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# Measuring Provincial National Defense Capacity: Evidence from Campus-Based Non-Military Defense Implementation in Java, Indonesia

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**Abstract.** The concept of national defense has expanded beyond military preparedness toward non-military dimensions emphasizing governance capacity, civic engagement, and institutional resilience. However, empirical measurement of national defense at the sub-national level remains limited, particularly in capturing the role of higher education institutions as non-military actors. This study aims to measure the Provincial National Defense Index (NDI) at the provincial level by utilizing campus-based non-military defense implementation as empirical evidence. This study employs a mixed-methods approach, integrating expert-based focus group discussions and quantitative assessments across higher education institutions in Java, Indonesia. The index is constructed using seven institutional dimensions, including curriculum integration, governance policies, campus activities, budget allocation, symbolic artifacts, publication practices, and civic awareness. The results reveal significant variations in provincial defense capacity, where stronger performance is associated with institutionalized governance, while weaker performance reflects limited financial support and documentation systems. This study contributes to social science and governance literature by offering a novel composite index that links non-military national defense with provincial-level institutional capacity and higher education governance.

**Keywords.** national defense index; non-military defense; provincial governance; higher education; Indonesia

## 1. Introduction

National defense has traditionally been understood as a military-centered concept focusing on territorial integrity and armed force preparedness. In contemporary governance discourse, however, national defense increasingly encompasses non-military dimensions such as social cohesion, institutional integrity, civic responsibility, and sustainable development. These dimensions are particularly relevant in addressing non-traditional threats, including social fragmentation, digital misinformation and disinformation, inequality, and environmental degradation [1].

At the sub-national level, provincial governments play a critical role in shaping governance capacity and societal resilience. Nevertheless, empirical measurement tools at the provincial level remain underdeveloped, particularly those incorporating non-military institutional actors. Higher education institutions represent strategic non-military actors due to their role in knowledge production, civic education, and institutional governance[2].

Existing studies on national defense largely emphasize normative frameworks or military readiness indicators, offering limited insight into how non-military institutions contribute to provincial defense capacity. This gap constrains policy evaluation and comparative analysis across regions. To address this limitation, this study proposes a Provincial National Defense Index (NDI) measured at the provincial level using campus-based non-military defense implementation as empirical evidence[3].

This study contributes to the literature in three ways. First, it introduces a composite index for measuring national defense at the provincial level based on non-military institutional indicators [4]. Second, it conceptualizes higher education institutions as key contributors to provincial defense capacity. Third, it provides an empirically grounded measurement framework applicable for regional comparison and governance-oriented policy evaluation [5].

## **2. Research Question**

Despite the growing recognition of non-military dimensions in national defense, empirical measurement at the provincial level remains limited, particularly in capturing the role of higher education institutions as non-military actors [6]. Existing studies largely rely on normative or military-oriented frameworks, providing limited insight into how institutional practices can be translated into measurable provincial defense capacity. Building on empirical findings that demonstrate the aggregability of campus-based non-military defense implementation into provincial-level variations, this study develops a governance-oriented measurement framework to address the following research question: How can provincial-level national defense capacity be empirically measured through campus-based non-military defense implementation in Java Island, Indonesia?

## **3. Literature Review**

### *3.1. Non-Military National Defense.*

Non-military national defense emphasizes societal resilience, civic awareness, and institutional capacity as foundational elements of national security. Rather than relying on coercive mechanisms, this approach integrates national defense with governance quality, education systems, and social development. Scholars argue that non-military defense strengthens national resilience by fostering informed citizenship, institutional trust, and participatory governance[7].

### *3.2. Provincial Governance and National Defense Capacity.*

Provincial governance plays a strategic role in translating national defense principles into localized policy and institutional practices. Sub-national capacity influences how national values are institutionalized through education, public administration, and community engagement. Measuring defense capacity at the provincial level therefore requires indicators that capture institutional performance beyond military infrastructure[8].

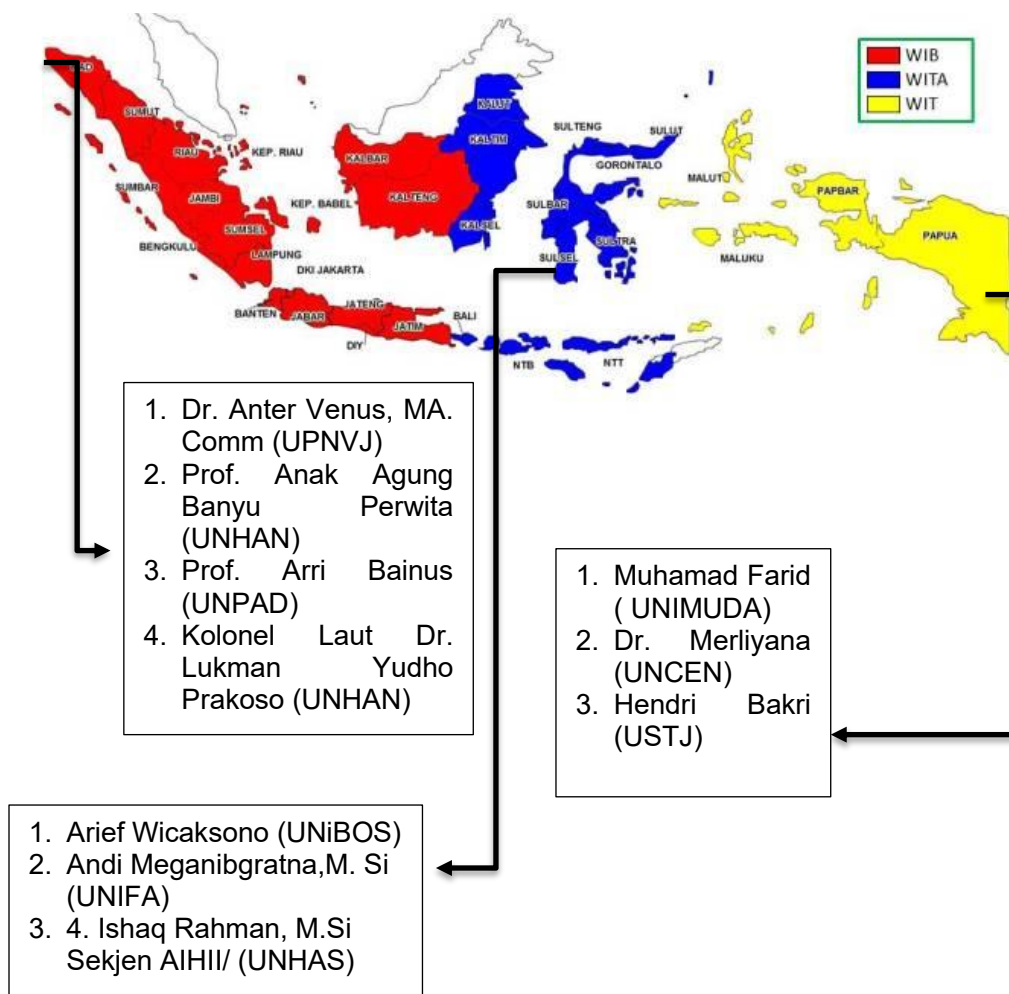
### 3.3. Higher Education Institutions as Non-Military Defense Actors.

Higher education institutions contribute to non-military defense through curriculum design, civic education, research dissemination, and community engagement. Universities function as governance actors capable of embedding national values into institutional systems. However, empirical frameworks linking higher education governance to national defense outcomes remain scarce, highlighting the need for measurement models that integrate these domains [9].

## 4. Research Method

This study employs a mixed-methods approach that integrates qualitative and quantitative techniques to develop and measure the Provincial National Defense Index (NDI) based on campus-based non-military defense implementation [10]. Data collection was conducted through Focus Group Discussions (FGDs), document review, and expert-based quantitative assessments. The mixed-methods design enables the operationalization of national defense values into measurable indicators within an empirical index framework [11]. FGDs were used to explore and refine key concepts, variables, and indicators of non-military national defense, while quantitative expert assessments were applied to evaluate institutional implementation in a systematic and comparable manner.

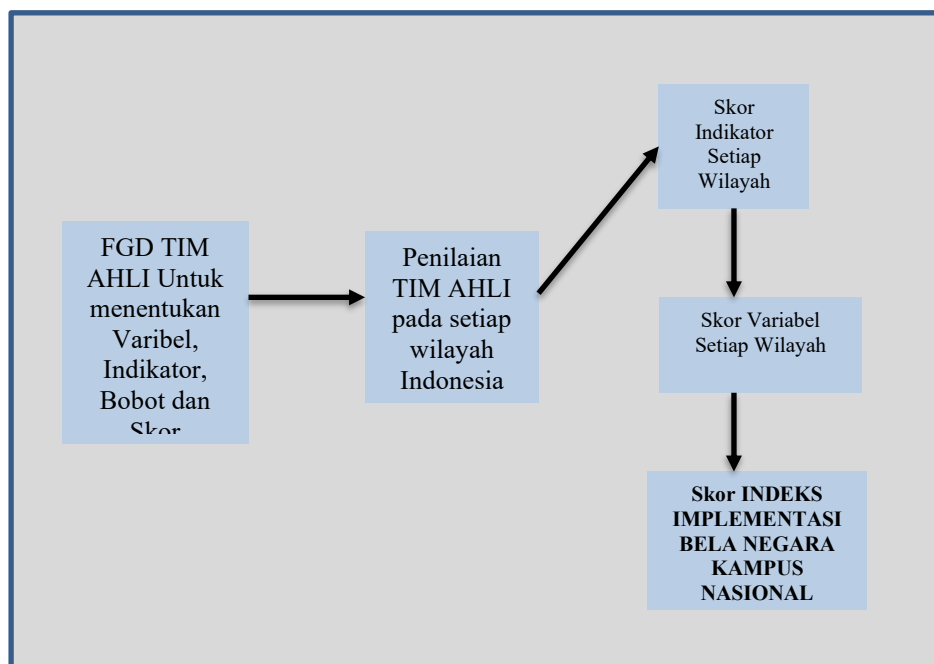
**Figure 1.** Respondents of the State Defense Index Survey Based on the Map of Indonesia



The expert assessment involved ten public figures and intellectuals with recognized expertise in national defense and higher education governance. To ensure regional representativeness, experts were selected from three major Indonesian regions based on the national time-zone classification: Western Indonesia (WIB), Central Indonesia (WITA), and Eastern Indonesia (WIT). This regional division follows Presidential Decree No. 41 of 1987 and enables balanced perspectives across diverse socio-geographical contexts. The experts assessed official institutional documents collected from higher education institutions, including policies, curricula, programs, and publications, which served as primary empirical evidence for index scoring [1].

The construction of the Campus-Based Defense Implementation Index (CDII) was conducted in two stages. First, index scores were calculated at the regional level (Western, Central, and Eastern Indonesia) based on aggregated indicator and variable scores. Second, a national-level index was derived by aggregating regional index values [7] [10]. This hierarchical index construction follows established composite index methodologies, where indicator indices contribute to variable indices, variable indices determine regional indices, and regional indices form the national index [12] [13]. The index construction process is conceptually illustrated in the Index Development Flowchart (Figure 2.) which outlines the sequential aggregation from indicators to national-level measurement.

**Figure 2.** Process of Compiling the Campus-Based Defense Implementation Index (CDII)



To interpret index performance, a normative scoring scale ranging from 1 to 100 was applied. This scale represents the full spectrum of implementation, from the lowest theoretical performance (score 1) to the highest (score 100). For analytical clarity, index scores were classified into five categories: very poor (0–30), poor (31–55), moderate (56–69), good (70–89), and very good (90–100). This classification facilitates comparative analysis across regions

and supports policy-oriented interpretation of national defense implementation levels in higher education institutions.

## 5. Result

### 5.1. Construction of the Provincial Provincial National Defense Index (NDI)

The Provincial National Defense Index (NDI) was constructed as a composite index aggregating campus-based non-military defense implementation indicators at the provincial level. Higher education institutions were conceptualized as key non-military actors whose institutional practices reflect provincial capacity in fostering national defense values. Campus-level scores were aggregated to generate provincial index values, enabling comparative analysis across provinces in Java Island.

The index operationalizes non-military national defense into seven institutional dimensions, each representing a distinct governance and implementation aspect. This structure ensures that national defense is measured not as a symbolic commitment, but as an institutionalized governance capacity.

**Table 1.** Dimensions and Indicators of the Provincial Provincial National Defense Index (NDI)

Dimension	Description
Curriculum Integration	Incorporation of national defense values into compulsory courses, learning outcomes, and academic programs
Institutional Policy and Governance	Existence of formal regulations, strategic plans, and leadership commitment
Campus Programs and Activities	Student organizations, community engagement, and extracurricular initiatives
Budget Allocation	Dedicated financial support for non-military defense-related activities
National Identity Artifacts	Physical and symbolic representations of national values
Publication and Dissemination	Academic publications, institutional media, and public communication
Civic Awareness	Awareness and participation of students and academic staff

This multidimensional structure reflects the complexity of non-military national defense and aligns with governance-based measurement approaches commonly adopted in social science index development[14].

### 5.2. Provincial NDI Scores and Classification

The aggregated results reveal measurable variation in provincial National Defense Index scores across Java Island. Provinces with higher scores demonstrate stronger institutionalization of non-military defense values, while lower scores indicate reliance on fragmented or activity-based initiatives.

**Tabel 2.** Provincial National Defense Index Scores in Java Island

Province	NDI Score	Classification
DKI Jakarta	78.6	Good
West Java	74.2	Good
Central Java	69.8	Good
East Java	71.4	Good
Banten	66.3	Moderate
DI Yogyakarta	72.1	Good

The findings indicate that most provinces fall within the “Good” category, suggesting a generally positive level of non-military national defense capacity. However, differences across provinces highlight variations in governance maturity, institutional coordination, and resource availability.

### 5.3. Dimensional Performance Analysis

To better understand the drivers of provincial defense capacity, dimensional analysis was conducted by averaging scores across institutions within each dimension.

**Tabel 3.** Average Dimensional Scores of the Provincial NDI

Dimension	Average Score	Interpretation
Curriculum Integration	77.5	Strong
Institutional Policy and Governance	72.8	Strong
Campus Programs and Activities	75.9	Strong
Budget Allocation	54.7	Moderate
National Identity Artifacts	70.3	Good
Publication and Dissemination	52.9	Moderate

The results demonstrate a clear imbalance among dimensions. Curriculum integration, campus activities, and civic awareness emerge as the strongest contributors to provincial defense capacity. These dimensions reflect normative and participatory aspects that are relatively easier to implement within higher education institutions.

Conversely, budget allocation and publication practices consistently receive lower scores. This suggests that while defense values are widely acknowledged, they are not yet fully supported by structural financial commitment or systematic documentation mechanisms.

#### 5.4. *Regional Governance Patterns and Institutional Capacity*

A comparative analysis across provinces reveals that higher NDI scores are associated with stronger governance frameworks rather than a higher number of defense-related activities. Provinces with clear policy alignment, strategic planning, and leadership commitment exhibit more consistent and sustainable implementation [9] [15].

This finding reinforces the argument that non-military national defense should be understood as a governance capacity rather than a series of isolated programs. Provinces relying heavily on ad hoc activities without institutional codification tend to show lower overall index performance.

**Tabel 4.** Governance Characteristics and NDI Performance

<b>Governance Characteristic</b>		<b>High NDI Provinces</b>	<b>Moderate NDI Provinces</b>
Formal Framework	Policy	Strong	Limited
Budget Commitment		Consistent	Sporadic
Documentation Reporting	&	Systematic	Fragmented
Institutional Coordination		High	Moderate

These patterns suggest that provincial defense capacity is shaped by institutional coherence and long-term planning rather than short-term initiatives.

## 6. Discussion

### 6.1. *Implications for Non-Military Defense and Provincial Governance*

The findings provide empirical support for reconceptualizing national defense as an institutional and governance-based capacity. Higher education institutions act as intermediaries between national policy and provincial implementation, translating abstract defense values into measurable institutional practices.

The dominance of curriculum- and activity-based dimensions indicates strong normative alignment, yet simultaneously exposes governance gaps in financial prioritization and knowledge production. Without adequate budgetary support and publication mechanisms, non-military defense initiatives risk remaining symbolic and unsustainable.

From a policy perspective, the Provincial National Defense Index offers a diagnostic tool for identifying structural weaknesses and prioritizing interventions. Strengthening budget integration, institutional reporting, and inter-campus coordination could significantly enhance provincial defense capacity [16].

### 6.2. *Contribution to Theory and Measurement Literature*

This study advances social science and governance literature in three key ways. First, it extends national defense studies beyond military-centric frameworks by introducing a governance-based composite index. Second, it demonstrates how higher education institutions

can be operationalized as empirical indicators of provincial defense capacity. Third, it provides a scalable measurement model applicable to other regions and non-military policy domains.

The results indicate measurable variation in National Defense Index scores across provinces in Java Island. Provinces with higher index scores exhibit stronger institutional governance, formal policy integration, and curriculum-based implementation of non-military defense values. In contrast, provinces with lower scores demonstrate fragmented initiatives that rely primarily on ad hoc activities rather than institutionalized systems.

Dimensional analysis reveals that curriculum integration and campus activities are the strongest contributors to provincial defense capacity. Conversely, budget allocation and publication practices emerge as weaker dimensions, indicating limited structural support and documentation. This imbalance suggests that non-military defense implementation remains largely normative and programmatic, rather than institutionally embedded within governance systems.

These findings support the argument that national defense at the provincial level should be conceptualized as an institutional capacity embedded within governance systems. Higher education institutions play a pivotal role in this process by translating national values into measurable institutional practices. The National Defense Index thus serves both as a measurement tool and a governance diagnostic instrument for identifying structural gaps and policy priorities.

## 7. Conclusion

This study develops and applies a Provincial National Defense Index (NDI) to measure provincial-level national defense capacity using campus-based non-military defense implementation as empirical evidence. The findings demonstrate that institutional capacity, governance maturity, and higher education involvement are central to effective non-military national defense.

This study is limited by its reliance on expert assessments rather than large-scale institutional-level surveys. Future research may extend the index to other regions, incorporate longitudinal data, or integrate additional non-military actors to further refine provincial defense measurement frameworks.

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