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เรื่อง Sufficiency Seaplanes (SUSPs): Feasibility Study and  
Practical Guidelines

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## Sufficiency Seaplanes (SUSPs): Feasibility Study and Practical Guidelines

Iratrachar ARMORNPIPAT<sup>1</sup>, Chittawan CHOEYSAKUL<sup>2</sup>, Sommai PRAKANSAMUT<sup>2</sup>

<sup>1</sup> Department of Aviation Industry Management,  
Aviation Personnel Development Institute, Thailand

<sup>3</sup> Royal Thai Navy, Arunamarin Rd., Bangkokyai,  
Bangkok, Thailand, 10600

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### ABSTRACT

The Royal Thai Navy has integrated the Thai King Rama IX's "Sufficiency Economy" framework to initiate a concept of "Sufficiency Seaplanes" (SUSPs). SUSP is the first seaplane invented in February 2012. SUSP is ultra-compact sized amphibious aircraft which was firstly named at NAX (Naval Aircraft Experimental) as it was initially designed to serve multi military purposes such as search and rescue, coastal defence, maritime patrol, target identification, interdiction of criminal activities, and ensuring legal use of water. With the opening of ASEAN Economic Community (AEC) in December 2015, Thai government and the research project team are in anticipation to expand utilisation of SUSPs in commercial roles, e.g. assisting customs agencies by monitoring commercial shipping traffic, transferring passengers to and from a mooring, and supporting fishing and coastal tourism. This paper aims to provide an overview of SUSP and its engineering constructions. It also reveals the production cost, navigation and aviation capabilities. This is followed by a discussion of future directions for the study and practice. Furthermore, this paper should be a fundamental guideline for designing and building small aircraft.

### 1. Introduction

Thailand is the geographical heart of South-East Asia. The central plain is a lowland area drained by the Chao Phraya River and its tributaries, the country's principal river system feeding into the gulf of Thailand. There are 682 reservoirs, dams, and lakes in total of 47,490 square kilometers [3], which is 9.2% of the whole 514,000 square kilometers the country occupies. Thailand has also a total coastline of 3,148 Km, or ~ 1,500 NM [2] resulting in large maritime zones of the country (Fig. 1). The maritime zones basically consist of [9]: Internal waters (green), Territorial water (yellow), Contiguous zone (dark blue), and Exclusive Economic Zone, EEZ (light blue) where is up to 200 NM from baseline. Each country has right to use of marine resources in the EEZ, however, parts of EEZ are overlapping areas, e.g., purple area in Fig. 1; the area is called joint development area where requires more naval patrol services. This is a concern for government to look after all the water areas (boundaries) in the mainland, maritime zones in the ocean, and joint development area especially with the opening of ASEAN Economic Community (AEC) in December 2015.