Infrastructure for production, such as communication, energy and transport facilities, is a key issue in sustainable development. All three types of infrastructure are essential for the development of mountain areas in general and of the Tajik Pamirs in particular. From an economic point of view, such infrastructure is a prerequisite for highly functional production and hence for the creation of local income. From a regional perspective, these facilities are the basis for vital linkages between Gorno Badakhshan and adjacent regions and urban areas; they help to overcome the relative remoteness of the Tajik Pamirs and improve living conditions for its inhabitants.

Transport

Transport is a key factor in development. This is particularly true for Gorno Badakhshan, given its geographical seclusion and sensitive strategic location, resulting in very limited links with neighbouring countries. Currently there are few possibilities to access the GBAO. By road the Tajik Pamirs can either be reached from Dushanbe or from Osh, while Khorog is served by air from Dushanbe. Other options for access, such as entering Badakhshan from Afghanistan, are barely developed and serve local needs almost exclusively or have not been opened up, like the connection to the Karakorum Highway from China.

Distance and the reliability of the routes are more important than the number of options where accessibility to the GBAO is concerned. The Pamir Highway, built between 1932 and 1940, stretches 524 km from Khorog to Dushanbe, and 728 km to Osh, requiring a minimum of two days by lorry. While high altitude in the Eastern Pamirs poses a difficulty, with 3 passes over 4000 meters, in the Western Pamirs the problem is the topography, characterized by often steep and narrow valleys and thus making roads more vulnerable to natural hazards. In addition, flight connections to and from the GBAO are affected by mountainous conditions. Often leading through narrow canyons, the air route is served only when weather conditions are good. This leads to frequent cancellation of scheduled flights; some weeks the GBAO cannot be reached by plane at all.

The Pamir Highway (M41) is the backbone of the GBAO’s 3600 km road network. Of this, 1500 km have been classified as national and regional roads. Characteristically, these roads have asphalt or gravel surfaces and are primarily parts of the M41 or connections to district capitals. The remaining 2100 km of roads are mostly rural, serving smaller settlements or linking valleys. Road conditions vary greatly, but in general they are far from minimal international standards. The Soviet road network was not regularly maintained in the last decade and its condition has deteriorated greatly. As a result access to the GBAO became less reliable and more time-consuming, resulting in increasingly higher transport costs. To improve access to the GBAO, the Pamir Highway over the Kulma Pass is now linked to the Karakorum Highway. Once bilateral treaties are adopted, this new connection could boost trade relations with China or even provide access to Pakistan’s markets and harbours.

Information and communication technology

Information and communication facilities such as telephone, television and radio, and computer-based technologies like the Internet, are important catalysts that can trigger development in mountain regions. The GBAO communication infrastructure provided by the Soviet Union was comparatively well developed and available to much of the population. Following Tajik independence, communication facilities were barely maintained and technical equipment deteriorated. In parts of the region affected by the civil war, many phone lines and switchboards were destroyed, resulting in poor service and operational availability.

The GBAO region has approximately 12,000 telephones. With an average of 65 phones per 1000 persons, telecommunication services are at a higher level here than in the rest of Tajikistan. However, telecom-
munication infrastructure for both Tajikistan and the GBAO is below the average in developing countries. The extensive area of the oblast, its rough topography, and low population density with relatively widespread settlements pose challenges for provision and maintenance of an adequate telephone network in the GBAO. Phone lines in the GBAO are not suitable for Internet connections. Thanks to a private aid organization, it is possible to send and receive e-mails, at least in Khorog.

Postal services are another important part of communication infrastructure. Remote regions such as the GBAO are served by air or road, depending on the weather. Within the GBAO, services are provided once a week by car and even by horse in isolated areas. Domestic mail delivery takes 7–10 days, whereas international mail may take up to one or two months. The quality and reliability of the postal services is a cause of repeated complaints. Besides delivering and sending letters, the postal system also includes other services such as domestic money transfers. However, it appears virtually impossible for people abroad to send money to the GBAO to support families left behind, although this service could compensate for the barely developed banking sector. By contrast, the GBAO is very well served by radio and TV broadcasts, and a high percentage of households have a TV set.

Electric power

Electrification of the GBAO and neighbouring countries began in the 1940s, with the construction of the first hydroelectric plant. Up to the 1990s hydropower generation was continuously extended and a considerable number of diesel electric power stations were also in operation. The current energy infrastructure in the GBAO consists of a few small hydroelectric plants, two of which – Pamir I (14 MW) and Khorog (7.5 MW) – account for 70 percent of available capacity. Recently programmes have been instituted to upgrade and expand the hydropower infrastructure, in order to compensate for decreasing and unreliable production of power in the GBAO.

Due to its remoteness and rugged topography, the GBAO is not linked to the Tajik electric grid. Even within the GBAO there is no existing grid link. Several smaller grids are linked to a local power plant supplying the surrounding area. The transmission system as a whole is in very poor condition; only about 15 percent is still in service. Although an almost universal electricity grid was built in Pamiri villages, today 43 percent of GBAO villages have no electricity during winter, and 10 percent have no electricity at any time during the year, despite “enjoying” a connection to the grid. As a response to the decline in production of diesel energy and the degraded transmission system, the AKF and the MSDSP implemented a programme to promote mini hydropower stations. From 1994 to 2001, 21 such micro hydropower stations were built on GBAO territory, serving more than 19,000 beneficiaries. When properly planned, micro hydroelectric plants are highly efficient in serving local energy needs in mountain areas.

Setting priorities

By comparison with other mountain areas in socialist or developing countries, the GBAO’s infrastructure has attained an exceptional level of quantity and quality. However, this once highly subsidised infrastructure, servicing even the remotest villages, will probably never be self-supporting. The challenge for the future will be to secure a functioning infrastructure at affordable prices, to provide a basis for economic development. However, careful setting of priorities, including the abandonment of existing parts of the current infrastructure, is a necessity that requires the involvement of all stakeholders.