

The Development of Thailand's First UAS External Pilot Joint Training Program

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Abstract—Current security environment and technology advancement in unmanned aerial system (UAS) has led to the rapid increase in armed forces and security agencies' demands for real-time visual intelligence to enhance situational awareness over area of operation. However, the shortage in the number of qualified UAS pilots undermined the exploitation of UAS capabilities. DTI has developed Thailand's first UAS external pilot joint training program for armed forces and security agencies to accommodate the current and future demands. The training syllabus consists of theoretical and practical phases designed to provide participants with required skill set to be able to safely and effectively operate launch and recovery tasks on small tactical UAS. The theoretical and practical are developed from manned and unmanned pilot subject matter experts, combined with the derivation of US DoD BUQ Level I and II and NATO Standard ATP-3.3.7 guidance, customized to practice and equipment under operational environment in Thailand.

Keywords—military UAS training; external pilot, curriculum development; skill sets, simulation

I. INTRODUCTION

Unmanned Aerial System (UAS) has proven to be a critical aerial ISR asset throughout an entire process of Military Decision Making Process (MDMP). It is an integral part to the success of military operations over the past decades. They can be employed/ into a small tactical echelon conducting an urban operation to a strategic joint command centre examining battlefield. It is capable to transmit real-time images, video and other telemetry carried onboard to the ground control station providing real-time tactical situation awareness to the soldiers on the ground to carry out combat effectively, timely and the most important, safely.

Originally, UAS was developed in a form of RPAS without automation. It was employed by IDF early in the 1970s. It was not an invention developed to improve battle operation effectiveness rather it was developed under the struggle to defend the country during the Sixth Days War. The payload install onboard was a humble black and white camera. Today UAS can carry multiple spectrum electro-optic payloads to transmit telemetry over a satellite communication link where the pilot is flying the UAS from a computer screens. The proliferation and availability of UAS technology enables armed forces around the world to adopt for board spectrum of military

operation, across tactical, operational and strategic levels. Furthermore, the same UAS capabilities prove beneficial to law enforcement as well as civilian implementation. The Royal Thai armed forces and government agencies have been using a small UAS as an ISR asset in counter insurgency, anti drug smuggling, crime prevention, humanitarian operation as well as environment monitoring. However, the implementation was limited due to a shortage in qualified external pilots including mission commanders, payload operators and technical personnel. Despite advance in automatic flight control algorithm and sensor fusion, external pilots remains critical in launch and recovery operation. External Pilots have responsibilities more than operate an UAS, he or she must possess airmanship, doctrinal knowledge, understanding in airspace navigation, rules of the air and air traffic control regulation in order to carry out a successful mission.

Royal Thai Armed Forces plan to acquire small and medium tactical UASs to increase military and non-military capability through indigenous productions as well as oversea procurements. However, the pilot shortage has delayed the plan and undermined current mission readiness. Additionally, there are on-going UAS research and development projects under each branch of armed forces as shown in Fig 1., they are similarly experiencing shortage in UAS pilots and often lead to contract private or foreigner pilots to conduct experimental and test flights.



Fig. 1. DTI fixed-wing UAS R&D projects

Currently, each branch of Royal Thai armed forces employs a variety of fixed-wing and rotary UASs designed for military operations whereas law enforcement and government