

# Land Titling in Cambodia – Overcoming Land Mine Issues

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## Keywords:

## SUMMARY

In the Western World we take recognition of ownership in land and security of title for granted.; This is not so elsewhere in the majority of the world. International Financial Institutions fund projects to create land titles in developing countries, providing security of tenure for the world's poorest people, thus releasing the tremendous potential for capital generation existing in untitled land. However, the regions in greatest need are often in war-torn, remote regions, and few have tackled the unique problems of bringing the benefits of titling to these areas.

McElhanney and Geospatial, two Canadian geomatics companies saw an opportunity to combine their expertise in satellite imagery, geomatics, Geographic Information Systems and land mine mapping to design a ground-breaking project in Northwestern Cambodia. With funding from the Canadian International Development Agency, property mapping of over 3,500 land title certificates for five villages badly contaminated with land mines was completed. These land owners are now be able to make improvements to their land without fear of losing it. They will also have better access to credit, thus providing investment capital for generation of economic activity in this desperately poor region.

During the project Quickbird satellite imagery was used for the preparation of property mapping and land titles, the world's first documented procedures for surveying, demarcation, adjudication and dispute resolution for land parcels in mine-contaminated areas were prepared, and training of these procedures for 28 Cambodian staff, using commonly available equipment and software, leaving a legacy for future projects to build upon.

Much of the world's untitled land that is occupied by the very poorest people is located in remote areas that have been subjected to armed conflict, foreign occupation, population dislocation and contamination by land mines and unexploded ordinance (UXO). Such a place is the Province of Banteay Mean Chey, adjacent to the Thai border in Northwestern Cambodia. After suffering three decades of civil war, American bombing, Vietnamese occupation, and genocidal government, the last remnants of the brutal Khmer Rouge regime were eliminated from Banteay Mean Chey in 1998.

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## 1. PROJECT KEY OBJECTIVES

- Educate rural populations in the long-term benefits of creating a new land registration system in a country where all previous records had been methodically destroyed by the Khmer Rouge regime, and where most people are still focused on the immediate challenges of food, clothing and shelter,
- Develop new systematic procedures to safely carry out surveying, mapping, demarcation, adjudication, dispute resolution and title preparation for land contaminated by unmapped land mines and UXO,
- Provide training to inexperienced staff in the new systematic procedures, in a country where most of the generation of educated people that formerly carried out this work had perished in the genocide of the 1980's, and
- Identify five villages, representing a cross-section of challenges, and prepare cadastral maps and land title certificates for all properties in those villages.

## 2. PROJECT ACHIEVEMENTS

Over the course of the project the Project achieved the following:

- Preparation of Orthophoto (i.e. Photo Image) Mapping, Cadastral (i.e. Property) Mapping and over 3,500 land titles for the villages of Bak Chan Chas, Slaeng, Thmei, Kvav Lech and Ta Voek,
- Development of the world's first land titling procedures applicable to areas contaminated with land mines and UXO,
- Development of applications in the use of satellite imagery to compile Orthophoto Mapping suitable for land titling,
- Provision of training and project experience for 28 Cambodian technicians in various facets of conventional land titling, and in the unique procedures required in mine contaminated areas,
- Compilation of an extensive socio-economic baseline survey that will eventually facilitate an analysis of the downstream impact of land titling,
- Establishment of guidelines for previously undefined aspects of Cambodian land administration, including road right-of-way widths, set-backs from water bodies, and the definition of forest-land boundaries, and
- Education of a large segment of the Cambodian population on the benefits of land titling.

The project was state-of-the-art in its execution, and employed numerous unique and innovative techniques to overcome the challenges we faced, including:

*Satellite Imagery:* In South East Asia it is notoriously difficult to obtain the clear aerial photography that is essential for accurate land titling. In 2001 the Quickbird satellite was launched, offering imagery with a pixel size of 60 centimetres, a vast improvement over previously available imagery, and suitable for identifying fence lines. Although this technology had never before been tested for land titling applications, the decision was made to use it for the LAMAA project. It meant developing new procedures to rectify digital image distortions, particularly in the village centres. The result was a resounding success.

*Mine Contamination:* No-one before has ever designed and documented the techniques to safely carry out property surveys and demarcation in mine contaminated areas. Suspected mine contamination areas throughout Cambodia had been mapped using methodical interview and verification techniques. We enhanced this database by seeking out the individuals in each village that had participated in, or observed, the mine laying, and in most cases we were able to establish the patterns and limits of mine contamination. Trained staff, wearing full body armor, then used metal detectors to establish safe pathways, marked with red spray paint, to each property corner, and arrange for detonation of any unexploded munitions encountered. These techniques, and the staff trained in their application, will be invaluable to Cambodia as it embarks on the long task of reclaiming thousands of square kilometres of farmland alienated by unexploded munitions.

*Automatic Data Transfer:* Because all previous land registration records were destroyed by the Khmer Rouge, the system being built to replace it is still in its infancy. Before our project, property title data entry was being carried out twice – once for the property mapping, and once for the land title. An interactive database that automatically generates land titles from the property mapping database was designed. Although other systems elsewhere in the world already do this, the intricacies of the Khmer language script meant that we needed to design a unique application that will now serve Cambodia on future projects.

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