

Approach and Methodology

Soko Aerial presents a convenient, effective data collection and management system that can be employed by agencies in managing disasters. The system provides aerial data solutions across 3 activities in disaster management;

- Pre-disaster activities
- Activities during managing disaster
- Post-disaster activities

Soko Aerial, at each activity stage, provides photogrammetry, orthophotos for infrastructure, drone data analysis and aerial imagery that are set to assist disaster management and environmental protection agencies in the implementation of practices needed for planning and redesigning flood prone areas so as to safeguard life and properties during the rainy season.

1. Pre-disaster Activities:

Aerial data solutions for activities prior to disasters present a pro-active approach to disaster management. It is a planning stage which begins from the desktop planning and analysis of the identified disaster prone areas which includes flood prone wetlands, streams, drains and illegal structures blocking free flow of water in the community.

The planning stage is an expected data providing the needed information for preventive measures to forestall any future disaster occurrence. This planning and data acquisition begins with a good definition of the application and its requirements.

To actualize the planned program for data gathering, a flight crew is required at the designated disaster site to collect actual data on site. During this stage the functions of all team members are effectively delivered with adherence to best practices.

Flight Crew:

- 1. Pilot in Command (PIC)** - Responsible for mission flight and logistics needed for the mission
- 2. Incident Commander (IC)** - Responsible for mission planning, data management and data processing
- 3. Visual Observer (VO)** - Responsible for visual observation and monitoring of the flight path of drone against any obstacles that may interrupt flight path.

Benefits:

After the aerial data collection process is completed, a Digital Elevation Model (DEM); a 3D topographic map showing the elevation data, contours and slopes of the area, is developed in digital format to show the topographic layout of the area as well as the extents to which lands in the area have been used. This data helps disaster management agencies to:

- **Identify high risk areas**
- **Undertake timely evacuation exercises before disaster strikes**
- **Mark illegally constructed buildings and structures for demolishing**
- **Safely collect aerial data of hard-to-reach areas**
- **Allows development of baseline data and pre-incident risk assessment**

2. Activities during managing disaster:

In situations where disaster management authorities are managing disasters, aerial data solutions provide a low risk means by which they can they perform their duties effectively. During disasters, drone flight crews can be deployed to disaster sites to help in the search and location of victims that are stranded as a result of the disaster.

Benefits:

Benefits of using drones during disasters include;

- Supports search for victims which can be rescued by manned aircrafts
- Identifies safe access routes for emergency services personnel and victims
- Reduces risk of injury to officials
- Supports rapid acquisition of situational awareness
- Lower cost air operations per flight hour
- Provides real-time information on incident
- Enhances capabilities to rapidly search for persons missing in flood water

3. Post-disaster activities:

After disasters strike, it is necessary for disaster management agencies to undertake damage assessment exercises in order to ascertain the extents of damage brought on by the disaster.

Benefits:

Benefits of drones and aerial data after disasters include:

- Increased efficiency and reduced timeframes for damage assessment
- Structural integrity assessments can be conducted to ensure that personnel are not placed in danger as they attempt to rescue trapped and injured people
- Locate survivors amidst the rubble
- Provide relief workers with better situational awareness

Interpretation of Data

Area Size

166.73 Acres

Perimeter

3.74km

Altitude

100m

No. of Images

1604

Overlap

80%/70%

Flight Time

1hr 34mins

Processing Time

3hr 30mins 23secs



AERIAL DATA FROM DANSOMAN FLOOD PRONE AREAS

Dansoman Flood Prone Area



Dansoman Flood Prone Area

