



Monitoring and evaluating recovery from natural disasters using remote sensing – towards creating guidelines on the use of satellite images in the context of disaster recovery

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The use of high-resolution optical satellite images is being investigated for evaluating and monitoring recovery after natural disasters. Funded by EPSRC, UK, the aim of the RECOVERY project is to develop indicators of recovery that can exploit the wealth of data now available, including those from satellite imagery, internet-based statistics and advanced field survey techniques. The final output will be a set of guidelines that suggests how remote sensing can be used to help monitor and evaluate the recovery process after natural disasters. The final guideline that will be produced at the end of the two year project, which started in February 2008, will be freely available to aid agencies and anyone that is interested. Currently there is no agreed standard approach for evaluating the effectiveness of recovery aid, although international frameworks such as PDNA (Post-Disaster Needs Assessment, United Nations Development Program, European Commission and World Bank) is currently being developed, and TRIAMS (Tsunami Recovery and Impact Assessment and Monitoring System, by UNDP and WHO) is being implemented to monitor the recovery from the Indian Ocean Tsunami.

The RECOVERY project consists of three phases. Phase 1 was completed by September 2008 and focused on user needs survey, developing the recovery indicators and satellite image data identification/acquisition. The user needs survey was conducted to identify whether there were any indicators that the aid community would like to see prioritised. The survey result suggested that most indicators are equally important. Based on this result and also referring to the TRIAMS framework, a comprehensive list of indicators were developed which belong to six large categories, i.e. housing, infrastructure, services, livelihood, environment, social/security, risk reduction.

For the RECOVERY project, two case study sites have been identified, i.e. the village of Baan Nam Khem on the west coast of Thailand, which was heavily damaged by the 2004 Indian Ocean Tsunami, and the city of Muzaffarabad, Pakistan, which was hit by the October 2005 Kashmir earthquake. For both sites, high-resolution optical satellite images from the following time periods have been acquired: for Baan Nam Khem, pre-event (-30 months), 1 week after, 4 months after, 7 months after, 13 months after, 23 months after and 38 months after; for Muzaffarabad, pre-event (-14 months), 14 days after, 8 months after and .

The potential indicators cover all aspects of recovery. However not all of them can be monitored and evaluated using remote sensing. A set of indicators that can be monitored using remote sensing has been identified, and the images are currently being analysed for these indicators.

In early February 2009, a field trip to Baan Nam Khem will take place to verify the findings of the image analysis. A narrative of the change that is observed in the images will be presented to the local community, and feedback will be sought to see how accurate the narrative produced by the image analysis is, and also to identify the issues that cannot be monitored using images. Interviews will be carried out with aid agencies that have been working in Baan Nam Khem, as well as household surveys to capture the recovery process. Preliminary results

from the field trip to Thailand will be presented.