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Drivers and Barriers of Hydropower generation in Pakistan. SWOT Investigation with RII Analysis

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Abstract—Pakistan being the sixth populous country in the world with around 2% population growth, is expected to cross 260 million by the year 2030. With a rapid increase in population, the electricity demand is anticipated to increase manifold. Despite generation capacity expansion over the last decade, there are still many serious issues affecting most of its people. The International Energy Agency reports that 26% of Pakistan's 200 million people are still living without access to electricity which means around 50 million citizens without power. To overcome the electricity shortage, Pakistan is encouraging both foreign and local investment in energy production, particularly from the development of hydropower. This paper aims to provide a strategic analysis of hydropower generation in Pakistan. Two frameworks, Strengths, Weaknesses, Opportunities, and Threats (SWOT) and Relative Importance Index (RII) analysis are used. SWOT evaluates the main drivers and barriers of hydropower development in the country whereas the RII analysis quantitatively explores the prominent parameters responsible for beneficial and harmful effects of hydropower development. It was found that Pakistan has ample hydro power potential with a strong manpower network, however high initial investment cost and sociopolitical issues are the barriers against the effective exploitation of hydro power.

Keywords—SWOT, RII Analysis, Pakistan, Hydropower