

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Services, Missions, Operations, and Facilities (2)

Author: Mr. Lijalem Gebrehiwot

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, lijalemgg2013@outlook.com

Ms. Eden Habteslasie

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, edenabeselom23@gmail.com

Ms. Bethelhem Girma Assefa

Ethiopia, bethelhemgirmaa@gmail.com

Ms. Bethelhem Nigussie

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, bettyniguse15@gmail.com

Mr. Abenezer Zegeye

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, yeabeni@gmail.com

Mr. Yisehak Abraham

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, yise2148@gmail.com

Mr. Yeshurun Alemayehu

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, kibret10@gmail.com

Mr. Gedlu Solomon

Ethiopian Space Science and Technology Institute (ESSTI), Ethiopia, gedlusolomon076504@gmail.com

ROCKET LAUNCHING SITE SELECTION IN ETHIOPIA USING WEIGHT DECISION MATRIX
ANALYSIS

Abstract

The term rocket launch site is used in any facility from which rockets are launched and contains one or more launch pads. Development in Space Science and Technology is a critical issue for any country it is a guarantee for the security and sustainable development. Research is taking place on sounding rockets, micro, nano, and can-type satellite technologies that require huge foreign currencies to launch overseas. The purpose of this research paper is to determine specific rocket launching sites in Ethiopia. The weighted decision matrix(WDM) is used as a tool to analyze valued criteria and rank the alternatives. In the first phase, the whole regions are analyzed and three regions are selected, which are located at 6o Latitude North and 41o Longitude East. Similarly, in the second phase, the WDM tool is applied to three selected regions at Woreda (Districts) and Kebele (Cluster) levels. The selected sites are from Somali Warder Zone, identified as Boh 1 and 2 with a value of 231. In Oromia identified as Borena-1 with a value of 195 and the rest with lower values are rejected. A site map is prepared for the best sites selected. A spaceport is an important source of income for launching companies. There are opportunities for leasing to international launching operators for launching rockets and research rockets. It can also benefit African countries for rocket research-related issues since no country in east Africa has its own functional launch site.

Keywords: Economy, Launching Site, Map of Ethiopia, Rocket, Selection Criteria, WDM