Survey Requirements for River Flood Assessment and Spatial Planning: Experiences from LiDAR and River Hydrographic Measurements in the Philippines

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SUMMARY

This paper propounds on the needs for surveying rivers and waterways for purposes of mapping, monitoring and managing riverine (fluvial) flooding. We proceed to relate experiences in actually performing end-to-end flood hazard assessment applications based on the fine-scale topographic data from airborne LIDAR surveys, river geometric and hydrometric measurements and numerical modeling for a river that recently devastated by severe flooding event in the Philippines. The paper argues that while survey accuracy and specifications are important, the data capture, collection and management processes must be sensitive to current and hydrologic modeling techniques, tools and capabilities in order to arrive at a reasonable results and interpretation. Results of flooding impacts from various options of spatial development including flood mitigation measures vis-à-vis levels of spatial detail are also clearly shown through generation of what-if scenarios. In engaging stakeholders, planners, and decision-makers, presentation and visualization of modeling results have been crucial components in communicating flood exposure and risks.