

DIRECT ECONOMIC LOSSES DUE TO LAND SUBSIDENCE IN URBAN AREAS OF BANDUNG BASIN(INDONESIA)

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Abstract. Bandung Basin is a large intra-montane basin surrounded by volcanic highlands, located in West Java, Indonesia. It is an urban area inhabited by more than seven million people. Results of 10 GPS (Global Positioning System) surveys conducted since 2000 to 2012 show that several locations in Bandung basin have experienced land subsidence, with an average subsidence rate of about -8 cm/year and it can reach to about -23 cm/year in a certain location and time period. A similar results are also achieved using different measurements system, i.e the InSAR (Interferometric Synthetic Aperture Radar) technique. The largest subsidence occurred in Cimahi, Gedebage, Dayeuhkolot, Rancaekek, Majalaya, and Katapang.

Direct impacts of land subsidence make some potential economic losses for household and for local government. Cracking on the building and road/highway occurs in an area where extreme subsidence between two places occurs (the boundary between large and small subsidence rate). Damaged on houses and road mostly occurs in large subsidence area. Modeling results indicate that The direct losses of land subsidence is estimated to be about 180 Million USD.

Key Words: Bandung, GPS, InSAR, subsidence, economic losses