

Mongolia - Telecommunications I-III

Ex post evaluation

OECD sector	22020 / Telecommunications	
BMZ project IDs	(1) 1994 65 311 (Telecommunications I (Inv.)) (2) AF 94 132 (Personnel support Phase I) (3) 1998 65 395 (Telecommunications II (Inv.)) (4) AF 98 185 (Personnel support Phase II) (5) 1998 65 999 (Telecommunications III (Inv.))	
Project executing agency	Information and Communications Technology Authority (ICTA)	
Consultant	DETECON, Bonn (Telecommunications I) ARGE DETECON/ DECON, Bonn/ Bad Homburg (Telecommunications II, III)	
Year of ex post evaluation	2006	
	Project appraisal (planned)	Ex post evaluation (actual)
Start of implementation	(1) 4th quarter 1995 (2) 3rd quarter 1995 (3) 1st quarter 1998 (4) 4th quarter 1998 (5) 1st quarter 1999	1st quarter 1996 3rd quarter 1995 1st quarter 1998 4th quarter 1998 4th quarter 1998
Period of implementation	(1) 27 months (2) 24 months (3) 36 months (4) n. a. (5) 36 months	22 months 35 months 59 months 50 months 62 months
Investment costs	(1) EUR 5.42 million (2) EUR 0.77 million (3) EUR 12.86 million (4) EUR 0.87 million (5) EUR 10.48 million	EUR 5.37 million EUR 1.07 million EUR 12.02 million EUR 0.87 million EUR 9.80 million
Counterpart contribution	(1) EUR 0.31 million (3) EUR 2.07 million (5) EUR 1.79 million	EUR 0.26 million EUR 0.06 million EUR 0.60 million
Financing, of which Financial Cooperation (FC) funds	(1) EUR 5.11 million (2) EUR 0.77 million (3) EUR 10.79 million (4) EUR 0.87 million (5) EUR 8.69 million	EUR 5.11 million EUR 1.07 million EUR 11.96 million EUR 0.87 million EUR 9.20 million
Other institutions/donors involved	ADB/ Nordic Group	
Performance rating	2	
• Significance/relevance	2	
• Effectiveness	2	
• Efficiency	2	

Brief description, overall objective and project objectives with indicators

The project Telecommunications I comprised the supply and installation of digital switching centres with a total of 24,000 installed connections (target at time of project appraisal was 16,000) in six cities and consulting services during project implementation. The project was part of a comprehensive programme coordinated by the Asian Development Bank (ADB), which included the rehabilitation of transmission equipment (Nordic Group) and local cable networks (ADB) as well as capacity building measures and sector policy reform (ADB and grant from the Norwegian government). The overall objective of Telecommunications I was to stabilise and improve telecommunications in the cities of Ulaan Baatar, Erdenet and Darkhan, which are crucial to the country's economic development, as a precondition for a successful implementation of the transition and reform process which is directed towards building a market economy based on private enterprise, and to support decentralisation. The project objective was the reliable utilisation of the main connections financed. The indicators for the achievement of the overall objective were a share of at least 50% of the additional connections for productive users and public administration as well as cost recovery by the network operator during the lifetime of the project. The indicator for the project objective was a 90% connection of the switching capacities within three years after installation.

The telecommunications projects II and III comprised the supply and installation of digital equipment for the rehabilitation of rural telecommunication networks with 28,000 connection units combined as well as consulting services during project implementation. Both projects were designed as open programmes and were implemented as an overall programme with different regional priorities. Telecommunications II covered western regions and Telecommunications III covered southern and eastern parts of the country. The overall objective of Telecommunications II and III was to contribute to maintaining economic activity and keeping public activities functioning; the project objective was to contribute to safeguarding efficient communications in and with the project locations. The indicator for the project objective was a 95% connection of the switching capacities additionally installed within three years after entry into operation; no indicator was defined for the overall objective.

As part of the training measures, the personnel of the operator Mongolia Telecom were trained in maintenance and operation of the equipment, and training-related equipment such as a switching centre simulator, tools and measuring equipment were purchased. Moreover, a new maintenance and operating conception was introduced for the new equipment by a consultant in collaboration with Mongolia Telecom.

The target group was the population of the project regions, especially productive users and public administration (Telecommunications I) and telecommunications users of commercial enterprises and public administration (Telecommunications II and III). Finally, private households at all project locations were to benefit from the investment measures under all three projects.

Programme design / major deviations from the original programme planning and their main causes

The project Telecommunications I combined extensive investment measures in the modernisation of the basic telecommunications network with institutional restructuring measures in the telecommunications sector. The financing for the overall measure in the *de facto* sum of USD 49.1 million was provided by ADB (49%) Nordic Group (22%), German FC (14%) and Mongolia Telecom (15%). The modernisation of the basic telecommunications network comprised investments designed to replace an inefficient, obsolete analogous system from Soviet times. In order to achieve the greatest possible impact with the available funds, the investments made under Telecommunications I focused on the business centres (first three, then six cities). The sector reforms comprised (a) the preparation of a telecommunications law, (b) the creation of an independent board for the supervision of the sector, (c) the separation of the postal, radio and television services from the telecommunications area, (d) the

commercialisation/partial privatisation of the state-owned fixed telecommunications operator and (e) the introduction of competition for selected telecommunications services.

The projects Telecommunications II and III were run as parallel open programmes, with Telecommunications II focusing on the basic supply of provincial capitals (Aimag centres) in the west and Telecommunications III concentrating on the basic supply of provincial capitals in the south and east of the country. The measures comprised investments in switching capacities and cable networks in a total of 21 Aimag centres.

With regard to the target groups, a major deviation from the project planning occurred. As the measures were replacement investments and not new investments in which productive users should have been given preference in order to develop the market swiftly, the projects operated with a prescribed structure of users in which private users were more numerous from the start, so that it was not possible to adhere to the requirement that the facilities were to be used primarily by productive users. The share of productive users in the project areas is currently 20% to 25%; they account for around 40% of revenues. In retrospect, this increase in the share of consumptive users is acceptable because overall cost recovery was achieved (because of the higher volume, among other causes) and productive demand has been satisfied throughout the entire project lifetime so far.

The transformation of the telecommunications sector took a period of several years and generally went as planned. The targets for the installation of switching and cable network capacities were overachieved (with an increase of funds earmarked for this purpose)

	<u>Switching capacities (switching units)</u>		<u>Outside plant capacities</u>	
	planned	implemented	planned	implemented
Telekom I	16,000	24,040		
Telekom II	15,860	16,952	6,417	12,150
Telekom III	12,594	14,768	7,238	8,400
Total	44,454	55,760	13,655	20,550

Of the 14 VSAT stations planned in total, ten were implemented with project funds and four with funds provided by the operator Mongolia Telecom. The planned investments in telecommunications networks in sparsely populated regions could not be implemented because the basic equipment with low transmission rates (point-to-multipoint) planned for this purpose was no longer being manufactured at the time the tender was held.

Key results of the impact analysis and performance rating

Mongolia's telecommunications sector has undergone very positive changes since the mid-1990s - with respect to its development and efficiency as well as in regard to its organisation. All major indicators underscore that telecommunications in Mongolia can no longer be considered the bottleneck that it used to be in the early 1990s. The projects Telecommunications I, II and III were instrumental in this development.

The projects have generally supported Mongolia's transition to a market economy. In addition, over the medium term the communications system outside the country's business centres would have collapsed, stifling economic growth and further isolating the Aimags as economic regions. Furthermore, a whole series of negative secondary effects would have emerged that would have had particularly severe impacts on this vast country's economy, administration and social infrastructure. The programme helped to substantially improve the state's reactive capacity, for instance in snow disasters. The introduction of modern means of communication such as the internet would have been considerably slower without the programme.

Measured against the indicators formulated at the time of programme appraisal, the project objectives were reached by all three projects. All project locations are now supplied with

modern, reliable telecommunications. Instead of the usual operating deficits of the past, operating surpluses are the order of the day and overall connections have reached the target indicator.

From a technical point of view the sustainability of the project can be rated positive overall. On the basis of the know-how that has been transferred, Mongolia Telecom will be capable of taking swift countermeasures in the event of insufficient operating parameters and falling revenues. The declining use of the switching centre simulator represents a slight limitation to the training component success. Long-term problems cannot be fully ruled out should equipment become increasingly failure-prone and require spare parts for which availability is customarily guaranteed for only 15 years overall.

With a return of 10%, the profitability of Telecommunications I for the executing agency was satisfactory. Telecommunications II and III had a single-digit positive return, significantly better than expected at the time of project appraisal. Overall, the profitability reached a level that was reasonable for the competition prevailing in the market.

The overall economic rate of return of Telecommunications I was estimated by ADB at 20% to 30%. For Telecommunications II and III this rate cannot be pinpointed with precision as the available data are very uncertain; it is probably a low two-digit rate and thus much lower than the return achieved by Telecommunications I.

The projects were primarily growth-oriented and therefore suitable for achieving only an indirect impact on poverty as the development of rural areas or access for poor urban dwellers was not the immediate developmental objective; rather, poor people were only indirectly supported through improved communication of state administration and productive users (economic growth, employment, income).

During implementation a substantial number of women took part in the training measures; women now hold many key positions at Mongolia Telecom. Although the projects were not directed at promoting gender equality they did make use of the existing limited potential of such projects, which was not sufficient, however, to confirm any specific contribution to gender equality.

The project measures and the operation of the centres had no relevant ecological impacts as the laying of the cables was an activity of limited extent and in this case the cables were laid alongside existing roads. The project did not aim to promote participatory development or good governance.

In conclusion, we rate the developmental efficacy of the project as follows:

- The projects have achieved their overall objectives in full. They addressed a worsening bottleneck in Mongolia's communications infrastructure which was threatening to become a problem for the development of the country's economy and administration. The project approach and the package of measures were well chosen; they addressed a potential bottleneck to economic growth which, failing investment, would have occurred as a consequence of the inevitable breakdown of the networks. The successful implementation made a significant contribution to communication within and with the Aimag centres as well as at the main locations; it thereby safeguarded the communicative capabilities of businesses and public administration and brought about general improvements in the population's access to information. Their outreach into rural regions, however, is quite limited. We rate the relevance/significance (Telecommunications I-III) as satisfactory overall (sub-rating 2).
- The project objectives were achieved to a satisfactory extent; in the course of their implementation the packages of measures were adequately adapted to changes in market conditions, although partly with delays. The executing agency has full organisational and technical capacities to keep operations going, and it is not prevented from doing so by financial developments either. Minor restrictions exist due to the little-used investment in the training centre which, however, affected only a minor portion of the costs. The remaining uncertainty from possible personnel turnover and loss of expertise appears to be

acceptable. The risks to sustainability are generally low. Overall, we rate the sustainable effectiveness as generally satisfactory (sub-rating 2).

- The efficiency of the projects must be rated slightly differently for each of the individual phases. The unit costs of the investment (production efficiency) were determined in a very competitive market and are reasonable; the benchmarks of the technical indicators have improved steadily. As Phase I primarily covered three business centres, the return on investment and cost recovery here were expected to be higher (allocation efficiency) than in phases II and III. Both parameters are still being fulfilled. The projects of phases II and III could not meet such requirements because the locations were smaller and less attractive for businesses. The expectations regarding the recovery of operating costs, which were low at the time of project appraisal, were exceeded, however, and the degree of cost recovery is still satisfactory, with the utilisation of line capacities for modern media contributing to this result. We rate the overall efficiency as satisfactory (sub-rating 2).

We generally rate the projects Telecommunications I-III as having satisfactory developmental efficacy (rating 2).

General conclusions and recommendations

Telecommunications is no longer a priority of development cooperation with Mongolia or other developing countries. This puts the importance of the general conclusions and recommendations for Telecommunications I-III into perspective. Nevertheless, we do make the following recommendations:

- In a sector where technology develops fast, as is the case with switching technology, equipment once installed becomes obsolete very fast too. It can then occur that equipment, no matter how satisfactorily it may be operating, is replaced long before the end of its useful lifetime. Profitability calculations in sectors with an extremely dynamic development should therefore assume a realistic useful life of the investment. This useful life can actually be shorter than ten years.
- Economic infrastructure should be developed in stages, as in the case at hand. The functioning of the economic infrastructure should first be ensured in centres that have a high economic potential so that income can be generated swiftly. Only after this has been done should the focus be shifted to improving the development of the secondary centres. In sparsely populated countries the further development of rural areas often cannot take place without cross-subsidisation. Particularly when responsibility for rural and urban infrastructure lies with different agencies (or when competitors have free access to the market), may it be necessary to establish corresponding financial compensation mechanisms. Where tax revenues are sufficient this could be promoted, for instance, through state compensation payments (public service obligations) or by way of a "rural infrastructure fund" filled by the users (or operators) of the "surplus regions" and from which investments in "deficit regions" can be financed. In the telecommunications sector it would then be possible to have mobile telephony operators, most of which operate only in the economically attractive towns, participate in co-financing the expansion of rural telecommunications as well.

Assessment criteria

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

Criteria for the Evaluation of Project Success

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

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

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