

IRRIGATION MONITORING USING REMOTE SENSING, GIS AND HYDROLOGIC MODELS IN A NIA-UPRIIS TURN-OUT SERVICE AREA DURING THE 2018 DRY SEASON

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Abstract: The National Irrigation Administration- Upper Pampanga River Integrated Irrigation System (NIA-UPRIIS) provides water to almost 120,000 hectares of rice area in the central plains of Luzon that heavily rely on the irrigation system particularly in the dry season where little or no rainfall is available. Allocation of irrigation water is set at one million cubic meters for every 60 hectares rice area and monitoring of area irrigated is based on reports of field personnel. To study how farmers manage irrigation water allotment, field activities in a turn-out service area covering 59 hectares was observed. Hydrologic modeling using PCSWMM was employed to simulate water movement within the service area. Optical and Synthetic Aperture Radar (SAR) satellite images were utilized to track changes in field conditions and approximate the water requirement. Varied schedule of field activities in addition to commonly practiced plot-to-plot irrigation in the service area are the major challenges in efficiently utilizing available irrigation water. Hydrologic modeling, remote sensing and GIS can be utilized in irrigation monitoring and in identifying adjustment of irrigation water allocation within the season.

Keywords: rice, irrigation, remote sensing, hydrologic modeling, GIS