Aga Khan Health Services

Pakistan: Building Climate-Resilient, Low-Carbon Basic Health Centres: Examples from Northern Pakistan on How Solarisation and Insulation are Transforming Healthcare Services

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The Aga Khan Health Service, Pakistan (AKHS, P), is committed to reducing carbon emissions and achieving net zero by 2030.

The AKHS, P operates on a hub-and-spoke model, with most of its Basic Health Centres (BHCs) located in the remote areas of Gilgit-Baltistan and the Chitral region. These regions experience harsh environmental and climatic conditions. At the Aga Khan BHCs in Chatorkhand and Gulmit, Hunza, the national grid power supply was unreliable, with frequent interruptions and fluctuations in voltage and frequency. In addition, the buildings lacked adequate insulation, making winters particularly challenging for expectant mothers. Freezing temperatures often fall below 0°C, adding yet another layer of worry to the already difficult journey of childbirth. Although shorter than the winter months, summers are extremely hot. To cope with these conditions, the facilities previously relied on a mix of energy sources, including unreliable grid electricity, a diesel generator, and the burning of firewood.

To address these challenges and support the AKHS, P carbon reduction targets, both facilities were equipped with a 10kW solar photovoltaic (PV) system and 10kWh battery storage, alongside building insulation improvements.



Figure 1: Solarisation of the Chatorkhand (left) and Gulmit (right) BHCs, Northern Pakistan



Figure 2: The Chatorkhand BHC before (left) and after (right) insulation

The overall outcome of the projects has been highly encouraging. In Chatorkhand BHC, staff reported noticeable improvements in indoor temperatures, even during extreme winter and summer seasons. Power availability and quality also improved significantly.

In Gulmit, Hunza (BHC), a recent interview with Sabrina Aslam, a 26-year-old mother of two, described how giving birth to her second daughter in winter at the nearby Aga Khan BHC in Gulmit was much easier than travelling to Gilgit for her first delivery. She credited the skilled healthcare staff and the warm, comfortable environment created by solarisation and insulation for ensuring excellent care for both mother and baby.



Figure 3: Sabrina Aslam shares how solarisation and improved insulation at the Aga Khan BHC, Gulmit, Hunza, enhanced comfort, reliability, and maternal care.

The solar system at Gulmit now provides reliable electricity – and between 2022 and 2025, there has been an estimated 49% reduction in grid usage, and complete elimination of the need for a diesel generator. Due to improved insulation, the need for firewood has reduced by 61% and carbon emissions have fallen by 46% - equivalent to about 1 tonne of CO2e. This has also resulted in a 34% reduction in energy costs across the same time-period. Building on the success of these interventions, other BHCs are being solarised and insulated wherever feasible.

Carbon emissions were calculated using the AKDN carbon management tool.