

## Policy Evaluation Of Performances Allowance using System Dynamics

### Approach: Case Study Of Indonesia Navy

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#### Abstract

Indonesia Navy (TNI-AL) has implemented a policy in the field of performance management to improve the professionalism of soldiers with the provision of performance allowance. Performance allowances (remuneration) are expected to improve the performance of personnel that will have an effect on improving organizational performance. However, this policy at the level of application still appears some potential problems. Nowadays, the policy has not given a significant influence on the performance, productivity and improvement of the personnel welfare of TNI AL. The provision of performance allowance is not based on achievement, weight and level of work risk on each personnel. The aim of this paper is giving analysis, studies, and research about how the application of remuneration allowance policy of Navy personnel and an impact on performance, soldiers welfare, and public services. This research uses system dynamics (SD) approach to answer a research problem. The result of paper was given analysis that professionalism aspect has weight 7,02; Soldier income aspect has weight 6,73; soldier capability aspect has weight 7,71. The final result showed that public service aspect has weight 4,88; Navy workload aspect has weight 7,18; Job risk aspect has weight 5,12. The final result showed that soldier welfare aspect has weight 6,75; Performance allowance aspect has weight 6,54; social status aspect has weight 6,11.

*Keyword:* Performance Allowance, Indonesia Navy (TNI-AL), System Dynamics, Public Policy.

#### Introduction

Bureaucratic reform has become a national policy following the development of the strategic environment. Bureaucratic reforms also have an effect on the Indonesian Armed Forces (TNI) organization, including the Indonesia Navy (TNI- AL) organization.

TNI-AL has implemented a policy in the field of performance management to improve the professionalism of soldiers with the provision of performance allowance. Performance allowances (remuneration) are expected to improve the performance of personnel that will have an effect on improving organizational performance. However, this policy at the level of application still appears some potential problems.

Nowadays, the policy has not given a significant influence on the performance, productivity and improvement of the personnel welfare of TNI AL. The provision of performance allowance is not based on achievement, weight and level of work risk on each personnel

The aim of this paper is giving analysis, studies, and research about how the application of remuneration allowance policy of Navy personnel and an impact on performance, soldiers welfare, and public services.

This research uses system dynamics (SD) approach to answer a research problem. It was introduced by Jay Forrester in the 1960s (Forrester 1961). SD provides an effective methodology for an understanding of management issues on a large and complex scale.

System Dynamics (SD) is a powerful but simple method. It method consists of causal loop relationship and a stock flow diagram to describe inter-system linkages (Georgiadis & Besiou 2008). Therefore, it is easy for SD to modeling a dynamic and complex components as an integrated system. SD gives a better understanding for users about the dynamic behavior of the system by providing insight into the feedback process (Chang, Hong & Lee 2008). SD is a method to provide policy analysis and design that may be applied to problems in complex social, managerial, economic or ecological systems, at the strategic level

(Rander 1980). This method is suitable for dynamic systems consisting of interdependence, mutual interaction, information feedback, and causal relationships (Sterman 2000).

The scope of this research is to provide a thorough evaluation of the performance policy scenarios of performance allowance within the Navy by considering the interaction between influential variables within it as a system.

This paper has many literatures to support the research, such as System Dynamics-based Modeling and Analysis of Greening the Construction Industry Supply Chain (Sundarakani, Sikdar & Balasubramanian 2014). A System Dynamics Model for Risk Analysis during Project Construction Process (Wan & Liu 2014). A System Dynamics Approach to Food Security through Smallholder Farming in the UK (Tsolakis & Srai 2017). A System Dynamics Model of Sustainable Urban Development: Assessing Air Purification Policies at Taipei City (Chen, Ho & Jan 2006). Control Theory Concepts Applied to Retail Supply Chain: A System Dynamics Modeling Environment Study (Janamanchi & Burns 2013). Dynamics of Financial System: A System Dynamics Approach (Nair & Rodrigues 2013). A System Dynamics Model of Trust, Knowledge Sharing and Stability of Strategic Alliance (Lin & Dao 2013). A Behavioral Theory of Insider-Threat Risks: A System Dynamics Approach (Moyano et al. 2008). A New Method for Modeling System Dynamics by Fuzzy Logic: Modeling of Research and Development in the National System of Innovation (Youssefi, Nahaei & Nematian 2011). Insider Threat Analysis of Case Based System Dynamics (Yang & Wang 2011).

The article is organized as follows. Section 2 explains about a system dynamics process of performance allowance in Indonesia Navy (TNI AL). Section 3 presents about a SD modeling framework and causal loop in performance allowances. Section 4 presents the conclusion of the research.

### **Material/methodology.**

#### **Policy implementation.**

Public policy is the biggest challenge in the field of policy implementation. Poor governance can lead to failure in the implementation and development of public policy, even though good administrative / management practices have been implemented. (Muhammad 2014). Public policy implementation is dynamic because there are multiple stakeholders and a fragmented approach (Bryson 1995). It is vulnerable to the risks of failure and misery resulting from public expectations and development by state authorities (community leaders) (Crosby 1996).

Some domains of public policy, such as utilities, transport infrastructure, and national security, apply routine logic and technology where raw materials can be viewed, measured, and analyzed and the results are also measured (Hasenfeld 1983). Other policy domains such as social services or economic development often depend on the individual or community attributes that the policy aims, especially when it comes to personnel as the main object and the goal is to change the behavior of individuals through a system (Sandfort 1999). As an academic discipline, public policy integrates other fields of social science such as economics, sociology and management. The development of the literature on Public Policy has been a never-ending process since the start of the concept (Imurana, Haruna & Kofi 2014).

According to Thomas Dye (2001), Public Policy is basically "Whatever government chooses to do or not to do". In his view, public policy consists of government actions and inactions. The government's decision not to act is its own public policy. Nevertheless, the government's decision goes through a complex interactive process which is influenced by various characteristics of socio-political factors and other environmental factors (Dye 2001).

The challenge of implementing public policy in developing countries is no other role for civil society in an effort to promote the development that policy-makers have achieved (Thornhill 2009). This becomes a challenge because civil society is acknowledged as a stakeholder to implement effective public policy. According to Masango, it needs to emphasize the importance of public participation in the implementation of a policy (Masango 2007).

#### **Performance allowance of Indonesia Navy.**

Compensation Management is one of the most complex and dynamic issues in the field of human resource management. Compensation Management plays an important and functional role because it is the core of human resource management. This is important for employees and superiors, because employees depend on wages and salaries, which should be equivalent to the work done (Ibojo & Asabi 2014).

Compensation includes costs such as bonuses, profit sharing, overtime and additional expenses that include money and non-money allowances such as home and car rental facilities for employee leasing services (Wright, Gardner & Moynihan 2003).

The process of remuneration is very important and a source of problems in the organization. It relates to people who value their value in the organization. The same process relates to financial and non-financial rewards. It includes the strategies, plans and processes of the philosophy used by organizations to develop and maintain a reward system (Njoroge & Kwasira 2015).

The government has issued Presidential Regulation No. 87 of 2015 on Employee Performance Allowance in the Indonesian National Army. Presidential Regulation signed by the President on July 31, 2015 as the legal basis for the new performance allowance in the TNI. The amount of performance allowance Under the Presidential Regulation, effective May 1, 2015 Performance allowances for Indonesian Armed Forces employees have increased.

In conjunction with the presidential regulation 87 of 2015, Presidential Regulation No. 88 of 2015 on Employee Performance Allowances in the Ministry of Defense and Presidential Decree No. 89 of 2015 on Employee Performance Allowance in the Indonesian National Police. The provision of remuneration to Navy begins with the submission of the number of soldiers who will receive the remuneration. Remuneration is given in the form of performance allowance every once a month. Each soldier has different judgments about remuneration.

### **System dynamics**

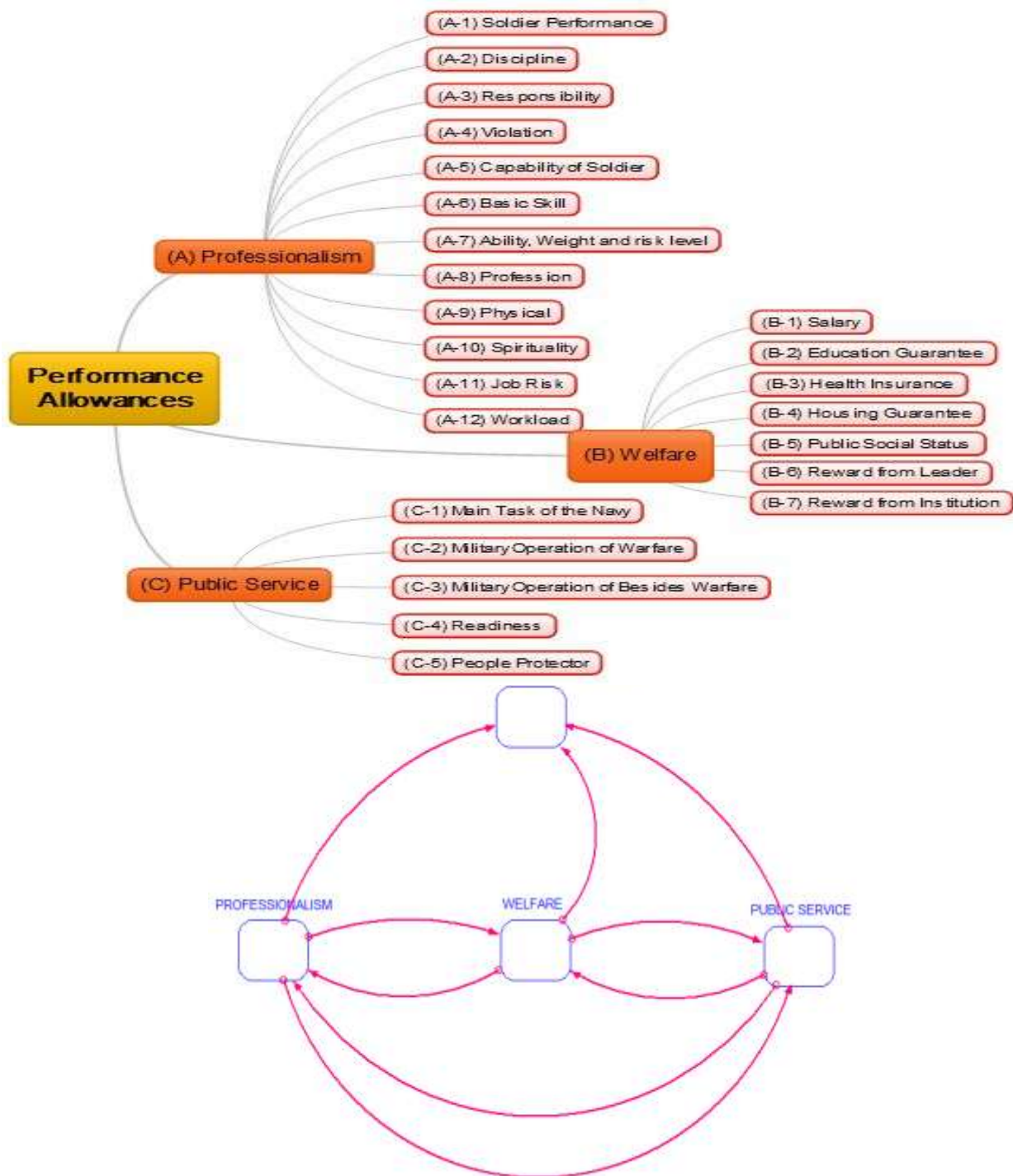
System dynamics approach is a combination of theory, method, and philosophy to analyze behavior. System Dynamics model is a comprehensive policy evaluation model that views each issue holistically, systematically and integratively (Yang Song 2015).

This paper uses System Dynamics approach to solve the policy problems of personnel performance allowance from the Navy and an impact on the professionalism of performance, the discipline of soldiers, the welfare of the Navy soldiers and the public service by the soldiers.

Finally, it can be composed 3 (three) variables of the main aspects that influence the policy of performance allowance, namely: (a) Professionalism Aspects of Warriors, (b) Welfare Aspects, and (c) Public / State Service Aspects.

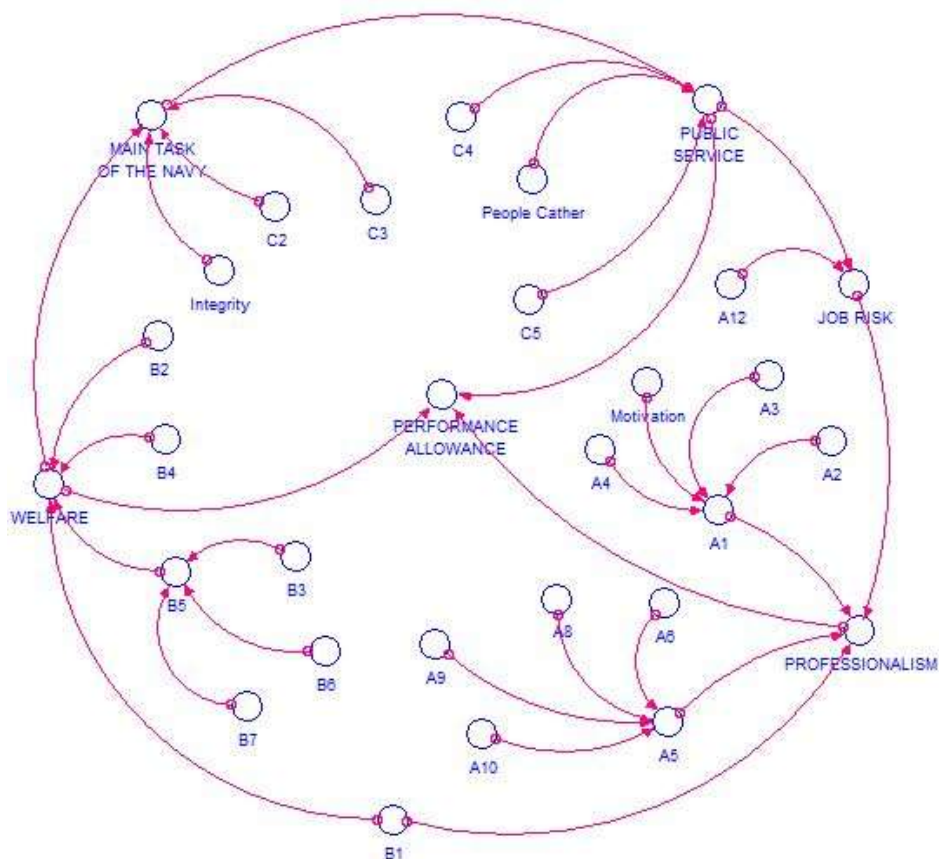
Steps of simulation (Forrester 1961):

- a. Defining the system. These steps include: defining system boundaries and identifying significant variables. Formulation model: formulate the relationship between the components of the model.
- b. Data retrieval: identification of data required by the model in accordance with the purpose of modeling.
- c. Model making. In the preparation of the model needs to be adjusted to the type of simulation language that will be used.
- d. Verification for model: checking whether the model is free from error.
- e. Validation for model is a process of testing the model whether the model is made in accordance with the actual system.



**Figure 2.** Conceptual Model of Performance Allowance System.

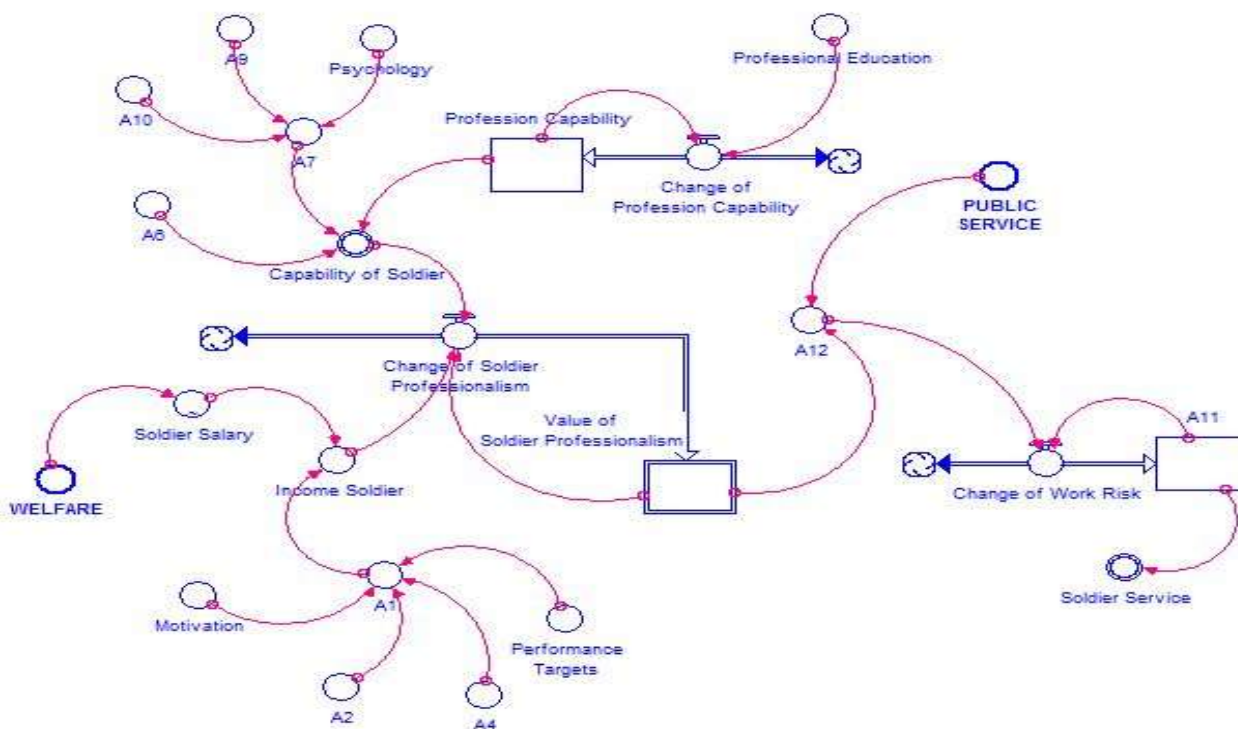
**Result and discussion.**



**Figure 3.** Causal Loop Model Of Performane Allowance System.

The causal loop model (CLD) uses to measure the involvement of each component and the criteria that interact with each other to form a system of performance allowances of Navy soldiers.

**Professionalism**



**Figure 4.** Stock Flow Diagram of Professionalism Aspect

The value of Soldier Professionalism is influenced by system dynamics on the variables that interact within it, which include the soldier capability and soldier salary.

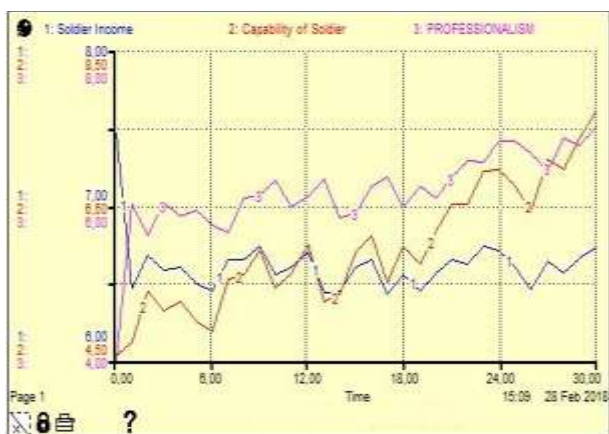


Figure 5. Graph of Professionalism Aspect

Table 1. Value of Professionalism

Time	PROFESSIONALISM	Soldier Income	Capability of Soldier
19	6,25	6,44	5,73
20	6,09	6,58	6,16
21	6,35	6,65	6,52
22	6,59	6,62	6,51
23	6,57	6,73	6,96
24	6,84	6,70	6,97
25	6,83	6,60	6,75
26	6,67	6,45	6,42
27	6,44	6,64	7,09
28	6,87	6,68	6,97
29	6,77	6,66	7,38
Final	7,02	6,73	7,71

Based on table 1 and figure 5 upon, the higher the professionalism aspect of the soldier, the more increase the evaluation value of the increase of performance allowance of TNI Navy soldiers. The final result showed that professionalism aspect has weight 7,02; Soldier income aspect has weight 6,73; soldier capability aspect has weight 7,71.

**Public Service.**

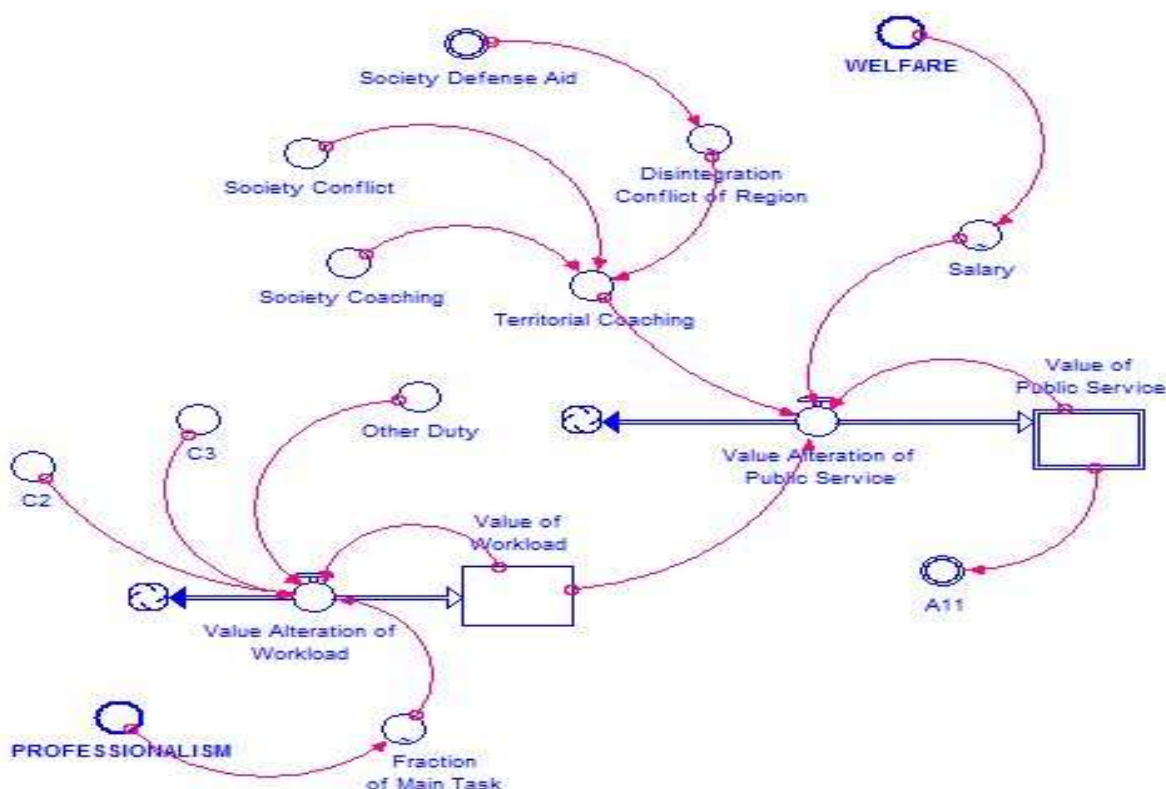


Figure 6. Stock Flow Diagram of Public Service Aspect.

The value of public service aspect is influenced by system dynamics on the variables that interact within it. The influence variable is the public service. It is in accordance with the main task of the Navy, namely marine security defense variables and territorial guidance variables by the Navy (TNI AL).



Figure 7. Graph of Public Service Aspect

Table 2. Value of Public Service Aspect

Time	Public Service	Workload of Navy	Job Risk
18	4,50	6,51	4,73
19	4,60	6,56	4,83
20	4,55	6,61	4,78
21	4,65	6,67	4,88
22	4,72	6,73	4,96
23	4,72	6,79	4,96
24	4,82	6,85	5,06
25	4,82	6,91	5,06
26	4,77	6,96	5,01
27	4,86	7,01	4,90
28	4,83	7,07	5,07
29	4,80	7,12	5,04
Final	4,88	7,18	5,12

Based on figure 7 and table 2 upon, the higher the value of public service by soldiers, it will further increase the value of job risks and professionalism of the soldiers, thereby increasingly affecting the evaluation of the increase in performance allowances on the Navy soldiers. The final result showed that public service aspect has weight 4,88; Navy workload aspect has weight 7,18; Job risk aspect has weight 5,12.

### Soldier Welfare.

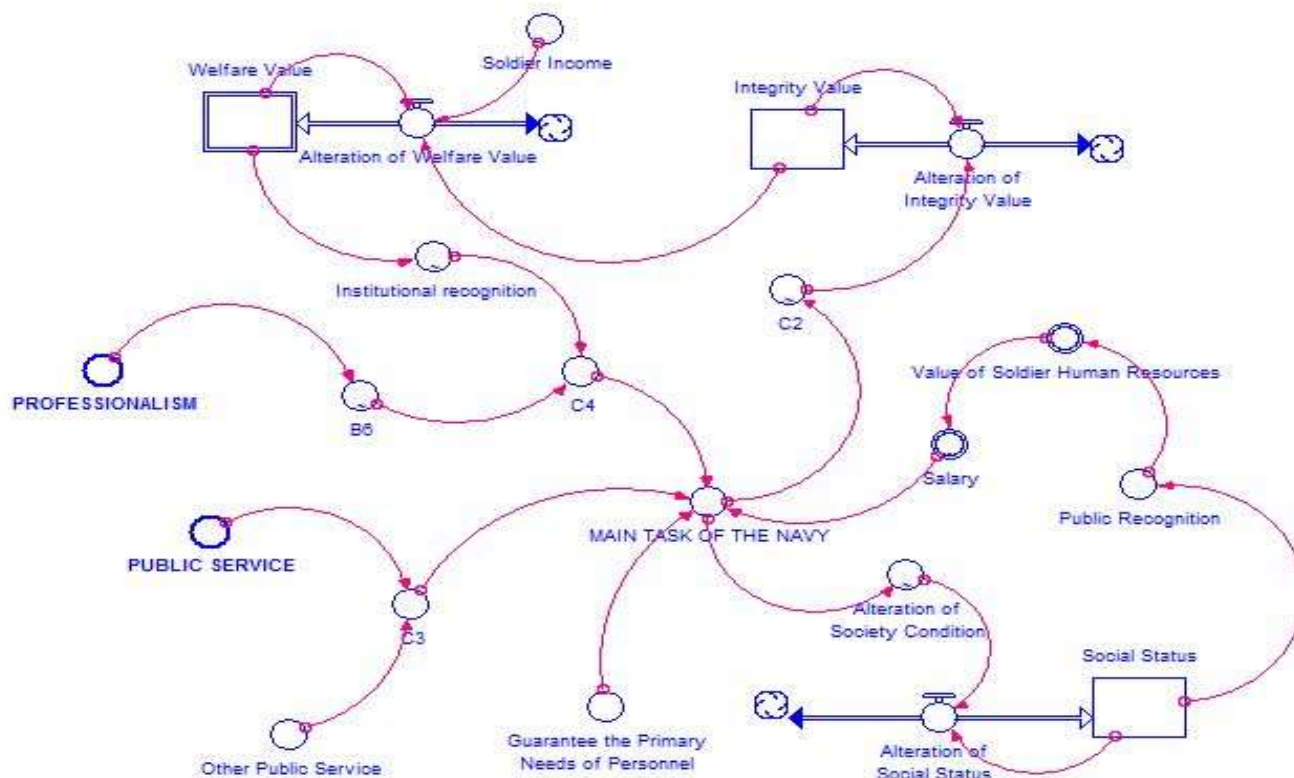


Figure 8. Stock Flow Diagram of Soldier Welfare.

The Value of soldier welfare is influenced by system dynamics on the variables that interact within it. The variables are recognition or appreciation from the institution of the Navy, which is also influenced by the

main task of TNI AL, which it consists of the tasks of Military Operation Warfare and Non-Warfare Military Operation duties.

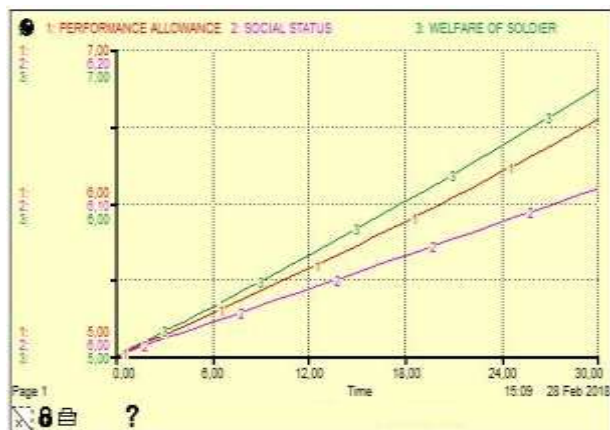


Figure 9. Graph of Soldier Welfare Aspect

Table 3. Value of Soldier Welfare

Time	WELFARE OF SOLDIER	PERFORMANCE ALLO	SOCIAL STATUS
18	6,00	6,58	6,07
19	6,08	6,59	6,07
20	6,12	6,58	6,07
21	6,19	6,04	6,08
22	6,25	6,09	6,08
23	6,31	6,14	6,08
24	6,37	6,20	6,09
25	6,43	6,28	6,09
26	6,49	6,31	6,09
27	6,56	6,37	6,10
28	6,62	6,43	6,10
29	6,69	6,49	6,11
Final	6,75	6,54	6,11

Based on figure 9 and table 3 upon, the higher the value of the soldier welfare, it will further increase the professionalism of the soldiers, thus increasingly influencing the evaluation of the increase in performance allowance of soldiers. The final result showed that soldier welfare aspect has weight 6,75; Performance allowance aspect has weight 6,54; social status aspect has weight 6,11.

### Conclusion

The analysis, studies, and research about remuneration allowance policy of the Navy personnel has many aspects, such as : (a) Professionalism Aspects of Warriors, (b) Welfare Aspects, and (c) Public / State Service Aspects. Its analysis showed that professionalism aspect has weight 7,02; Soldier income aspect has weight 6,73; soldier capability aspect has weight 7,71. The final result showed that public service aspect has weight 4,88; Navy workload aspect has weight 7,18; Job risk aspect has weight 5,12. The final result showed that soldier welfare aspect has weight 6,75; Performance allowance aspect has weight 6,54; social status aspect has weight 6,11.

### Acknowledgement.

This paper supported by State University of Jakarta (UNJ).

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