

Ex Post-Evaluation Brief

UZBEKISTAN: Electrification of the Tashkent-Angren Railway Line



Sector	21030 - Rail transport	
Project/Client	Electrification of the Tashkent-Angren railway line, Financial Cooperation investment measure BMZ No. 2001 65 357* / A+F measure BMZ No. 1930 03 100	
Project executing agency	Uzbekistan Temir Yollari (UTY) – Uzbekistan state railway authority	
Year of sample/ex post evaluation report: 2013/2013		
	Appraisal (planned)	Ex post-evaluation (actual)
Investment costs (total)	EUR 48.40 million	EUR 65.67 million
Own contribution	EUR 23.41 million	EUR 25.59 million
Funding, of which budget funds (BMZ)	EUR 24.99 million -/-	EUR 24.99 million EUR 15.09 million
A+F measure	EUR 0.3 million	EUR 0.3 million

* random sample 2013

Short description: Under the scope of the Financial Cooperation programme, Uzbekistan was given assistance in the modernisation of its railway network, which was electrified along the approximately 114 km long Tashkent – Angren railway line. This line connects the capital Tashkent with the economically important Fergana Valley and, at the same time, is part of the TRACECA network (Transport Corridor Europe-Caucasus-Asia). It is used almost exclusively for freight transport. Rail freight transport, which has always been very important in Uzbekistan, will benefit in particular from the electrification of the line. This will make a contribution to climate and environmentally friendly (freight) transport and strengthen the competitiveness of the line compared to other means of transport. In an A+F measure the operating and maintenance personnel were prepared for the needs of the electrified line and trained in dealing with FIDIC agreements. The Kuwait Fund financed the modernisation of the signal and communication equipment at the same time.

Objectives: Adjusted overall objective: Contribution to economically efficient, environmentally compatible and climate friendly transport as a prerequisite for socio-economic development. **Adjusted programme objective:** Sustainable, efficient and uniform railway operation that meets the demand on the Tashkent – Angren line.

Target group: The direct target group are the production and logistics companies along the line to be electrified and, indirectly, their employees.

Overall rating: 2

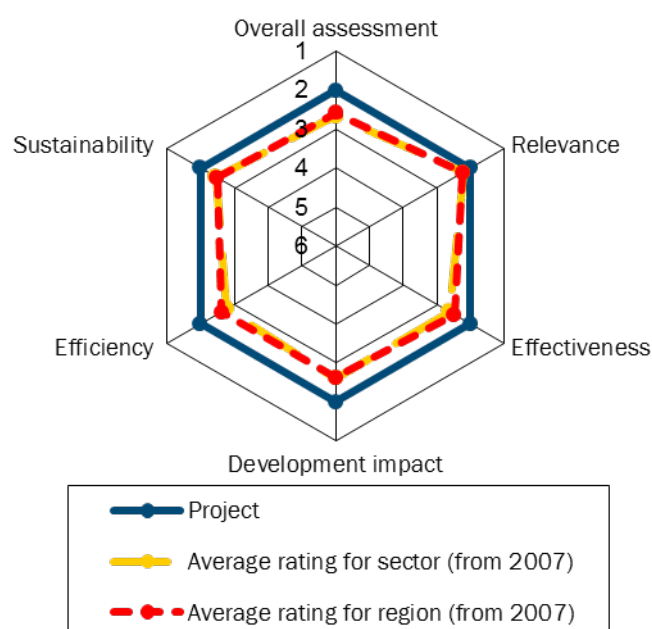
Overall, good developmental impact without significant shortcomings.

Points to note:

Uzbekistan's economic development is impressive, but largely managed centrally and unevenly distributed in some regions.

The state railway authority, UTY, benefits from this economic development, but is suffering under increasing government influence. This also has a negative effect on transparency and the critical analysis of business development by the executing agency's personnel.

Rating by DAC criteria



EVALUATION SUMMARY

Overall rating

The project's success is completely in line with expectations without any major shortcomings (rating 2). A particularly positive element is the high relevance of the measure, both today and in the future, and the capability of the executing agency to ensure sustainability from a technical standpoint. Even though the growth in revenue and profits of the executing agency, Uzbekistan Temir Yullary (Uzbekistan government railway authority, UTY), is sometimes attributable to currency effects and not actual growth, a positive economic trend is unmistakable. The project directly benefits companies located along the line, but does not have any direct impact on poverty. Now that electric traction is possible along the entire line, approx. 25,000 fewer tonnes of CO₂ emissions have been generated since the line went into operation compared with diesel traction, thereby making a contribution to environmentally friendly freight transport.

Rating: 2

Relevance

The core problem in Uzbekistan's transport sector is the geographically unfavourable distribution of key industrial locations, which has grown over time, coupled with the country's challenging topography. Rail is an important mode of transport particularly for transporting mass freight. Passenger transportation in Uzbekistan plays only a minor role (10% of national revenue of the railway); however, it is being expanded in the meantime for tourism. Passenger transportation is insignificant on the project line. The ex-post evaluation therefore concentrates on freight transport.

There is high demand in Uzbekistan for the transport of mass freight. The Tashkent – Angren line was not yet electrified at the time of the project appraisal. This required complex changes in locomotives and the provision of fuel and personnel. As a result of the diesel traction, the weights of the trains (max. 2,500 tonnes) and their speed were also limited, especially on inclines. The core problem of the Tashkent railway administration was the combined electric and diesel operation, which was inefficient, time-consuming and personnel-intensive. The **project objective** was to create a continuous and uniform operating workflow by electrifying the Tashkent – Angren line.

The project objective was and remains consistent with the objectives of the Uzbek government to expand the railway network for mass freight transport to the Fergana Valley and beyond through Kyrgyzstan to China. This is clearly evidenced by the 120 km long railway line to be constructed between Angren and Pap, which was recently launched. The first major contract for a 19 km long tunnel has already been awarded to a Chinese company. With completion scheduled for 2016/2017, the Fergana Valley will thus be completely integrated into the Uzbek railway network. The government has not yet provided any final calculations on the profitability of the construction of this new line.

The Financial Cooperation measure was also coordinated with the activities of other donors (Kuwait Fund for Arab Economic Development (KFAED): replacement of the telecommunications and signal systems along the line; European Bank for Reconstruction and Development (EBRD): electric locomotives; Asian Development Bank (ADB): technical assistance (TA) and the electrification of other lines).

In particular, the relationship of the project to the core issues of the sector and the further expansion of the line are indications that the project is highly relevant both today and in the future.

Sub-Rating: 2

Effectiveness

The **project objective** is considered achieved if operation of the Tashkent – Angren line is sustainable, efficient, uniform and meets demand. The following indicators are used to illustrate whether the project objective has been met (adjusted target system):

Indicators	Status at ex-post evaluation
Uniform operation with electric traction/continuous freight train weights of up to 4,500 t will largely be possible in the 2nd to 4th year of operation	Fulfilled: Operational workflow is uniform with electric locomotives, freight train weights up to 4,500 t possible. As planned, diesel locomotives continue to be used on non-electrified lines. Confirmed by on-site inspection.
The annual transport volume on the line is at least 18 million tonnes in the 2nd to 4th year of operation	Fulfilled: In fact, 27.3 million tonnes were transported.
No major transport failures along the line	Fulfilled: No major operational transport failures (e.g. accidents, power outage, locomotive or spare parts availability) were registered or reported.

Sub-Rating: 2

Efficiency

There were no technical alternatives to electrification with the exception of continuing diesel operation. The technical completion of the electrification had hardly any impact on the capacity of the line. The technical layout and dimensions are determined by the unique features on

the line (single-/double-track, stations, turnouts) and Uzbek safety and planning standards, and were appropriate for achieving the project objectives. Mass freight has always been transported by rail in Uzbekistan. There is no technically or economically practical alternative.

The systems, goods and consulting services were procured based on economic aspects: the consultant and three executing companies were contracted on the basis of international public tenders. Complex coordination efforts due to interface problems between individual companies could possibly have been avoided by awarding a single contract to a general contractor (GC). However, this would also have involved higher costs arising from the coordination effort of the GC. A recommendation was made to the project executing agency to review in detail the principle of general contracting, particularly for complex projects in the future.

The project design, procurement and implementation suggest an appropriate level of production efficiency. Instead of adjusting the signal and telecommunications systems as originally planned, they were completely replaced. This increased the total costs. Financing was provided by the Kuwait Fund for Arab Economic Development (KFAED).

From a financial point of view, the outcome of the project – a 19.4% rate of return - was above the expectations set in the project appraisal (PA: 7.4%). The reason for this is the steep rise in the price of diesel compared to electric energy. The rate of return is 17.5% when interest expense and principle repayments are taken into account.

The heavy use of the line combined with the good internal rate of return and the low level of distortion to be expected at a macroeconomic level are indications of positive allocation efficiency. On the other hand, the non-transparent fees in the railway sector set by the government could potentially create allocation distortions vis-à-vis the road sector.

Sub-Rating: 2

Impact

The **overall objective** of the project was to make a contribution to economically efficient, environmentally compatible and climate friendly transport as a prerequisite for socio-economic development. The following indicators are used to illustrate whether the overall objective has been met (adjusted target system):

Indicators	Status at ex-post evaluation
The railway is competitive in the area of the Tashkent railway administration in long-distance transport for mass freight/basic materials; its share does not fall below 70%.	Fulfilled: Viewed from a qualitative perspective, there is a sharp increase in freight transport on the line and a lack of alternative on the roads running in parallel to the line.

Electric traction produces at least 20% less harmful emissions (CO ₂) than diesel traction.	Fulfilled: 24% less emissions on average. Approx. 25,000 fewer tonnes of CO ₂ emissions since the start of operation.
Cost and time savings in freight transport compared to the period before electrification.	Fulfilled: duration reduced from 5 to 4 hours (one direction), savings of approx. EUR 300 per 1,000 freight car-km.

Sub-Rating: 2

Sustainability

The equipment inspected was in a good state of repair and fully functional after three years of operation. Maintenance (e.g. controlling the sag of the traction current lines) is performed based on fixed maintenance plans, primarily by personnel trained as part of the A+F measure. The A+F measure also involved training the personnel in how to deal with FIDIC international standard agreements (International Federation of Consulting Engineers). The personnel are also still active today in implementing major investment projects, where the use of these agreements is now standard.

According to the UTY, there are no personnel problems. Since the project appraisal, headcount has increased from 33,470 employees to 38,588 (2004 and 2012). UTY explains this increase by various major projects and higher transport capacity. Headcount grew by 1.4% p. a. during this time period, while income per employee was up by 24% p. a.; work productivity has therefore also increased (in total); the growth in personnel is not really a problem for the UTY.

For spare parts procurement in foreign currencies, the UTY has its own accounts arising from the foreign currency earnings for transit transport. The procurement process is bureaucratic and time-consuming. It has been possible to carry out repairs so far with the spare parts procured in the project. Other deliveries for UTY electrification measures were also supplied from China. The common technical standard should have a positive impact on spare parts procurement and equipment maintenance.

An analysis of the unaudited balance sheet and income statement shows the UTY's financial situation has improved further and that revenue and profit continue to increase (in total). However, it is also evident that the national freight transport capacity, with around 22.7 billion tonnes-km in 2012 (accounting for approx. 90% of revenue in 2012), is only growing marginally (the Tashkent – Angren project line reported considerable growth). UTY attributes the improved financial situation to exchange rate effects from foreign currency earnings for international transport, transit fees and rate increases. It also must be assumed that the defined depreciation and amortisation periods, particularly for technical equipment, were too long and, due to different funding sources for investment projects, not all costs have been ade-

quately included in the balance sheet. This puts the development of the balance sheet and the income statement into perspective in some places; but the overall positive trend is unmistakable.

In our view, the state railway authority UTY is able to operate the equipment in a sustainable and proper manner from a personnel, technical and economic perspective. The ADB, an important donor for UTY, also assesses the executing agency positively in a regional comparison. When the newly constructed Angren - Pap line goes into operation, the transport volume on the line is likely to grow further, at least as a result of domestic transport; increases in transit transport depend on further efficiency increases by the UTY and on competing long-distance lines through Russia and Kazakhstan.

Sub-Rating: 2

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:

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| 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).