

**SUSTAINABILITY FRAMEWORK FOR THE
MALAYSIAN DEFENCE INDUSTRY TOWARDS
ACHIEVING PRINCIPLE OF SELF-RELIANCE**

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**DOCTOR OF PHILOSOPHY
(SUPPLY CHAIN AND
LOGISTICS MANAGEMENT)**

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ERRESAFRINAL BIN ABDULLAH

Thesis submitted to the Centre for Graduate Studies, Universiti Pertahanan Nasional
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ABSTRACT

The defence industry is of great importance to a country as it serves as a catalyst for capacity building and creating high-value-added products to boost the country's economy. Furthermore, the industry is essential to its armed forces and can support self-reliant armed forces by enhancing their defence capability and readiness. The Malaysian Defence Industry was spurred in 1972 through the privatisation of SME Ordnance and AIROD. The government has allocated relatively enormous defence funding to increase the readiness and resilience of the Malaysian Armed Forces. However, the defence industry in Malaysia has experienced various problems and challenges in recent years. These problems and challenges have negatively impacted the development of the local defence industry and affected efforts to modernise and increase the capabilities and readiness of the Malaysian Armed Forces. At the same time, the country's desire and aspiration to achieve self-reliance are among the fundamental principles of the National Defence Policy and the Defence White Paper. Therefore, the defence industry must support the country's aspirations to develop and produce indigenous military products and not rely on foreign manufacturers. Therefore, this study aims to explore the potential of the sustainability framework in the Malaysian defence industry towards achieving the principle of self-reliance. In this study, qualitative research is used as a methodological method by analysing the data obtained through interviews with 21 research participants that are prominent personnel in the local defence industry, literature studies, and related national defence policy and using Thematic Data Analysis and ATLAS.ti as a medium for analysing research data. The findings obtained from this study are the development of this industry has yet shown the desired performance or is comparable enough to neighbouring countries,

such as Singapore and Indonesia, that have successfully reached the second tier in arms manufacturing (RQ1), the implementation by the Government of Malaysia is not as expected by most defence industry players. The development of the national defence industry has not shown significant improvement (RQ2), implementing sustainability elements related to defence and the Malaysian defence industry sector has yet to be demonstrated either by the government or the local defence companies (RQ3), various challenges are faced by the government and relevant local defence industry companies in the Malaysian defence industry (RQ4) and the government and local defence industry players need to embark on new opportunities. These will create the potential for the best practices to drive the national defence industry towards the principle of self-reliance (RQ5). At the end of this study, as a contribution to this study, a sustainability framework is proposed to strengthen the development and sustainability of the national defence industry in the future.

Keywords: Defence industry, defence policy, self-reliance, sustainability and sustainability framework

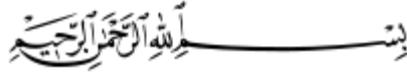
ABSTRAK

Industri pertahanan amat penting kepada sesebuah negara kerana ia berperanan sebagai pemangkin untuk membina kapasiti dan mencipta produk bernilai tambah tinggi untuk meningkatkan ekonomi negara. Tambahan pula, industri ini penting kepada angkatan tentera negara tersebut dan boleh menyokong angkatan bersenjata menjadi berdikari dengan meningkatkan keupayaan dan kesiapsiagaan pertahanan mereka. Industri Pertahanan Malaysia telah dirangsangkan pada tahun 1972 melalui penswastaaan SME Ordnance dan AIROD. Kerajaan telah memperuntukkan pembiayaan pertahanan yang agak besar untuk meningkatkan kesiapsiagaan dan daya tahan Angkatan Tentera Malaysia. Bagaimanapun, industri pertahanan di Malaysia telah mengalami pelbagai masalah dan cabaran sejak beberapa tahun kebelakangan ini. Masalah dan cabaran ini telah memberikan kesan negatif kepada pembangunan industri pertahanan tempatan dan menjejaskan usaha untuk memodenkan serta meningkatkan keupayaan dan kesiapsiagaan Angkatan Tentera Malaysia. Pada masa yang sama, hasrat dan aspirasi negara untuk menjadi berdikari adalah antara prinsip asas Dasar Pertahanan Negara dan Kertas Putih Pertahanan. Oleh itu, industri pertahanan perlu menyokong aspirasi negara untuk membangunkan dan mengeluarkan produk ketenteraan hasil daripada kepakaran di dalam negara dan tidak bergantung kepada pengeluar asing. Oleh itu, kajian ini bertujuan untuk meneroka potensi rangka kerja kelestarian di dalam industri pertahanan Malaysia ke arah mencapai prinsip berdikari. Dalam kajian ini, kajian kualitatif digunakan sebagai kaedah metodologi dengan menganalisis data yang diperolehi melalui temu bual dengan 21 peserta kajian yang merupakan individu yang menonjol di dalam industri pertahanan tempatan,

mengadakan kajian literasi, dan mengkaji dasar pertahanan negara yang berkaitan dan menggunakan Analisis Data Tematik dan ATLAS.ti sebagai medium menganalisis data-data penyelidikan. Penemuan yang diperolehi daripada kajian ini adalah pembangunan industri ini masih belum menunjukkan prestasi yang diinginkan atau cukup setanding dengan negara jiran, seperti Singapura dan Indonesia, yang telah berjaya mencapai tahap kedua dalam pembuatan senjata (RQ1), pelaksanaan oleh Kerajaan Malaysia tidak seperti yang diharapkan oleh kebanyakan pemain industri pertahanan. Perkembangan industri pertahanan negara masih belum menunjukkan peningkatan yang ketara (RQ2), melaksanakan elemen kelestarian berkaitan pertahanan dan sektor industri pertahanan Malaysia masih belum dapat ditunjukkan sama ada oleh kerajaan atau syarikat pertahanan tempatan (RQ3), pelbagai cabaran dihadapi. oleh kerajaan dan syarikat industri pertahanan tempatan yang berkaitan dalam industri pertahanan Malaysia (RQ4) dan kerajaan serta pemain industri pertahanan tempatan perlu memulakan peluang baharu. Ini akan mewujudkan potensi amalan terbaik untuk memacu industri pertahanan negara ke arah prinsip berdikari (RQ5). Di akhir kajian ini, sebagai sumbangan kepada kajian ini, satu kerangka kelestarian dicadangkan untuk memperkukuhkan pembangunan dan kelestarian industri pertahanan negara pada masa hadapan.

Kata kunci: Industri pertahanan, polisi pertahanan, berdikari, kelestarian dan kerangka kelestarian

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السَّلَامُ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ and Good Day,

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APPROVAL

The Examination Committee has met on **7 March 2024** to conduct the final examination of **Erresafrinal bin Abdullah** on his degree thesis entitled **‘Sustainability Framework for the Malaysian Defence Industry Towards Achieving the Principle of Self-Reliance’**.

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Title : Sustainability Framework for the Malaysian Defence
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Academic session : 2023/2024

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LIST OF ABBREVIATIONS

3D	-	Three Dimension
3PL	-	Third-Party Logistics
3R	-	Reuse, Recycle and Reduce
4D MAF	-	Fourth Dimension Malaysian Armed Forces
ADF	-	Australian Defence Force
ADIC	-	ASEAN Defence Industry Collaboration
AI	-	Artificial Intelligence
AIROD	-	Aircraft Repair and Overhaul Depot
AMDA	-	Anglo-Malaysian Defence Arrangement
ASEAN	-	Association of Southeast Asian Nations
ASI	-	Aircraft Structural Integrity
ATSC	-	Aerospace Technology Systems Corp
AV	-	Armoured Vehicle
B	-	Billion
BC	-	Before Century
BHIC	-	Boustead Heavy Industries Corporation
BIS	-	Bureau of Industry and Security
BNS	-	Boustead Naval Shipyard
BRIN	-	<i>Badan Riset dan Inovasi Nasional</i>
CAP	-	Capability Development Plan
CAQDAS	-	Computer-Assisted Qualitative Data Analysis
CBM	-	Condition Based Maintenance
CBU	-	Complete Built-Up
CDF	-	Chief of Defence Force
CEO	-	Chief Executive Officer
CIDB	-	Construction Industry Development Board

CKD	-	Complete Knocked-Down
CMI	-	Civil-Military Integration
CoE	-	Center of Excellence
CPM	-	Communist Party of Malaya
CTRM	-	Composites Technology Research Malaysia
DA	-	Defence Attaches
DAPA	-	Defence Acquisition Program Administration
DARPA	-	Defence Advanced Research Projects Agency
DB	-	Design Build
DBFM	-	Design-Build-Finance-Maintenance
DDP	-	Draft Development Plan
DE	-	Development Expenditure
DEA	-	Data Envelopment Analysis
DIB	-	Defence Industrial Base
DID	-	Defence Industry Division
DIS	-	Defence Industrial Strategy
DOD	-	Department of Defence
DOSH	-	Department of Occupational Safety and Health
DRDO	-	Defence Research and Development Organisation
DSA	-	Defence Services Asia
DSO	-	Defence Science Organization
DSTA	-	Defence Science and Technology Agency
DSTL	-	Defence Science & Technology Laboratory
DTIS	-	Defence Technology and Innovation Strategy
DWP	-	Defence White Paper
EEP	-	Economic Enhancement Program
EEZ	-	Exclusive Economic Zone
EMC	-	Electromagnetic Compatibility
EPU	-	Economic Planning Unit

ESG	-	Environmental, Social, and Governance
ESSCOM	-	Eastern Sabah Security Command
EU	-	European Union
FIRST+M	-	Funding, Infrastructure, Regulation and Governance, Skills and Talent, Technology and Market
GDP	-	Gross Domestic Product
GLC	-	Government Link Companies
GOC	-	Government Own Company
GOM	-	Government of Malaysia
GSR	-	General Staff Requirements
GT	-	Grounded Theory
G-to-G	-	Government to Government
HANRUH	-	<i>Pertahanan Menyeluruh</i>
HQ	-	Headquarters
ICP	-	Industrial Collaborative Program
ICT	-	Information, Communication and Technology
ICV	-	ICP Credit Value
IKC2	-	Integrated Knowledge-based Command and Control
IMP	-	Industrial Master Plan
IoT	-	Internet of Things
IP	-	Intellectual Property
Ir.	-	Professional Engineer
IR	-	Industry Revolution
IRPA	-	Intensification of Research in Priority Areas
IS	-	Information Systems
ISI	-	Import Substitution Industrialisation
ISO	-	International Organization for Standardization
ISR	-	Intelligence, Surveillance, and Reconnaissance
IT	-	Information Technology
KD	-	<i>Kapal DiRaja</i>

KESBAN	-	<i>Keselamatan dan Pembangunan</i>
KPI	-	Key Performance Indicator
KIM	-	Knowledge and Innovation Management
LCA	-	Light Combat Aircraft
LCM	-	Life Cycle Management
LCS	-	Littoral Combat Ship
LD	-	Late Delivery
LGU	-	Local Government Unit
LIMA	-	Langkawi International Maritime and Aerospace Exhibition
LMS	-	Littoral Mission Ship
LSE	-	Labuan Shipyard Maritime
LTAT	-	<i>Lembaga Tabung Angkatan Tentera</i>
M	-	Million
MA	-	Malaysian Army
MAF	-	Malaysian Armed Forces
MAPAN	-	<i>Majlis Pembangunan Pertahanan Negara</i>
MARA	-	<i>Majlis Amanah Rakyat</i>
MATRADE	-	Malaysia External Trade Development Corporation
MCO	-	Movement Control Order
MDA	-	Malaysia Investment Development Authority
MDC	-	Malaysian Defence City
MDI	-	Malaysian Defence Industry
MDIC	-	Malaysian Defence Industry Council
MEA	-	Ministry of Economic Affairs
MED	-	Ministry of Entrepreneur Development
MENA	-	Middle East and North Africa
MESTECC	-	Ministry of Energy, Science, Technology, Environment and Climate Change
MIDES	-	Malaysian Industry Council for Defence, Enforcement and Security

MIGHT	-	Malaysian Industry-Government Group for High Technology
MITI	-	Ministry of International Trade and Industry
MLC	-	Malaysian Local Content
MMC	-	Malaysia Mining Corporation
MMEA	-	Malaysian Maritime Enforcement Agency
MOD	-	Ministry of Defence
MOF	-	Ministry of Finance
MOHA	-	Ministry of Home Affairs
MOSTI	-	Ministry of Science, Technology and Innovation
MOT	-	Ministry of Transport
MP	-	Malaysian Plan
MRO	-	Maintenance, Repair and Overhaul
MSP	-	MOD's Strategic Plan
MYR	-	<i>Malaysia Ringgit</i>
NAM	-	Naval Arch Marine
NASA	-	National Aeronautics and Space Administration
NCO	-	Network Centric Operations
NDI	-	National Defence Industry
NDIP	-	National Defence Industry Policy
NDP	-	National Defence Policy
NDPP	-	National Defence Production Policy
NDRSC	-	National Defence Research Security Council
NDSIP	-	National Defence and Security Industry Policy
NDUM	-	National Defence University of Malaysia
NEP	-	New Economic Plan
NGO	-	Non-Governmental Organisation
NVP	-	National Vision Policy
OE	-	Operational Expenditure
OEM	-	Original Equipment Manufacturer