How Aerial Survey in Vietnam is now Serving People and Building National Capacity

David JONAS, Malaysia

Key words: aerial photography, aerial survey, LiDAR, photogrammetry,

SUMMARY

After a slow start, Vietnam is now reaping the benefits offered by modern aerial surveying technology. A number of major projects underway in Vietnam are utilising (or considering to utilise) aerial survey techniques.

This presentation will briefly review a range of aerial survey techniques, including Interferometric Synthetic Aperture RADAR (IfSAR), LiDAR (Light Detection and Ranging) also known as Airborne Laser Scanning, Pictometry®, satellite imagery and aerial photography. Each will be presented with reference to Indochina's applications, requirements, landscapes, infrastructure, security concerns, capacity and potential benefits.

Comparisons with conventional and existing practices will be offered. The relevance (or otherwise) of aerial survey will be discussed in applications including Land Administration, Cadastral Mapping, Land Economics, Spatial Data Infrastructure, Disaster Risk Management, Topographic Mapping, Hydrographic Mapping, Mineral Resource Exploitation, Urban Planning and others.

Following this overview, a number of local case studies will be provided outlining the benefits and pitfalls of applying modern aerial survey techniques in the region. Recent and current case studies from Cambodia, Vietnam and other regional neighbours will be presented by the author who has had first-hand involvement with these projects.

Vietnam has a rich heritage in spatial sciences, and has a sound foundation for utilising such modern technologies. The paper will conclude with an overview of the local industry's resources, a report on ongoing capacity building activities, and offer a summary of the aerial survey services which are now available to the Vietnamese industry.

How Aerial Survey in Vietnam is now Serving People and Building National Capacity

David JONAS, Malaysia

1. BACKGROUND

At the time of going to press, the program to commence technology transfer and capacity building in Vietnam has been delayed. By conference time, the full presentation will describe how International aerial surveying experience and resources have been merged with long standing Vietnamese mapping capabilities. This program is using an actual Disaster Risk Management Project to facilitate technology transfer and capacity building to the Vietnamese spatial industry. The benefit of this approach is that the immediate spatial requirements of the Disaster Risk Management Project are being concurrently met.

Combining international expertise with local resources has many benefits for the various stakeholders, including:

> *Vietnam* has rigorous and strict data security requirements, where spatial data is subject to restrictions on data accessibility and dissemination; the experienced local resources are best placed to tread the delicate line between data security and usability.
>
> *Vietnam* has a very marked terrain shape, where extremely flat regions are separated by complex water control and distribution structures; the collective expertise of international experience and local understanding is required to ensure that all terrain shapes are adequately defined for the task at hand.
>
> *Vietnam* sits at the cusp of a technology upgrade. It is currently undergoing a significant development phase, where an analogue aerial camera and field survey resources are being stretched to meet all the country's spatial requirements.
>
> *Vietnam*'s existing spatial infrastructure programs are designed to meet national and military mapping requirements, and have had limited opportunity to understand and meet international engineering infrastructure requirements.
>
> *Vietnam*'s mapping experience has been largely internally focused, without commercial interaction with the commercial and technical requirements of international organizations commissioned to help develop the nation's infrastructure.

Many of these features are common to other countries in the region.

The program's capacity building encompasses the full lifecycle of a spatial project, including user needs assessment, technology review, error budgeting, project planning, data capture, data processing, data installation, metadata and project review.

It is recognized that neither the requirement for spatial data nor the available financial resources are sufficient to support all modern surveying technologies being permanently based in Vietnam. To ensure successful completion, the program is designed to

1. provide a fundamental framework of understanding and awareness of the various survey approaches available, and

2. utilize the resources of a larger international company to sit behind this local Technology Transfer to provide the equipment, consultation and quality overview.

It is expected that this approach will allow technologies including IfSAR, LiDAR, Pictometry®, satellite imagery and digital aerial photography to be available to support Vietnam's development with local resources and international expertise.

BIOGRAPHICAL NOTES

David's Masters thesis in the 1980's was on high precision aerial surveying. Since that time, he has been involved with implementing the progressive developments in aerial surveying throughout the Asia Pacific region. David has written many papers on the practicalities of conducting aerial surveying in the region, and has presented industry workshops in Hong Kong, Vietnam, Malaysia, Singapore and elsewhere. David is now based in Kuala Lumpur and is a member of the Surveying and Spatial Sciences Institute.

CONTACTS

Mr David Jonas
AAMHatch Pty Limited
J-3A-12 Solaris Mont Kiara, Jalan Solaris
Kuala Lumpur
MALAYSIA
Tel. +60 3 6203 8022
Fax +60 3 6203 8023
Email: d.jonas@aamhatch.com
Web site: www.aamhatch.com