Here, too, the implementation phase of the project was extended, particularly due to the additional follow-up and consolidation measures, from 11 to 15 years (which corresponds to a duration extension of 36%).

Table 2: Overview of planned and actual costs for individual services in ADPG II and ADPM in €

	Activities / Components	ADPG II		ADPM	
		Planned in € (2002)	Actual in € (2022)	Planned in € (1998)	Actual in € (2017)
1	Horticulture and agricultural development	2.585.915	3.031.504	7.640.000	8.750.000
2	Equipment and vehicles	528.704	96.671		
3	Operation and Maintenance	723.895	563.995	470.000	550.000
4	Personell	827.728	899.918	2.100.000	1.590.000
5	Overhead costs	0	28.646		
6	Health component	151.346	142.949	1.500.000	720.000
7	Monitoring and evaluation		159.748	330.000	300.000
8	Women's empowerment pogram	0		310.000	200.000
9	Miscellaneous / contingencies	2.901.450	11.410	1.980.000	0
10	Partial amount of domestic costs (regular + SSEP+ IWR)	7.719.037	4.934.841	14.330.000	12.110.000
11	Landscape-approach		143.526		
12	Consolidation of ADGP II		391.162		
13	Additional measures from remaining project funds		294.035		1.270.000
14	Total amount of domestic costs	7.791.500	5.763.564	14.330.000	13.380.000
15	International consulting		32.272		
16	Total expenditures	7.791.500	5.795.836	14.330.000	13.380.000

The actual investment costs amounted to €11.49 million, thus accounting for nearly 86% of the total costs. The operational costs are particularly manageable in light of the enormous transaction effort, as already presented under ADPG II. This is not least due to the relatively low personnel expenses of MITTRA/BAIF.

The average specific investment costs per Wadi amounted to about €2,687/ha, which was slightly higher than in Gujarat. With nearly 14,000 Adivasi families reached by the project, the annual funding is significantly below €100 per Adivasi family (€64.36 with a project duration of 15 years).

In this project, the relatively low costs are partly due to the clear operational costs. Additionally, in ADPM, locally available and comparatively cheaper materials were also used for the construction of irrigation infrastructure.

For both projects, ADPM and ADPG II, it can be stated that the use of NGOs as project implementation units was essential for high production efficiency. BAIF has extensive knowledge of the culture and language of the beneficiaries, which enabled efficient implementation of the holistic project approach under manageable operational

costs. Incentives for efficient project implementation were supported by regular evaluations of BAIF's performance by NABARD.

Allocation efficiency

ADPG II: ADPG II: At the end of the project, the average annual total income per household was approximately ₹120,530.90 (about €1,500). The project invested an average of €2,592/ha, which corresponds to an annual investment of about €104 per Adivasi family over the project duration. The costs of the project are therefore significantly lower than the financial added value created. The non-monetarily quantifiable effects of the project, such as the improvement of soil quality or the health of the Adivasi, as well as an enhancement of their self-esteem and self-worth, have not yet been considered.

ADPM: At the end of the project, the average annual income of an Adivasi family was approximately ₹45,000 (about €560). The project invested about €65 per Adivasi family per year. Therefore, the financial added value created for ADPM is also significantly higher than the costs of the project. And here, too, the actual added value of the project includes non-financial aspects such as health, education, cohesion, and self-worth.

Rating summary

The outcomes and impacts achieved by both projects are favorable in relation to the costs of their implementation. Overall, production efficiency and allocation efficiency are rated as successful.

Efficiency: 2

Impact

Overarching (Intended) developmental changes

The adjusted goal at impact-level within the framework of the EPE was the sustainable improvement of living conditions for the socio-economically disadvantaged Adivasi in the project regions.⁸ As a secondary objective, the improvement of living conditions was intended to reduce migration to urban centers. The achievement of the impact-level goal can be summarized as follows:

Table 3: Achievement of impact goal

Indicator	Status PP	Target Value according to PP	Actual Value at AK	Actual Value at EPE
(1) Income: Change in real income of participating families (in INR)	ADPM (1998): 8.500 INR (total income) ADPG II (2002): 11.355 INR (total income)	Increase in real income by at least 50%.	ADPM (2012): 45,000 INR or an increase in real income of 100%. ADPG II (2022): 120,530 or an increase in real income of 440%.	Value met Project-specific data is not available for the evaluation period (2023/24). However, relevant scientific studies show that the average annual income of families participating in the Wadi program was 72,000 INR, which corresponds to a three-digit increase in real

⁸ The original objective of the projects during the review was "to contribute to securing the livelihoods of socio-economically disadvantaged Adivasi families who have previously migrated seasonally to urban centers through resource-secure measures in the areas of agriculture and forestry, planting programs, and accompanying measures" (ADPM) or "Public and private interventions improve the sustainable management of natural resources, minimize the risks of climate change, and increase productivity, income, and employment in rural areas" (ADPG II). No indicators for measuring impact were defined for ADPM. ADPG II was part of the development cooperation program "Climate and Environment in Rural Areas of India." The program goal was taken as the impact-level objective. For ADPG II, indicators at the program objective level were formulated, including an income target. A uniform objective formulation was chosen for both projects as part of the evaluation.

				income. Thus, the income was almost double that of non-beneficiary families.
(2) Migration: Proportion of supported families in which at least one family member migrates seasonally for survival reasons (in %).	No data available	Decrease in seasonal migration resulting from necessity	No data available	Value met The results of scientific studies show a significant decrease in the average frequency and duration of seasonal migration among participating families over time, as well as compared to non-participating families.

The indicators formulated to measure goal achievement do not cover the intended positive environmental impacts of the project, although these plausibly also contribute to the sustainable improvement of living conditions (see also relevance). Due to the lack of quantitative data on the improvement of ecosystem services, no indicator was included in the EPE.

Contribution to ((intended) developmental changes

Indicator 1: Income

The effects of the project can be assessed based on the available data from the final control (AK) as well as scientific studies. They are additionally supported by observations from the evaluation mission, which were largely obtained from qualitative interviews and focus group discussions with various groups and stakeholders in the visited project communities.

The results of the AK for both projects confirmed a significant increase in the average annual household income of the beneficiaries (see Table 3). The inclusion of wage labor and state-subsidized employment is no longer relevant for most residents of the project sites, as they generate enough income from their own agricultural land and generally no longer fall below the poverty line. The income generated was even sufficient to make increased investments, for example, in agricultural production means (machinery, solar pumps). The cultivation of cover crops allowed farmers to earn income from agriculture year-round and concentrate their resources on agricultural production.

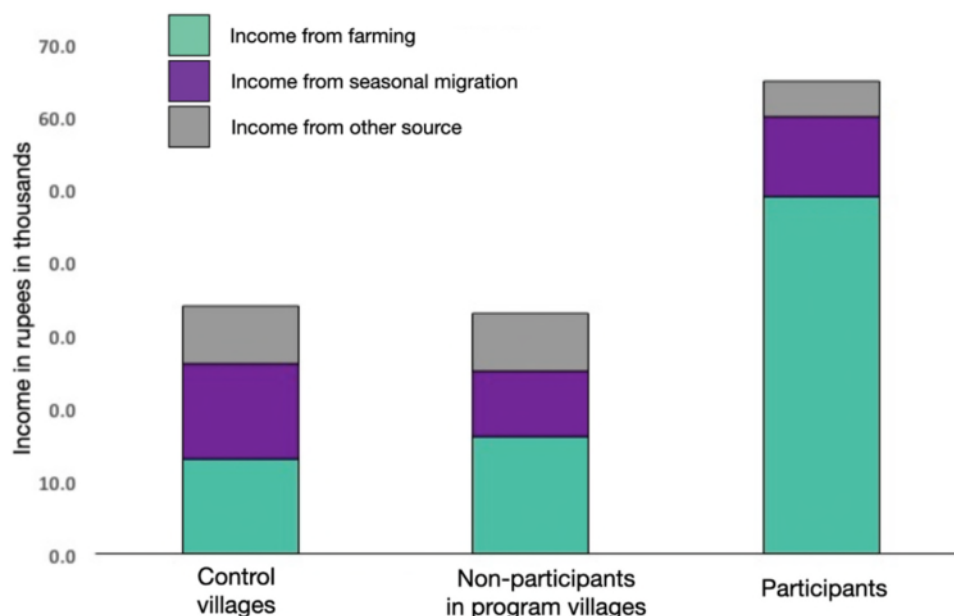
Current scientific studies on the effects of the Wadi approach in the regions of Rajasthan, Gujarat, Maharashtra, and Karnataka – including households that were part of the target group of the evaluated projects – confirm a significantly higher income for project beneficiaries (participants) compared to two comparison groups: (i) families living in the same villages as project beneficiaries but not participating in the project (non-participants in program villages), and (ii) non-participating families from villages in the surrounding areas of the projects (control villages).⁹ The results presented in Figure 4 show that project beneficiaries achieve significantly higher household incomes than families in the control groups. The results also confirm that the incomes of project beneficiaries are largely derived from agricultural activities (income from farming).

Nienkerke and Patt (2022) further show based on the same dataset that both productivity and average incomes increase with the age of the Wadis. This aligns with expectations, as the planted fruit trees only reach their full yield after a certain period. In addition to project participation itself, the number of planted fruit trees and the size of the irrigated area are central determinants of household income. Based on these results, we conclude that the

⁹ Nienkerke, I., Thorat, A., Patt, A. (2023) From distress migration to selective migration: Transformative effects of agricultural development on seasonal migration. *World Development Perspectives* 29, 100483. <https://doi.org/10.1016/j.wdp.2022.100483>; Nienkerke, I., Sawant, Y., Jörin, J., Holla, A., Patt, A. (2024) Escaping chronic poverty: long-term impacts of an agricultural development program. *Environment, Development and Sustainability* (<https://doi.org/10.1007/s10668-023-04427-y>) und Nienkerke I. und Patt, A. (2022) From wasteland to oasis: Transformative effects of trees on farmland and livelihoods. *Land Degradation & Development* 33(18), (<https://doi.org/10.1002/ldr.4422>). All three studies base on the same dataset. Unfortunately, the lead author of the studies did not provide the underlying dataset in a processed form despite intensive efforts by the evaluation team and contrary to common scientific practice, so that no independent analyses tailored to the specific needs of the evaluation could be conducted.

projects have made a direct and essential contribution to improving the income situation and thus to achieving the impact-level goal.

Figure 4: Household Income of Project Beneficiaries and Non-Beneficiaries



Source: Nienkerke et al. (2023).

Indicator 2: Migration

A central challenge at the beginning of the projects was a high seasonal migration of Adivasi families to urban centers, often with negative consequences for the affected families. Seasonal migration was and is a widespread phenomenon and a survival strategy for poor rural households in India. Migrants often work on construction sites, plantations, and quarries under harsh conditions and for low pay.

The results of the evaluation mission show that the situation of the beneficiary families has changed drastically. Qualitative interviews and focus group discussions with various groups and stakeholders revealed that most of the former project beneficiary families now use migration work solely as a means of generating additional income during the off-season. Furthermore, typically not the entire family migrates anymore, but only one family member.

These observations are also supported by the study by Nienkerke et al. (2023), which concludes that the Wadi approach leads to a significant reduction in the frequency and duration of seasonal migration. Only 7% of households participating in the Wadi program reported seasonal migration. In over 60% of participating households, at least one person has permanently stopped seasonal migration since participating in the program. The average duration of migration was one month. Among non-participants in the Wadi program, the proportion of migrating households was 16%, and the average duration of migration was 2.4 months. Furthermore, migration for participating families is no longer a matter of survival but serves to generate additional income for special expenses during the agricultural off-season. The previously forced migration has thus transformed into selective migration. The study also shows that families with selective migration take up significantly better-paid jobs in nearby rural areas, sparing them the hardships of distress migration under poor, sometimes inhumane conditions. The study by Nienkerke et al. (2023) also concludes that the migration income of former project beneficiaries exceeds that of the control groups achieved through seasonal migration, despite a shorter migration duration for the former project beneficiaries.

According to Nienkerke et al. (2023), the existence of alternative income opportunities is statistically the most important determinant of the length of migration duration: as income from agricultural activities increases, the duration of migration decreases, *ceteris paribus*. Migration-reducing effects also have the potential to expand and intensify agricultural activities. These results suggest that the project activities have made a direct contribution to the decline of seasonal, poverty-induced migration of beneficiary families.

Ecosystem Services

In theory, it is expected that the planted fruit trees of the Wadi plantations and the trees of the forest belts will lead to an increase in organic soil carbon. Many important ecosystem services, such as the filtration and storage of water, the formation and maintenance of soil structure, the securing of nutrient supply, and the fixation and breakdown of pollutants, are associated with organic carbon in the soil, which in turn promotes plant growth. Furthermore, a positive contribution to climate protection is expected. However, objective, traceable, and quantitative data on the development of ecosystem services were not available at the time of the review and AK, nor are they currently available. Therefore, a quantifiable before-and-after comparison is not possible.

However, a study by Nienkerke and Patt (2022) analyzes the environmental impacts of the Wadi plantations in the regions of Rajasthan, Gujarat, Maharashtra, and Karnataka – including sites of ADPM and ADPG II. They conclude that the Wadi facilities have positive effects on water availability after the planting of trees and on agricultural productivity. The water-absorbing roots of the trees go deep and do not compete with surrounding plants for moisture. They also conclude that the amount of carbon sequestered in the fruit plantations of their study area (188,231 families, on approximately 80,000 ha) is about 1.84 million tons of carbon, which corresponds to the removal of 6.7 million tons of CO₂ from the atmosphere within 10 years. The area of the project region of ADPM and ADPG II combined corresponds to 7,200 ha, or about 9% of the area of the study area, which would correspond to a sequestered carbon amount of 165,600 tons.

Direct conversations with beneficiaries and stakeholders also clearly indicated that soil quality and biodiversity in the project regions have significantly improved due to the measures taken. The land was described as barren and dry before the project interventions and is now flourishing and fertile. Observations during the evaluation mission support these statements. We encountered fertile fields where various vegetables and fruits were planted, which rely on nutrient-rich soils for healthy growth. The soil quality and health are also reflected in the variety of insects (ants, spiders, etc.) present on the Wadi plantations.

General Living Conditions

The increasing agricultural activities due to the Wadi facilities have enabled families to significantly improve their food security and settle down, with a variety of positive side effects: the health status of Adivasi families has improved, the local economy is stabilized and growing, children are increasingly attending school, and the cohesion and self-esteem of the local population have risen. In discussions with project beneficiaries, we were also confirmed that there is a particularly increased self-esteem among women. For example, it was mentioned that women would not have dared to speak freely with people outside the village before the project measures, which is no longer a major problem today. In one of the villages visited during the evaluation trip, a woman is now the leading head of the village. These positive secondary effects were facilitated by the holistic project approach, which also included health promotion and educational measures.

The study by Nienkerke et al. (2023) also confirms the positive effects of reduced migration on the education of Adivasi children. The beneficiary families invest a significant portion of their income in their children's education, which was not the case for the control group. Reduced access to education has been identified in other studies as the most important social cost factor of migration. Furthermore, the study shows an increase in life satisfaction among project beneficiaries, who can now better escape the harsh and exploitative conditions of migration work. In contrast to the control group (non-participating households), beneficiaries reported a significant improvement in their food availability and diversity.

Additionally, the study found spillover effects in the project areas. For example, non-participating villagers also benefited from an improved local economy, as they can now find local employment opportunities (e.g., agricultural work in Wadis, processing or marketing of Wadi products such as cashew and mango). Another positive spillover effect is the spread of the Wadi approach even without external support.

Due to the recorded success, the WADI approach received much attention from political actors and has been replicated in many parts of the country. A major achievement regarding the broad effectiveness of both projects is the institutionalization of the Wadi approach through the establishment of the TDF. This was established in 2003-04 based on the successful experiences with the Adivasi development programs by NABARD to expand the Wadi approach from the regional to the national level. Since then, the Wadi program has been replicated with the support of TDF-NABARD in 27 states and encompasses more than 0.5 million families. Additionally, the approaches to participatory village development planning and the concept of holistic landscape planning, "landscape approaches," which were applied in ADPG I and ADPG II, have found wide application in further BAIF programs.

Contribution to unintended Development Policy Changes

At the time of the evaluation, there were no concrete indications of unintended changes that had occurred.

Rating summary

The program activities secured the livelihoods of socio-economically disadvantaged families by breaking the cycle of migration and providing them with the opportunity to substantially and sustainably increase their productivity and income. The key to success was not to combat migration per se. Rather, the WADI approach enabled addressing the root causes of migration caused by necessity, namely chronic poverty. The projects have also had structural effects: the Wadi approach was so successful that it has been replicated in many parts of the country and continues to be implemented to this day. Overall, we assess the development policy impacts of both projects as very successful.

Impact: 1

Sustainability Capacities of persons concerned

The Adivasi families still possess the necessary knowledge, financial resources, and motivation to sustainably maintain and expand Wadi production. During the ex-post evaluation mission, we encountered many families that have taken out loans to expand the Wadi facilities and increase agricultural productivity (e.g., for the purchase of small tractors or solar-powered water pumps). It was confirmed that the repayment of the loans is facilitated by the gains in yields and income. According to the Adivasi families, materials for maintenance of the irrigation infrastructure, as well as for the protection and care of the trees and further agricultural production, are available locally. The community also feels capable of carrying out minor repair and maintenance work independently. For more complex tasks, local craftsmen, who were also trained as part of the projects, are mostly relied upon.

The established processing facilities for cashews and mangoes have largely developed into cooperatives, which, according to their members, can achieve reasonable profits. Since the end of the project, the processing facilities have been significantly expanded and modernized, also with the help of subsidized loans and other government support.

Contribution to supporting sustainable capacities

The accompanying training and advisory measures have laid the groundwork for the long-term preservation of the Wadis and the application of sustainable agricultural practices. For example, farmers interviewed during the evaluation mission confirmed that, due to the potential long-term negative consequences of chemical inputs, they prefer to use organic inputs (compost, manure, and green manure) and pest control through pheromone traps and sticky traps. The production and/or application of these organic inputs were part of the training content of the Wadi programs.

Furthermore, sustainability has been strengthened through the promotion and training of Wadi Tukadis (organization of Wadi farmers) and water user groups. Additionally, field advisors (mainly youth from the program villages) were trained to work within the cooperatives and provide advisory support to farmers after the project concluded.

Ongoing support for farmers in the care of fruit trees and beyond in the application of sustainable agricultural practices is ensured by the presence and accessibility of the BAIF Development Research Foundation in the project zones, which acts as agricultural advisory services. BAIF maintains training centers and advisory offices in the project region that can be visited by project beneficiaries to receive help and advice. BAIF also regularly offers training sessions that benefit former project participants.

BAIF also supports the established processing facilities for mango and cashew in marketing and branding through the established umbrella organization VAPCOL. VAPCOL additionally provides services such as procurement, sorting, selling, and exporting primary products.

Durability of effects over time

Realistically, the trees planted as part of the projects will bear fruit for about 20 more years. However, due to the independent expansion of the Wadis and the additional planting of trees to this day, it can be assumed that the Wadi facilities will be usable as a potential source of income for much longer.

During the evaluation mission, it was found that the soil conservation measures implemented in sloped areas during the program have led to permanent embankments and leveled plots. The water conservation structures, such

as water reservoirs, spring wells, and lift irrigation systems, are mostly operational. The water user groups continue to actively participate in the management and maintenance of these structures. The training of some landless individuals in the repair and maintenance of water structures has also helped maintain the benefits of the program.

In discussions with beneficiaries, it was confirmed that self-help groups are often no longer fully functional. Reasons cited include a lack of orientation and guidance. However, there are exceptions; the evaluation mission encountered women's self-help groups from ADPG that continue to successfully run small businesses (e.g., restaurants) to this day.

The implementation of future Wadi projects and the sustainable support of beneficiaries by NABARD is facilitated by the TDF, which was established to finance the nationwide expansion of the Wadi approach. Furthermore, a new national law that imposes fines for free grazing simplifies the protection and expansion of the Wadi approach.

To further strengthen the sustainability of the Adivasi development programs, it would be beneficial to enhance the integration of Adivasi families into the formal financial system. Many Adivasi families lack financial identity and do not have bank accounts. Through formal integration, beneficiaries could be systematically included in other (government) programs for providing subsidized loans, where banks often act as intermediaries.

Rating summary:

Even nearly 10 years after the completion of ADPM and 6 years after the completion of ADPG II, the Wadi facilities are being maintained and used as primary sources of income for Adivasi families; in some cases, already by the next generation. The sustainability of the Wadi facilities has been enabled by the establishment of long-term locally available capacities and ensured by the ongoing presence of the implementing NGO BAIF in the project regions. Furthermore, the strong emotional attachment to the Wadis, which Adivasi families still view as the medium that has changed their lives (for the better), seems to contribute to the sustainable care of the Wadis. Although there is a potential risk of resource overexploitation (especially of water resources) due to ongoing climate change and the expansion of the Wadi facilities, this risk is not immediate.

Sustainability: 1

Overall rating: 1

With a holistic approach, the projects have succeeded in creating alternative and sustainable income opportunities, thereby overcoming the necessity of seasonal migration. Both projects have focused on supporting marginalized groups and on the sustainable management of natural resources to mitigate the impacts of climate change risks, in line with the priorities and fundamental principles of German development cooperation and those of India.

The projects have achieved the desired effects at the outcome and impact levels, and in some cases exceeded them, contributing to a significant improvement in the living conditions of Adivasi families. They have successfully leveraged the potential of rural areas and countered rural exodus. Key success factors included a close alignment with the needs and capacities of the target group, a holistic approach, and a motivated and respected implementation partner among the target group.

The positive effects that exceed expectations continue to this day. Currently, there are no concrete signs of deterioration, although there could potentially be a risk of water overuse in the longer term due to the ongoing expansion of the Wadi approach and the consequences of climate change. Particularly noteworthy is the establishment of the Tribal Development Fund, which was founded by NABARD due to the significant successes of the Adivasi development programs to roll out the Wadi approach nationwide. Thus, the projects have pioneered support for Adivasi families and have had structural effects. Among the few weaknesses of the projects are missed synergies due to better coordination of Indian support programs for Adivasi and rural development, as well as potential efficiency losses due to significant extensions of project durations.

Overall, the positive results clearly exceed expectations, which is why the projects are rated as (still) very successful.

Contributions to the 2030 Agenda

The projects align with the fundamental principles of the 2030 Agenda and contribute both directly and indirectly to its implementation. They have primarily contributed to a significant reduction in poverty (SDG 1) and improvement in nutritional status (SDG 2) in the project areas. Furthermore, through soil and water conservation measures and the planting of forest belts, the resilience of the target group to the impacts of climate change has been strengthened, and a contribution to the reduction of CO₂ emissions has been made (SDG 13). The accompanying measures to improve health conditions and drinking water supply contribute to achieving SDG 3 (Health) and SDG 6 (Water), although the contribution is only marginal.

The projects pursued a holistic approach and achieved improvements on social, economic, and ecological levels. In addition to material successes, the projects succeeded in enhancing the self-esteem and self-actualization opportunities of the target group. Another success of the project is the reduction of seasonal migration work, with strongly positive effects on the identity and living conditions of the target group.

The implementation of the projects was participatory, with close involvement of the target group. With the Adivasi as the target group, the promotion of an economically and socially disadvantaged and highly vulnerable population group was at the forefront.

Project-Specific Strengths and Weaknesses as well as Cross-Project Conclusions and Lessons Learned

Strengths of the project include, in particular:

- A highly relevant objective combined with a clear focus on a socio-economically disadvantaged population group enabled high impacts;
- The leveraging of synergies with the predecessor project (ADPG I);
- A holistic project approach that encompassed not only the main measure (establishment of agroforestry plantations) but also additional measures for building sustainable capacities and creating local economic structures (health promotion, educational measures, establishment of processing facilities, etc.);
- The focus on simple measures that allowed for participation of the target group;
- The strong, motivated implementation partner with expertise and good knowledge of the local culture and language, as well as its ongoing presence in the project regions;
- The pioneering character/testing of the project measures of ADPG I and ADPG II and their subsequent national expansion through the establishment of the Tribal Development Fund (including Wadi approaches, participatory village development planning, and the concept of holistic landscape planning "Landscape Approach");
- The replicability of the approach in other regions with similar conditions.

Weaknesses of the project include:

- Ongoing sustainability risks, particularly regarding the overexploitation of natural resources, despite the long project durations and the consolidation measures primarily implemented in ADPG II;
- Ecological and social risks of some water collection reservoirs that do not meet current environmental and social standards;
- Room for improvement in national governance and coordination of the multitude of state and non-state programs to support Adivasi and sustainable resource management.

Conclusions and Lessons Learned:

- The holistic project approach was crucial for success. It has proven beneficial that, in addition to the establishment of agroforestry plantations and the construction of simple irrigation infrastructure as core components, further synergistic measures such as training in care and maintenance, procurement of input goods, establishment of processing facilities, and the active promotion of self-help groups and production cooperatives were supported. This has created the conditions for the long-term utilization of agroforestry plantations.
- The primary target group of the project were land-owning families who were supported in the establishment of agroforestry plots. The parallel training of landless individuals in activities for which there is local demand and which are needed for the maintenance of the installed irrigation infrastructure has increased the sustainability of the project measures, promoted the development of local value chains, and strengthened social cohesion.
- The implementation partner of the project was a local NGO with many years of experience in promoting rural development and good knowledge of the local language and culture. Through local and technical knowledge, as well as the long-term presence of the implementation partner in the project region, trust was quickly built with the smallholder target group, and the details of measures were contextually designed. Additionally, its ongoing presence strengthens the sustainability of the project.
- Through the active involvement of the target group in the establishment of agroforestry plots and the installation of smaller irrigation systems in the form of paid work contributions, new skills were imparted and ownership was strengthened. In the project context, payments to the target group helped partially compensate for income losses from the renunciation of seasonal migration work, allowing them to focus instead on the establishment and care of agroforestry plots.
- The project has succeeded in empowering the target group for the sustainable operation of the established agroforestry plots. To further promote the development or expansion of the plots, it would be helpful to integrate Adivasi families more into the formal financial system to facilitate their access to credit programs.

Evaluation approach and methodology

Ex post evaluation methodology

Ex post evaluations follow the approach of a rapid appraisal, i.e. a data-supported, qualitative contribution analysis resulting in an expert opinion. Effects are attributed to the project considering plausibilities, based on thorough analysis of documents, facts and impressions. This includes – if possible – the use of advanced technology (e.g. satellite imagery, online interviews, geocoding). There is a follow-up on possible conflicting information, attempting to eliminate inconsistencies and to base the rating on information that – to the extent possible – has been confirmed through different sources (triangulation).

Documents:

Internal project documents, strategy papers, Scientific literature, EPE of ADPG I, Consultant reports

Data source and tools for analysis:

Semi-structured focus group discussion, qualitative interviews, data from implementing agency and scientific literature

Interview partners:

NABARD, BAIF, MITTRA, DHRUVA, target group

The analysis of project effects is based on the theory of change defined at project appraisal and documented within the impact matrix, which may be updated for the purposes of the evaluation.

The evaluation report argues which factors contributed to the observed effects and why – as well as the probable extent of the project's contribution (contribution analysis). The context of the project is taken into account concerning its influence on the results.

The conclusions are put into perspective regarding the availability and accuracy of the available data.

The framework of the evaluation is established by the evaluation conception.

This method provides a balance between cost and usefulness, generating evaluation findings with appropriate effort and expense. Also, it allows for a systematic success rating across the FC projects. Thus, an isolated ex post evaluation cannot fulfil the requirements of a scientific assessment in the sense of a strict causality analysis.

Following aspects caused limitations for the evaluation:

Due to the enormous size of the project region, only a small proportion of the project sites could be visited. Quantitative data on the income situation and productivity of the supported Wadis were not available at the time of the evaluation.

Instead, data from scientific studies were used.

Rating methodology

Projects are rated on a six-point scale for each of the OECD DAC criteria. 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 shortcoming
- Level 3** moderately successful: project falls short of expectations, but the positive results dominate
- Level 4** moderately unsuccessful: significantly below expectations, with negative results dominating despite discernible positive results.
- Level 5** unsuccessful: despite some positive partial results, the negative results clearly dominate
- Level 6** highly unsuccessful: the project has no impact or the situation has actually deteriorated

The overall rating on the six-point-scale is compiled by weighting all six 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 ("impact") and the sustainability are rated at least "moderately successful" (level 3).

The annex to this report is available upon request (german only).

Impressum

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