Sediment Disaster Notification System Established for the Reservoirs in Southern Taiwan

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INTRODUCTION

Typhoon Morakot struck Taiwan in 8th August 2009. It brought astonishing rainfall and caused extreme sediment disasters. This event awakens the public awareness of sediment disasters. Over the past few years, this study has devoted much resources constructing the Sediment Disaster Database (SDDB) of the reservoirs in southern Taiwan. The SDDB is currently available to assist the reservoirs managers quickly invoke the archiving environment data. To further assist the reservoir management issues, this study is now focusing on the establishment of Sediment Disaster Notification System (SDNS) to assist reservoir managers improving the grasp of the situation of sediment disasters in reservoir catchment.

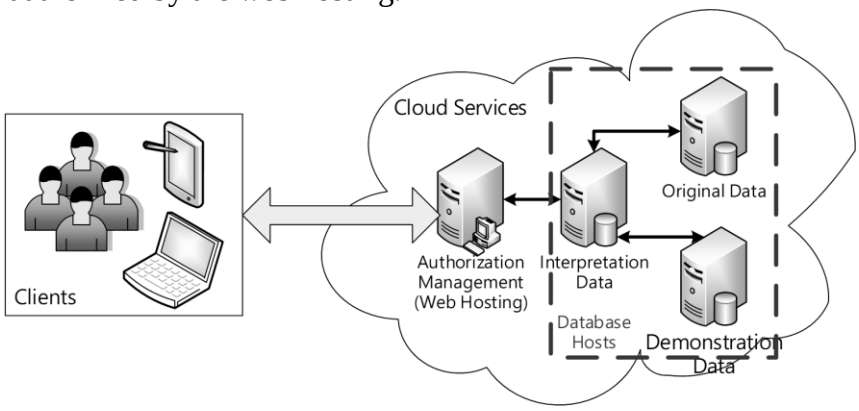
THE ESTABLISHMENT OF SEDIMENT DISASTER NOTIFICATION SYSTEM

In the premise of user friendly, the SDNS is developed based on the SDDB, and applied with the new generation technical protocols. Here is some information about this system.

1. **System functions and goals:** The SDNS is not traditional Management Information System (MIS) or Geographic Information System (GIS), is a system based on user friendly concept and considerate about the business needs of reservoir managers, the scalability of system structure, and the safety of information exchange, the main system functions and goals are:
   A. To deliver the disaster information to managers.
   B. To collect complete environment information of disaster regions.
   C. To establish convenient interface for query and management.
   D. To enhance the security of data access.
   E. To improve the efficiency of catchment management
2. **Standardization specification for data:** To reduce the complexity of data process and enhance the efficiency of data exchange, four basic data types were pre-defined as:
   A. General documents
   B. Graphics file
   C. Geographic information file
   D. Multimedia file
3. **System design**: To provide users with comprehensive service, this system was developed by Microsoft Visual Studio 2013, Microsoft IIS 7(Internet Information Server 7) was used as the operating platform, database was built by Microsoft SQL Server 2012, and the Map Service was powered by Google Map API. To maximize the expansion of the system, new generation technical protocols were followed. HTML5 the new standard of world wide web is the core,

and RWD, CSS, JavaScript, Ajax, and JQuery API were used as add-on to provide better user experience.

4. **System structure**: To ensure system performance and security, the "three-tier" structure was used, User interface, authentication management and service server (including the model and information) these three links are independent, all services no matter data require or data feedback were authorized by the web hosting.



STAGE RESULTS AND FUTURE DEVELOPMENT

The SDNS is still under construction, core database come from SDDB was already re-processed to meet the needs of SDNS. Basic data request and feedback functions were done. The notification functions such as voice message, SMS, MMS, and FAX are ready now. The follow-up will be the user interface optimization and testing phase.

CONCLUSIONS

To assist reservoir managers improving the grasp of the situation of sediment disasters in reservoir catchment, the development of SDNS was started. Although the establishment of SDNS is ongoing, users already can easily request archive data or documents now. Those achievement have been pre-process with the "standardization specification for data", it means users need to do nothing but access the achievements directly. The notification feature will provide users with a more convenient way to publish or get disaster information. This will bring benefits on manpower saving and improve the performance on the management of sediment disasters in reservoir catchment.

Keywords: Sediment Disaster Notification System (SDNS), Standardization Specification for Data, HTML5