

# Alliance for Climate Justice and Clean Energy (ACJCE)

## SUMMARY OF STUDY REPORT

### Thar Coalfield water impacts: Financial and social risks

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Development of the Thar lignite deposit in Pakistan's Sindh Province for thermal power generation presents substantial risks of significant water conflict with irrigators and food and fibre production in the Indus Basin, as well as the effective removal of the sole reliable water source for many Thari people. This report demonstrates that Thar coal project proponents and Pakistani governments have severely overestimated groundwater availability.

Thermal coal power generation requires vast volumes of water for cooling. While questionable volumes of highly saline fossil groundwater are available, no permanent local surface water sources exist.

As the deepest and most extensive aquifer is drawn down sufficiently to allow open pit mining to proceed, adequate water for thermal power cooling water will not be available. In addition, many Thari people will lose access to reliable groundwater for generations.

Based on the information provided in official documents, and our projections considering predicted dewatering rates, evaporation, and losses due to the necessity to desalinate the groundwater for thermal cooling, the gap between the water required for the projects and what is available from mine dewatering is staggering. The deficit between maximum mine dewatering rates and the raw water demand of all proposed plants operating at 75 percent load is in the order of 100 billion litre a year (GLpa), increasing to about 150 GLpa after 25 years of mining.

Two surface water diversion schemes from the Indus Basin Irrigation Scheme (IBIS) are proposed, but all the proposed fresh water is currently allocated to irrigation. A 40 GLpa surface water diversion from one of the main irrigation canals of the Indus Basin Irrigation Scheme, and another wildly expensive scheme for 31 GLpa of saline effluent from the highly contaminated Left Bank Outfall Drain, have faced cost overruns, difficulties and delays.

The Sindh Province's economy is heavily dependent on irrigation and vulnerable to adverse weather conditions. A recent Needs Assessment identified drought, or drought like conditions prevailing in Sindh Province since 2013. Thar Coalfield water diversions are planned to be extracted from the most drought-affected Districts of Sindh Province.

Our analysis is that the Thar Coalfield scheme may trap Pakistan and Sindh governments in circular debt if loan terms require capacity payments and water scarcity prevents operation of the power stations at full capacity.

In short, fossil groundwater abstraction cannot reliably supply extensive electricity generation on the Thar Coalfields, when mine use, water treatment, local population potable water and evaporation losses are considered. As large surface water diversions from the IBIS will significantly disrupt existing irrigation, with the potential for political tensions and social unrest, further development of the Thar coal project poses significant financial and social risk.

Thermal power generation on the Thar Coalfields must be reevaluated. Unless significant power generation capacity is cut from current plans, devastating impacts need to be forced onto irrigation and food and fiber production in the Sindh.

