

應用個人數位助理提昇自然災害調查與 水土保持設施檢查之效率

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摘 要 本研究探討如何應用個人數位助理提昇自然災害調查與水土保持設施檢查之效率，分別設計「自然災害調查暨初步治理對策助理系統」與「坡地水土保持設施安全評估助理系統」，結合簡易型衛星定位系統，供水土保持工程師於現場能更快速掌握災害的重點，直接於現場紀錄初步整治對策與建議，並可對坡地社區之水土保持設施初步判斷其安全性。由個人數位助理調查記載所得的空間與屬性資料經傳輸至桌上型電腦後，可迅速地建立地理資訊災情查詢系統。藉由對台中縣中和鄉抽藤坑溪七二水災緊急災情調查以及台中市大坑地區之坡地社區的實作結果，驗證本研究提出之方法與所發展的助理系統確可提昇災情調查與水土保持設施安全評估之效率。此應用富修改彈性，可應用於各類型之調查與檢查，相當適合於小型調查單位與個人型工作室使用。

關鍵詞：個人數位助理、全球衛星定位系統、自然災害調查、水土保持設施。

Applications of a PDA in Promoting the Effectiveness of Natural Hazard Investigations and Inspection of Soil and Water Conservation Facilities

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ABSTRACT This paper discusses how to apply a personal digital assistant (PDA) to promote the effectiveness of natural hazard investigation and inspection of soil and water conservation facilities. Two assistant systems, the “natural hazard investigation and mitigation strategies assistant” and “soil and water conservation facilities evaluation assistant”, are created to help engineers to rapidly understand the hazards in the field and assign initial mitigation strategies. The safety status of soil and water conservation facilities for a slope community can be briefly judged. The spatial and attributed data collected by the PDA can be transferred to desktop computer to establish a GIS hazard inquiry system. After field experiments for the developed PDA assistant systems at Chuo-teng Creek and Da-keng area, it has been proven that the methodology and the developed PDA assistant systems can be very effective in helping the natural hazard investigation and safety evaluation of soil and water facilities. The

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application is flexible and can be easily modified for various investigations and inspections. It is suitable for small investigation units and small-scale consultant firms.

Key Words: Personal Digital Assistant (PDA), Global Position System (GPS), natural hazard investigation, soil and water conservation facility.