

Ex Post-Evaluation Brief

Pakistan: Groundwater Development in the North-West



Programme/Client	Groundwater Development in the North-West BMZ No. 1987 66 032*	
Programme executing agency	Federally Administered Tribal Area Development Corporation (FATA DC) **	
Year of sample/ex post evaluation report: 2012/2012		
	Appraisal (planned)	Ex post-evaluation (actual)
Investment costs (total)	EUR 10.85 million	EUR 11.87 million
Counterpart contribution (company)	EUR 0.62 million	EUR 0.76 million
User contribution	EUR 0.0 million	approx. EUR 0.90 million
Funding, of which budget funds (BMZ)	EUR 10.23 million EUR 10.23 million	EUR 10.21 million EUR 10.21 million

* random sample; ** Later Governor's Secretariat for the Federally Administered Tribal Areas (GS FATA)

Project description: The programme concentrated on the Federally Administered Tribal Areas (FATA) in the Northwest of Pakistan with one project area (Jani Khel) located in Khyber Patunkhwa (*aka*: North-West Frontier Province/ NWFP). It comprised the construction of 118 small irrigation facilities (largely wells equipped with pumps for irrigation purposes) covering a total area of approx. 5,500 hectares in three districts of the North-West. Thanks to a favourable foreign exchange rate, the programme was expanded to include another district (Parachinar), which facilitated the execution of 187 projects over an actual total area of 4,575 hectares. Due to this expansion, capacity bottlenecks at the partner and a severely deteriorating security situation since 2001, the programme was completed in 2005 (instead of 1995).

Objective: The overall objective was to contribution to improved incomes of the rural population in the region, to be measured against working income in the 5th operating year. The programme objective was increased agricultural production and land productivity with grain yields as well as the actually irrigated surface as indicators. **Target group:** the local Pashtun tribal population (about 60% below the poverty line, literacy rate 17%); additional secondary effects (positive employment, income and food effects) expected for the Afghan refugees living in the areas at that time.

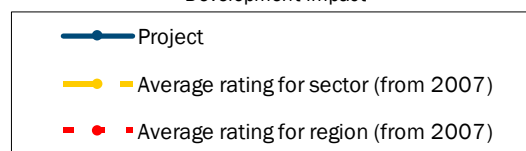
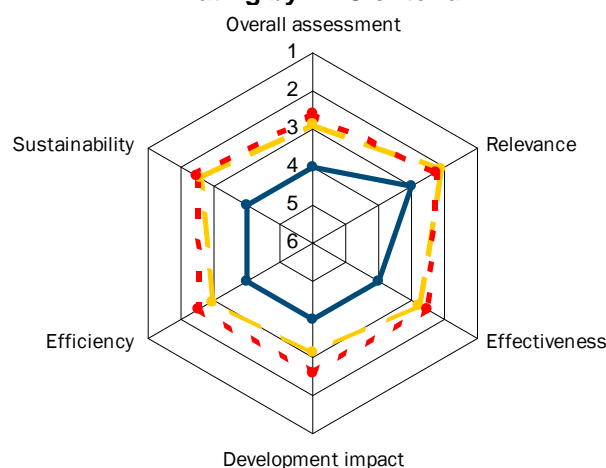
Overall rating: 4

Overall performance is insufficient: The anticipated results were not sufficiently achieved in measure for lack of maintenance of the facilities and due to inadequate extension services and operational support provided to the user groups.

Of Note:

- In similar infrastructure projects, adequate advisory and/or training activities should be planned for from the outset.
- The introduction of power and water fees contradicted previous promises to the population, which compromised on the target groups' participation.
- Due to the precarious security situation, it was neither possible to adequately follow up on operations nor to conduct a local surveys, leading to a lack in recent data.

Rating by DAC criteria



SUPPLEMENTARY BRIEF INFORMATION

The Federally Administered Tribal Areas (FATA) in Northwest Pakistan are the most economically backward and least accessible region in the country. They do not constitute an autonomous province and are formally directly subordinate to central government. The mainly Pashtun population practically governs itself under a system of traditional law mostly dating from the colonial era (*jirga*). The social fabric is steeped in tradition and predominantly based on clan or tribal allegiances. At programme appraisal, the FATA provided a refuge for (above all Pashtun) refugees from neighbouring, then Soviet-occupied Afghanistan. Virtually no Afghan refugees remain today. Due to political developments in the whole region, the security situation in FATA deteriorated drastically since programme start.¹ At the latest since 2007, the executing agency could hardly maintain a local presence and cannot carry out systematic surveys. Within its limited capacities, a dataset updated in October 2012 is available, but it provides no detailed current information on the actual use of the wells and irrigation at specific project locations. On the other hand, information provided contains no indications that the critical situation encountered during the final inspection in 2009 has substantially improved. Where no recent data was available, the information used at final inspection in 2009 was checked for plausibility and continued validity and applied where suitable. At programme start, the integration or pacification of the tribal population was cited as another objective, calling for the free provision of basic infrastructure, such as power and water supply, roads and schools. In the further course of the programme, the executing agency, however, demanded financial contributions from the population for water and power supply, which proved to be a problem.

EVALUATION SUMMARY

Overall rating: Based on the assessments below, we rate project performance as altogether insufficient. **Rating: 4**

Relevance: The core problem at programme appraisal was identified as food shortage both for the local population and the refugees who had fled there at that time. The key factor singled out for the programme areas was insufficient agricultural production in the programme regions for lack of adequate and regular water supply due to insufficient rainfall and absence of irrigation. Other constraints were insufficient advice and support in farming issues by the government extension service, the partly inadequate physical infrastructure as well as limited market access. These problems are still relevant today and the selected programme objectives and the related indicators appear to adequately reflect this. In its intervention logic, the selected approach can be regarded as generally suitable to contribute to solving these problems: overall design and technical layout of the individual projects were

¹ After the Soviet withdrawal in 1989, a civil war lasting several years broke out in Afghanistan, which - in the mid-90s - led to the take-over by the fundamentalist Taliban (with the simultaneous strengthening of Al-Qaeda). The occupation of Afghanistan as of 2001 by NATO troops marked the beginning of the so-called "war on terror" that has continued since.

adequately adapted to the target groups' requirements and the rural conditions. In socio-economic-institutional terms, however, costs were – in retrospect – considerably underestimated, as were the project executing agency's capacity substantially overestimated. Unlike in subsequent, similar interventions through ADB and the World Bank, the programme relied on seemingly intact traditional institutions. This resulted in a concept without institutionalised user involvement, which in hindsight impaired the effectiveness and sustainability of the intervention. With hindsight, sufficiently intensive support and training of users and the formal creation of appropriate committees (user committees or similar) would have been called for from the outset. Meanwhile, a very oligopolistic buyer setup has developed, obstructing market access for farmers: It is difficult to assess the dimension of this constraint at programme appraisal in retrospect, especially as there are hardly any indications documented in this respect.

With hindsight, the anticipated secondary benefits to Afghan refugees then living in the region appear to be overambitious.

At the latest by 2002, the problem of water availability since has constrained relations among the provinces in Pakistan². This aspect was taken into account in programme design by requiring the executing agency to regularly monitor groundwater resources. A study conducted at the request of BMZ in 2005 confirmed that groundwater extraction is (in parts significantly) below natural regeneration. Nonetheless, it cannot be ruled out in this context that the programme could possibly fuel potential conflict at least in the medium term, thus having an effect contrary to the actual objective.

In general the programme's intervention logic of is considered sound and plausible. With hindsight, however, it can be questioned whether the envisaged rise in income can actually be achieved without gearing the intervention more explicitly towards greater diversification – as opposed to conventional wheat cultivation. This, however, would have required catering for an adequate physical infrastructure and market access as well as systematic extension services.

At the time of its design and implementation, the programme conformed with the efforts of the Pakistani Government to reduce regional development disparities between FATA and the other Pakistani provinces through special development programmes in the agriculture sector. It was also aligned with prevailing priorities in the Federal Government's country strategy and development-policy priorities for Pakistan at the time.

Summarising, relevance can be assessed as satisfactory. Sub-rating: 3

Effectiveness: The programme objective of raising agricultural production by expanding irrigated land was only achieved to a limited extent. Of positive note is the programme's expansion – thanks to a favourable exchange rate – to another region (Parachinar), leading

² The country has been officially classified since as water stressed.

to an initial output of 187 individual projects, which exceeded original targets at appraisal (118 individual projects) by about 58%.

At least for a certain period, capacity utilisation at the irrigated sites considerably exceeded the targets cited in the appraisal report (120% compared with 74% in Wana Plain). Only one harvest a year, however, now apparently takes place on irrigated land. The planned increase in yield of 500 kg wheat/hectare to at least 1,000 kg wheat/hectare appears to have been achieved or exceeded at most sites, although there is no evidence that - apart from traditional wheat cultivation - higher-value crops (possibly more demanding in production) have been adopted. According to the executing agency's evaluation report from October 2012, wheat yields in the FATA region increased from the cropping season 2001/2002 to 2008/2009 by 696 kg/hectare to 1,301 kg/hectare. With other crops (maize, potatoes, onions and vegetables), however, the yields remained almost unchanged and fell well short of the Pakistani average. According to the latest information, the largely oligopolistic purchasing setup provides little incentive for the farmers to expand their marketable production.

Instead of 5,500 hectares planned initially (revised target), a total of 4,575 hectares was finally reached at programme completion in 2005. Approx. 85% of these irrigation systems were operational, which altogether amounts to an irrigable area of approx. 3,980 hectares. A limited sample at final inspection in 2009 revealed an actual utilisation rate of almost 30%. The evaluation of the executing agency sent in October in 2012 provides no indications of improved utilisation in the meantime. According to this report, 88% of the wells can be used but for the FATA region altogether effectively irrigated land as a share of irrigable land for the period 2008-2009 is put at 39%. At the same time, it reports a decline in irrigated land in recent years due to the deterioration of security.

Operational maintenance of the irrigation facilities is another key constraint. Reliable power supply is not available – or insufficiently, although its provision had been promised to the users by the project executing agency free of charge. In the course of programme implementation, however, users were then required to pay a share of the power cost, which could not be fully implemented and also led to the abandonment of several projects. Due to problems with power supply in the Jani Khel project region between 1996 and 2003, none of the plots was irrigated. The attempt to reactivate this in 2003 with the installation of diesel generators largely failed due to the users' refusal of to share in the costs. Consequently, 15 of 23 projects had to be abandoned. The executing agency reported in October 2012 that the communities generally take over the maintenance and repair of the wells but refuse to share in the costs of power supply. Hardly any users deploy alternative generators and/or motor pumps, because of high fuel prices.

The executing agency is reportedly planning new projects in the whole region to repair inoperational wells, to run them with solar energy and to train and advise the population in irrigation techniques. The timeframe and scope are not yet clear at present. This also

implies that a substantial proportion of irrigated land in FATA requires rehabilitation, quite likely as a result of insufficient use or maintenance.

The groundwater supervisory system introduced via the project is not in operation. No regular groundwater monitoring is conducted by the executing agency.

In summary, effectiveness is rated as insufficient: despite partially beneficial outcomes (esp. yields increases) shortcomings clearly prevail. Sub-rating: 4

Efficiency: The specific investment costs per surface unit of developed irrigated land (on average 2,110 EUR/hectare) were kept within a reasonable cost range – compared to international standards for similar small-scale irrigation areas supplied from groundwater. Additional costs for electrification in the Jani Khel project area and considerably higher consultancy costs (EUR 1.55 million, approx. 13% of total costs) had not been foreseen at appraisal. Nonetheless, those costs are still assessed as acceptable in view of the weak executing agency capacities and the geographical expansion of the programme area. Altogether, the comparison between initial cost estimates and expenses reveals that costs could be kept roughly within (Jani Khel, 102% of estimated costs) or even below original forecasts (Wana Plain 77%). Due to a favourable foreign exchange rate in the course of implementation, the programme was expanded to another district (58%). This enlargement, the unstable political climate and the executing agency's capacity constraints led considerably delays – compared with the original plan (programme appraisal report: start in 1988 and completion by 1994; actual beginning in 1991 and end in 2005). In summary, production efficiency can be rated as satisfactory.

Allocative efficiency, however, must be rated as insufficient, since – according to available information – the irrigable areas are only used to a small extent (with figures ranging between 28% and 39%); besides, hardly any higher-quality crops are apparently planted apart from wheat, and only one harvest takes place a year.

Altogether, efficiency is assessed as insufficient. Sub-rating: 4

Overarching developmental impact: For lack of adequate data, no valid statements can be made on the programme's development impact, particularly on the development of family income from agriculture. Considering, nonetheless, the low utilisation of potentially irrigable areas, the above-mentioned operational and marketing difficulties and the lack of extension to the users in operating and/or maintaining plots, it may plausibly conclude that - at best – a very limited contribution could be made to improved income or living conditions for the rural population. This may also be inferred from the lack of infrastructure and market access in the region.

The Pakistani Government's intention of the of pacifying the population in FATA through the free provision of water and power and its subsequent contradiction by requiring the

target group to share in the costs of electricity was prone to fuel conflict. In the Jani Khel project region between 1996 and 2003, none of the projects could be operated and 15 out of 23 had to be finally abandoned.

On the basis of the data available, it cannot be assessed based to which extent the relatively low rate of water use could at least in the long term exacerbate resource distribution conflicts and widen disparities among the different groups or even regions.

Altogether, the overarching developmental impact is to be rated as insufficient. Sub-rating: 4

Sustainability: Inadequate perspectives for long-term plant operation (esp. unreliable power supply and maintenance), the lack of extensions support and advice for the users as well as the region's generally unstable security situation have to be considered as key sustainability risks. The programme executing agency was evidently unable to fulfil its mandate adequately. A reorganisation in 2002 entailed the dismissal of key personnel familiar with the programme, which reduced local presence and acceptance of the executing agency among the users.

Two new government projects have reportedly been approved recently. The projects aim to repair wells, replace diesel with solar pumps and regularly monitor water reserves at different measurement points. It will also be explored to make greater use of water from available rivers for irrigation. It is also foreseen to intensively train farmers in proper pump and plant operation as well as in irrigation systems and cropping techniques by the Agriculture Department. The envisaged projects have not yet begun and their timeframe and scope are not yet foreseeable.

The greatest threat to the programme's sustainability, however, are the explosive security situation in the region and the generally worsening structural water shortage (not only) in FATA.

Altogether, sustainability must be rated as insufficient. Sub-rating: 4

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

Projects (and programmes) are evaluated on a six-point scale, the criteria being relevance, effectiveness, efficiency and overarching developmental impact. The ratings are also used to arrive at a final assessment of a project's overall developmental efficacy. The scale is as follows:

1	Very good result that clearly exceeds expectations
2	Good result, fully in line with expectations and without any significant shortcomings
3	Satisfactory result – project falls short of expectations but the positive results dominate
4	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
5	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
6	The project has no impact or the situation has actually deteriorated

Ratings 1-3 denote a positive or successful assessment while ratings 4-6 denote a not positive or unsuccessful assessment

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability) The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The overall rating on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. Ratings 1-3 of the overall rating denote a "successful" project while ratings 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (rating 3).