Remote Sensing Applications for Flood Management in ADB TA8074-REG

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Contents

 Share the status of ADB's technical assistance project "Applying Remote Sensing Technology in River Basin Management" (ADB TA8074-REG), which applies satellite remote sensing data for flood management.

Project Overview

- TA-8047 REG <u>"Applying Remote Sensing</u> <u>Technology in River Basin Management"</u>
- JFPR funded, 2 million US\$
- Philippines, Bangladesh, and Viet Nam
- 2012/4 to 2015/3
- Impact: reduction in losses from flooding events
- Outcome: improved river basin management including flood risk management using Space Based Technology (SBT) and ICT
- Output:
 - (i) SBD and ICT applied for flood risk management
 - (ii) Selected staff able to apply SBT and ICT in river basin management.
 Satellite-based Rainfall Data 3

Application of Satellite-based Rainfall Data



Application of Satellite-based Rainfall Data

Global Rainfall Map in Near Real Time by JAXA



Typhoon MORAKOT (09W): Aug. 5 - 10, 2009 (Big impact in Chinese Taipei)

- Global rainfall map merging TRMM, AMSR-E and other satellite information
- Available 4-hour after observation, hourly update
- 0.1-degree latitude/longitude grid (Around 10 km x 10 km)

http://sharaku.eorc.jaxa.jp/GSMaP/

Needs local calibration with ground rain gauge stations



Target area in Bangladesh



1. GSMaP application

- Jamuna River (inc. upstream in Indian and Chinese side)
- 2. local flood modeling, location-based SMS, and Evacuation training
- a) 10km x 10km area around Kulkandi union, Islampur Upazila, Jamalpur district
- b) 10km x 10km area around Jadur Char union, Roumari Upazila, Kurigram district

Flood models with input of satellite rainfall data in Bangladesh



SMS-based Flood Warning Dissemination System in Bangladesh





GSMaP : Global Satellite Mapping of Precipitation

Target area in Viet Nam

Target Area: Red-THao River basin





Target area in Viet Nam

Target Area: Thao River basin Pilot area(SMS and flood forecast): Ha Hoa in Phu Tho province





New rain gauge and water level gauge installation

- New automatic telemated rain gauges will be installed for GSMaP calibration.
- New water level gauge will be installed in Ha Hoa for validation of flood model.
- Water level gauges in Lao Cai and Yen Bai will be upgraded.
- The number of gauges installation will decided based on the cost estimate.



Philippines





ADB

Target area



ADB

GEOGRAPHICAL MAP AND STATIONS



Lessons Learned

- Importance of thinking about how output could be practically used by users.
 - Output is water level from the flood model.
 - Outcome is to mitigate damage by providing the alert to citizens.
 - Important to support the following
 - Clarify meaning of output make guideline to interpret
 - Accessibility of output for users make website

Conclusion

 Under TA8074, ADB has been developing the methodology of calibrating GSMaP in the target rivers of Bangladesh, Philippines and Viet Nam.

 The systems in Bangladesh and Philippines have been developed and work in Viet Nam is ongoing.



Thank you!

If you have any questions, please contact Yusuke Muraki ymuraki@adb.org

