CHAPTER I
INTRODUCTION

1.1 Background and Justification

Technology has been developed through time to be more efficient and serve a larger variety of purposes. New technology has been applied in the processes of data collection, data analysis, including the management process. Unmanned Aerial Vehicles (UAV) is another kind of technology which plays a significant role in the process of management planning of natural resources and environment. It can be used not only for military, but also commercial purposes, and designed to be smaller in size to serve specific functions, for example in an agricultural industry, coast watch, ground traffic control, surveillance, target acquisition, fire fighting monitoring, environmental scanning, and terrorist disaster assessment. It can be said that the Unmanned Aerial Vehicles has currently been used for more purposes than before in many countries around the world, including well-developed countries like USA, Germany, and Israel. It has also been developing to be of higher efficiency to serve a wide range of missions and gain more accuracy acceptance.

Unmanned Aerial Vehicles has become not only another alternative technology facilitating planning and management but also an economical method compared to Aerial Photography technology. Moreover, it helps reduce risks of workforce loss, operation time, and negative effects to environment. Therefore, the Unmanned Aerial Vehicles is selected in this research as a methodology for community landscape classification. The Salaya Campus of Mahidol University is used as a research area as suitable for the research period and budget. Main objective of this research is to study whether and at which level the Unmanned Aerial Vehicle can be used effectively and practically in field operation.

Besides, the Unmanned Aerial Vehicles of high frequency can set up and adjust photography periods to serve various functions. It is consequently used for an urgent mapping as a fast, economical, and safe method, so called a typical model for urgent mapping which can be used for the purposes of circumstance assessment, preliminary survey, and current data storage.

1.2 Objectives

1. To study processes and classification of landscape from Unmanned Aerial Vehicles.

2. To create urgent mapping from aerial photography from Unmanned Aerial Vehicles.

3. To compare the accuracy between UAV mapping and GeoEye.

1.3 Scope of the Research

1.3.1 Research Area

The research is performed at Salaya Campus of Mahidol University with an area of 1,984 square meters.

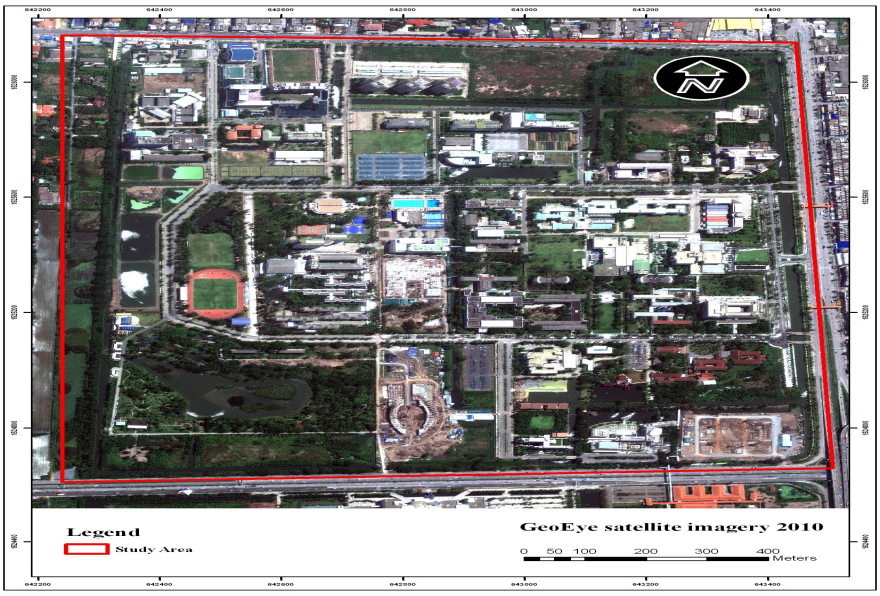

Figure 1.1 Study area

1.3.2 Research Methodology

This research aims to study processes and methods of Unmanned Aerial Vehicles photography and image processing, then compare with Satellite GeoEye imagery in terms of differences, accuracy, and acceptance.

1.4 Conceptual Framework

The research includes the study of aerial photography processes, aerial planning, image processing, geometric correction, and the comparison between Unmanned Aerial Vehicles and GeoEye imagery as shown in Fig.1.1

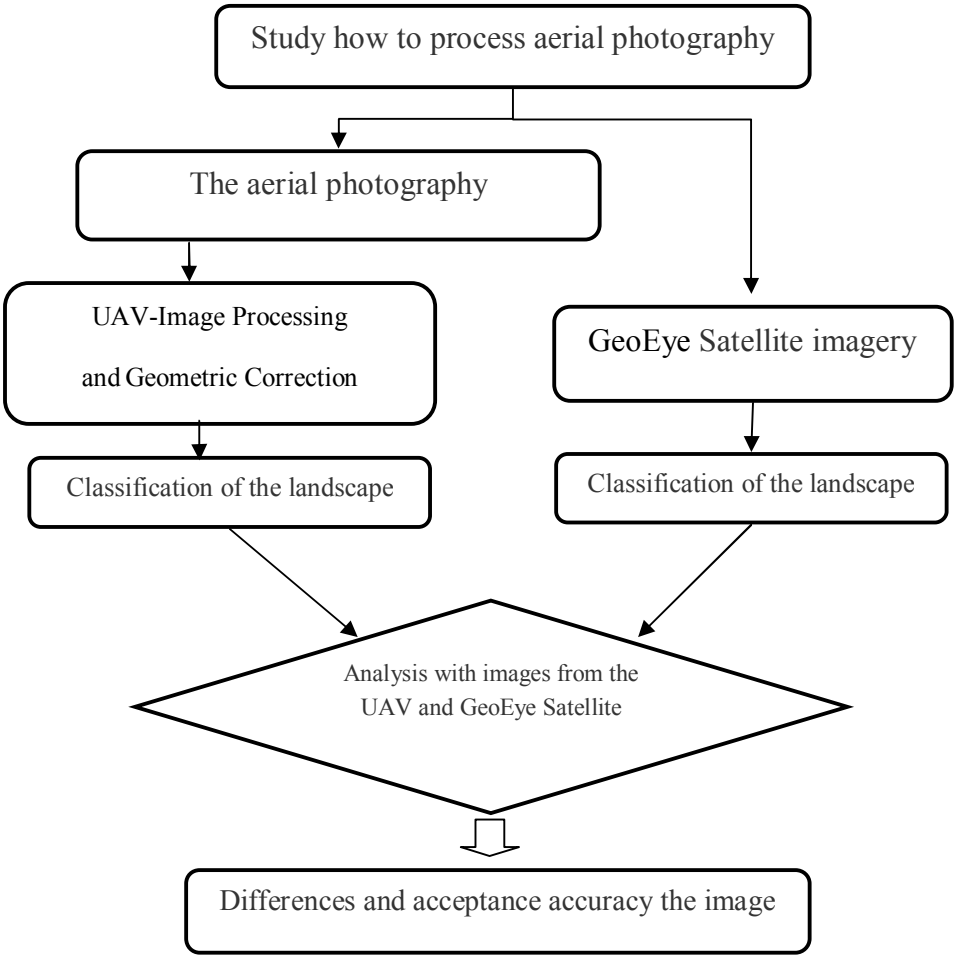

Figure 1.2 Conceptual Framework

1.5 Expected Results

1.5.1 Acknowledgement of Unmanned Aerial Vehicles photography and imagery.

1.5.2 Applying Unmanned Aerial Vehicles technology for urgent mapping.

1.5.3 Applying Unmanned Aerial Vehicles technology as a typical model for urgent mappings of other functions.