

**EMPIRICAL MODELING EM: A GENERIC APPROACH APPLIED TO VALUATE  
MINE SUBSIDENCE, UPHEAVAL AND VALLEY SIEGE ALONG SHERWAN  
VALLEY, ABBOTTABAD**

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**Abstract**

An approach for subsidence prediction through Empirical modelling EM has been established as an alternative for subsidence prognosis in the Sherwan area, Abbottabad. The acquired results have been endorsed by Distinct Element code UDEC with empirical fallouts and perceived caving activity. Locally compressive stress conditions pinpoints the deformations of the valleys with anticipation when the surface distorts in a drooping mode they are not expected when the surface deforms in a grabbing mode. Presumptions for valley cessation under the grabbing mode have considered undefined compressive stress redistributions in the horizontal plane, or block translations from the drooping mode. This research is investigating the possibilities of the block translation model. The subsidence data and resulting graphs in this scheme were acquired from mines in the area between the Sherwan mine zone and the Bheer Valley. This data was collected over a period of 12 months. More than half of the mines included in the analyses were mining the talc-nikra seam with exceptional workings in the soha-bandi seam. The predominant method of mining was by drift and shaft mining, although some pillar extraction data has been included. The link among  $S_{max}/M$  and  $F \times W/H$  for solitary panels has been established. The data for predicting mine subsidence is collected from three major mines in Sherwan area i-e Khanda Khau, Bandi Nikra and Chellether. The statistical data for prediction of subsidence shows that, the mine in the Khanda khau and Bandi Nikra are in very critical situation and can collapse at any time even when small scale seismic activity is produced. Although subsidence cannot be eliminated in this area yet it can be reduced or controlled by adapting different methods such as proper ground support mechanism, back filling method and blasting controls.