

基於灌溉用水之農塘改善工程案例探討-以新竹 縣五峰鄉農塘為例

Study on Farm Pond Improvement Project for Irrigation - a Case Study of Farm Pond in Wufeng Township, Hsinchu county

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摘 要

本研究以新竹縣五峰鄉十八兒地區一處農塘灌溉區域為研究案例，區域內主要種植作物為甘藍，另外有玉米、樹豆、水梨、生薑、甜柿等作物零星分布，由於當地缺乏穩定灌溉水源，且冬季枯水期平均長達 5-6 個月，現況僅勉強以小面積耕種，對以農業為生的農民實是異常艱困。經評估後，灌溉水源規劃由鵝公髻山野溪取水後以 2" HDPE 管引水至既有 2 口天然農塘蓄存供灌，2 口天然農塘面積分別約有 1,870m² 及 7,135m²，針對農塘進行工程改善並達有效蓄水深度 3m，以作物平均日用水量 5mm 並且可連續供灌 15 日進行估算，則預期受益面積約計 36 公頃。田間灌溉型態進一步配合管路灌溉設施，更能精確掌握灌溉時機，有效提高水資源利用效率。

關鍵詞：農業水資源，灌溉用水量，管路灌溉

Abstract

This article takes a farm pond irrigation area in Shibaer, Wufeng Township, Hsinchu County as a study case. The main crop grown in the area is cabbage. There are also crops such as corn, tree beans, pears, ginger, and persimmons. The winter dry season is about 5-6 months in average which makes the lack of stable irrigation water sources in the area. Small area can be cultivated. It is extremely difficult for farmers. After evaluation, the irrigation water source plan was to take water from the stream in Egongji Mountain and 2" HDPE pipes were applied to divert water to two existing natural farm ponds for storage and irrigation. The two natural

farm ponds have an area of approximately 1,870m² and 7,135m² respectively. The farm ponds will be improved and have an effective water storage depth of 3m. Based on the average daily water consumption of crops of 5mm, and continuous irrigation for 15 days. The expected benefit area is approximately 36 hectares. The field irrigation pattern is further combined with pipeline irrigation facilities to get more accurate irrigation timing and effectively improve the efficiency of water resource utilization.

Keywords: agricultural water resources, crop water requirement, pipeline irrigation