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THE UNMANNED AIRCRAFT CAPABILITIES IN INTEGRATED MARITIME DEFENSE TO SUPPORT WORLD MARITIME AXIS POLICY

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A b s t r a c t - Indonesian National Armed Forces, the Air Force, as a means of national defense , had the task of upholding the sovereignty of the unitary state of the Republic of Indonesia and the territorial integrity of country, especially in the context of upholding state sovereignty in the air, and supporting the enforcement of state sovereignty on land and at sea. In order to realize this, the Indonesian Air Force through one of its functions in its territorial development is through fostering the potential of aerospace, through the empowerment of defense areas. The development of aerospace potential is carried out as an effort to realize the creation of regional security around the base. This research method is a qualitative method with observation techniques, documentation studies and interviews. The results of the study showed that there are still a level of vulnerability of security in around Atang Senjaya Air Force Base area which is the concentration of local security forces, office complexes, personnel and facilities and infrastructure that require a fairly high level of supervision. The existence of military installations, whether complex or office buildings, is still quite open and easily accessible to parties with certain interests. It is very important to establish a condition of the expected defense area through the synergy of all territorial apparatus in optimally carrying out the development of aerospace potential in the community, through the role of Binpotdirga personnel, in providing guidance, conducting effective communication, and participation from local government.

Keywords: Air base, empowerment, regional defense , universal defense system, Atang Sendjaja

Introduction

Indonesia as an archipelagic country , wealth source power sea , transformation world economy to the Asian region, and the presence Strait Malacca as Sea Line Of Communication (SLOC) and Sea Line Of Trade (SLOT) as well as Sea Lane The Indonesian Archipelago (ALKI) is the background policy government for make Indonesia as axis world maritime as stated _ in nawa dream government (Ministry of Defense Republic of Indonesia, 2015). President Joko Widodo is promoting policy axis deep world maritime global context with method present at the conference ASEAN , APEC, and G20 Summits. Jokowi sees a transformation big currently happening in the 21st century . The geo - economic and geo- political center of gravity of the world is shift from West to East Asia and middle Asian countries rise . This momentum , will be very good in support Indonesia 's ideals as a axis world maritime .

Policy government about axis world maritime , aim for increase well-being Indonesian nation . But permanent have potency threat to State defense in Indonesia 's maritime areas includes: action violations and crimes , including illegal fishing , illegal mining, illegal transfer of oil, smuggling (weapons , ammunition , narcotics , and psychotropic substances) crimes cross -border crime, armed and robbery , piracy , sabotage to marine vital objects , surveys / research at sea , pollution environment sea , dump waste dangerous and toxic , use ingredient explosive , accident or disaster at sea , and problem border sea and islands at the forefront (Sulistyaningtyas , 2016).

Observation and security at sea could held with various way , fine by conventional with equipment simple nor with use technology sophisticated . However remember the breadth of Indonesia's marine area , assistance technology is something absolute thing _ required in system observation . Broadly speaking _ observation and security at sea could held with use rides (platforms) on land , at sea or in the air . Platforms on land including observation posts beaches , both using radar and those carried out visually . Platforms on the sea could use KRI ships for enough distance _ far or boat patrol for

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distance currently with using sonar. While the platform in the air could is aircraft air winged fixed , helicopter , balloon air or PTTA (Aircraft Without crew) (James, 2011).

Strength building defense maritime in support policy axis maritime in line with target strategic national defense , including for realize capable national defense handle maritime area security , land area security and aerospace security by synergistic and integrated between dimension with the "Tri Matra " doctrine Integrated ". Space area security air national conducted with roll out strength element air in skeleton support security border land and sea in the territory of the Republic of Indonesia with increase ability observation and sensing air with use Airplane Without _ Crew (PTTA) (Ministry of Defense Republic of Indonesia, 2015).

The strength of PTTA TNI AU is one of the element important in system defense maritime . Condition the current capability of the Indonesian Air Force 's PTTA faced with challenges to potency threat security Indonesian maritime . Ability surveillance and reconnaissance air aim for get authentic information and data in real time as needed for defense and security of the territory of the Unitary State Republic of Indonesia, in particular national defense in face threats in Indonesian waters . PTTA owned by the Indonesian Air Force is the AUV (Unmanned Aerial Vehicle) Air Squadron 51 Wing 7 Supadio Air Base . Airplane Without _ Crewman that , has specification range wing 8.3 m, length 4.5 m, height 1.3.m, max weight 230 kg, max load 50 kg, power cover 200 km, with power last 12 hours (Jing & Billo , 2015). Based on these data , the current capability of PTTA TNI AU is still limited for doing supervision an Indonesian territorial waters _ constantly . Supervision by continously aim for respond by fast if occur action aggression , illegal activities , and violations in the territorial waters and jurisdiction sea .

PTTA in system defense maritime working for doing sensing , monitoring , surveillance , reconnaissance , and intelligence as well as could utilized for prosecution to every threat maritime . PTTA function in prosecution to every threat maritime held

through mission attack precision (Precision Attack). Operational Requirements for Alutsista and Non -Alutsista, strategic PTTA must have ability for could be equipped with weaponry . Strategic PTTA Armament aim for realize TNI AU's PTTA capabilities in To do attack for destroy target as stated _ in TNI AU Technical Instructions About Operation Airplane Without _ Crew (PTTA). Related with ability for To do attack or prosecution to threat maritime , PTTA currently operated by the Indonesian Air Force is type tactical with limited ability _ for bring load / payload (weapon payload) and not yet be equipped with system weapons (Barry & Hansen, 2009).

Ability distance range (radius of action) is related close with one _ characteristics superiority strength air that is power reach . Strength air , including PTTA can reach to all corners in all point on the surface earth and against target move on land , sea and air in accordance with ability technology and its radius of action . The radius of action also matters to range capable operation _ achieved / pursued by a strength military for attend and carry out operation . Reach operation could held in form enhancement range system weapons (Christopher, 2009). In maintenance defense maritime , capability distance reach PTTA holding very important role because the size of the water area that must be supervised and secured as well as away distance Among base PTTA operations and areas of operation . Related with ability distance reach The current PTTA TNI AU have limited range _ because data transmission is line of sight and is highly dependent on with position deployment of Ground Control Station (GCS) and Ground Data Terminal (GDT). AUV (Unmanned Aerial Vehicle) Air Squadron 51 Wing 7 Supadio Air Base have power 200km range (Nasution , 1988). With distance limited reach _ The current PTTA TNI AU not yet capable monitor the entire territorial waters of Indonesia because besides distance reach is also greatly influenced with location its deployment .

With existence synergy and integration in every dimension so all function could connected and mutually support with good . PTTA TNI AU as one of the defense equipment could bridge Thing the with provide data in real time via mission

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observation and reconnaissance , then the data could used by elements of the Indonesian Navy and stakeholders interests (stakeholders) in the field of maritime other like the Security Agency Maritime Affairs (Bakamla), Water Police (Polair), Ministry of Maritime Affairs and Fisheries (KKP), and Customs and Excise for doing prosecution . Due to in line of sight and highly dependent with position PTTA Ground Control Station (GCS) deployment yet equipped with radio communication both VFH, UHF and HF which allows PTTA pilots to communicate direct with every element moderate maritime _ doing mission operation as well as not yet existence device software , regulations , and procedures about implementation operations involving PTTA with _ strength other maritime defenses .

Based on exposure on researcher propose plan study that is upgrade The ability of the Indonesian Air Force PPTA in Integrated Maritime Defense For Support World Maritime Axis Policy . Expected with study this could support World Maritime Axis policy for doing Duty supervision in guard defense area security in Indonesia.

Literature Review

National Defense

National defense as one _ function state government is effort for ensure whole and steady the establishment of the Unitary State Republic of Indonesia based on Pancasila and the 1945 Constitution of the Republic of Indonesia (UUD 1945). In essence The national defense of the Republic of Indonesia is all effort defense character the universe that maintains based on awareness on rights and obligations citizen as well belief in strength alone . State Defense managed in one system national defense , namely defense that is universe involving _ whole citizens , territories and resources power national others , as well as prepared by early by the government and organized in total, integrated , directed , and continuous for enforce state sovereignty , territorial integrity and safety all nation from all threat .

Dead Axis of the World

The World Maritime Axis is poured in Regulation President Number 2 of 2015 concerning Term Development Plan National Medium Term (RPJMN) 2015-2019. Indonesia as axis world maritime is supported with five main pillars namely : first , development return culture Indonesian maritime ; second , commitment maintain and manage source power sea with focus build sovereignty food sea through development industry fishery with put fisherman as the main pillar ; third , commitment push development infrastructure and connectivity maritime with build toll sea , port marine , logistics and industry shipping , as well as tourist maritime ; Fourth , diplomacy the inviting maritime all Indonesian partner for work same in field marine ; and fifth , build strength defense maritime . With those five pillars then what is meant with axis world maritime is make Indonesia a large , strong , and prosperous maritime country through return Indonesian identity as nation maritime security _ interests and security maritime , empowerment whole potency maritime for prosperity nation , equality Indonesian economy through toll sea , and implement diplomacy maritime in political overseas Indonesia five years forward . Lutz Feldt et al formulate maritime security axis in description as following .

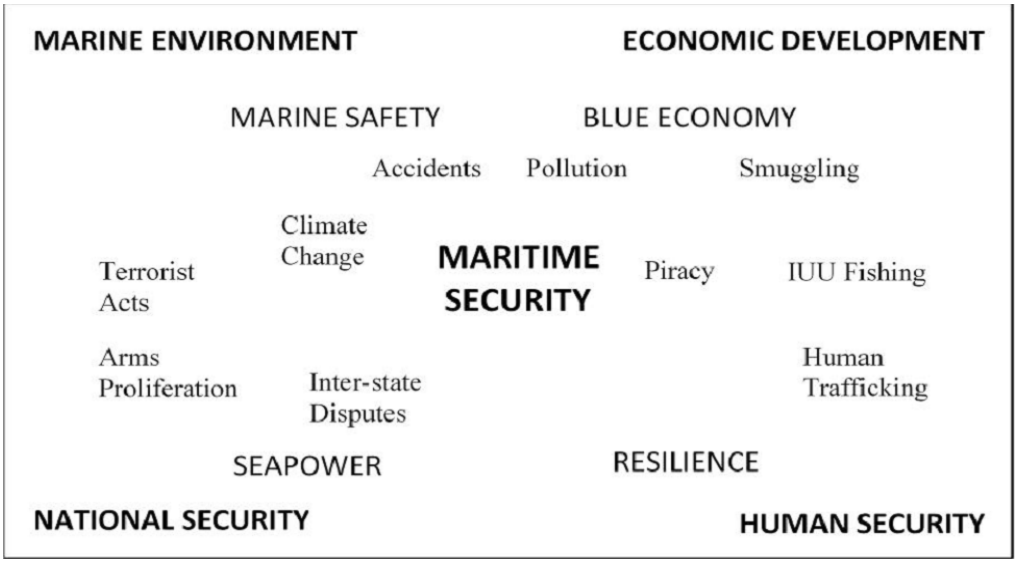

Figure 1. Maritime Security Axis

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Source : Lutz Feldt et al , 2013

Theory Synergy

According to Stephen Covey in In his book The Seven Habits of Highly Effective People, that :

"Synergy is what happens when one plus one equals ten or a hundred or even a thousand! It's the profound result when two or more respectful humanbeings determine to go beyond their preconceived ideas to meet a great challenge"

That synergy is what happened _ when one plus one same with ten or one hundred or even thousand . Synergy is a good result _ when two man dear or more pass prejudice they for face a big challenge . _ From understanding that , then synergy is work same done _ for reach more results _ big .

Theory synergy according to AF Stones James in Soekanto is that connection Among two party could produce level communication faced with elements work same and trust . Relationship pattern productive work _ three nature communication in work same the as following :

defensive. Working rate same and trust low will result in pattern communication that is passive defensive .

Respectful. Work the same height and each other trust will produce pattern communication that is compromise and mutual appreciate .

synergy. With work the same height and each other trust will produce pattern communication that is meaningful synergy _ work same intertwined _ will produce more output _ big from summation results the output of each party (the whole greater than the sum of its parts). Theory this relevant in strengthen work same To use realize synergy cross sector between TNI/TNI AD with Police , especially in field education .

Hans Morgenthau in his book " Truth and Power: Essays of a Decade, 1960–70" (1970) proposed a the theory he call it " Balance " Strength " or " Balance of Power", for ensure world peace . Theory this state that world peace can come true if created balance power between countries in the world. In theory , Morgenthau argues that only powers big only decide _ characteristics political international on a period history . Even though Morgenthau stated that the theory could applied to all countries, however with his opinion that's Morgenthau try focus his theory on the power of the great powers .

Method Study

Study this use method study qualitative . Study qualitative is research that has meaning for understand phenomenon about what experienced by the subject study for example behavior , perception , motivation , action , etc holistic and with method description in form of words and language , at one context special natural and with _ utilise various method natural . Researcher in study qualitative will attempted in build meaning about something phenomenon based on view or opinion from participant or sources (Creswell, 2004).

Study this seen use post-positivism paradigm with approach qualitative and method descriptive . On research this , researcher more use method subjective thought . _ Truth subjective depending on the context of values, culture, traditions , customs and beliefs . Study qualitative descriptive is method research based on philosophy _ usual postpositivism _ used for research on conditions natural objective _ where researcher play a role as a key instrument (Sugiyono , 2014). Method qualitative with approach studies descriptive analytical in study this method _ qualitative for get in- depth data , a data that contains meaning . Research this meant for describe actual situation _ based on the facts or events and existing data , then the data processed , analyzed and processed more carry on with base theories that are studied and used as ingredient discussion so that produce something conclusions that can be used for give the best

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advice for the place and manager used object research . Study this implemented in several location of them is Headquarters Big Indonesian National Army (TNI Headquarters), Headquarters Big Indonesian Air Force National Army (TNI AU Headquarters) , Komando Indonesian Air Force Operations 1 (Koopsau 1), Halim Perdana Kusuma and the Pontianak 51 Air Squadron . Location above is location office where researcher will look for research information and data like To do Interview to the speakers or subject research that has been determined in research .

Sources of data to be used in study this is primary data sources and secondary data sources . Primary data is source of data obtained direct from subject to be researched and secondary data is the data obtained through materials literature nor obtained from institution or agency certain (Riduan , 2014). Primary data obtained from results Interview or in depth interview, while secondary data obtained from results studies libraries , documents related , statement official , and official websites . Sources of interview data to be used originated from Interview with instant in Thing this TNI Headquarters, Indonesian Air Force Headquarters , Koopsau 1, and the Pontianak 51 Air Squadron . Next , study literature will conducted at the Defense University Library Republic of Indonesia and Libraries Republic of Indonesia.

Data collection techniques carried out in study this is interview and study literature (Moleong , 2007). Method Interview in study this is an in-depth interview with head deputies , assistants , and staff related to those at TNI Headquarters, TNI AU Headquarters, Koopsau 1 , and the Pontianak 51 Air Squadron . In in-depth interview method guidelines interview containing _ questions to resource persons at TNI Headquarters, TNI AU Headquarters, Koopsau 1 , and Pontianak Air Squadron 51 are prepared for guide the way interview . Questions guide the is an open-ended question (question open) for get in - depth and precise information sourced from informants and data processors (Sugiyono , 2014) allow for analyzed more in developed questions . _ Besides with in - depth interview , researcher use method studies bibliography . Studies

literature conducted with collect data from literature , such as data and documents official , book , journal research , dissertations , theses , papers , and online publications such as showed in Bibliography section .

Results and Discussion

Identify the factors that support the capability of PTTA TNI AU in air operations

In essence, the defense of the state of the Republic of Indonesia is all defense efforts of a universal nature, the implementation of which is based on awareness of the rights and obligations of citizens and belief in one's own strength. National defense is managed in a single national defense system, namely defense that is universal in nature which involves all citizens, territories and other national resources, and is prepared early by the government and is carried out in a total, integrated, directed, and continuous manner to uphold state sovereignty, integrity and integrity. territory and the safety of the entire nation from all threats. TNI Headquarters has compiled an implementation manual on the operation of unmanned aircraft, so that it can be used as a guide in the implementation of the observation and reconnaissance missions carried out by PTTA, this is necessary considering that each force within the TNI operates PTTA with different types.

TNI Headquarters determines the missions carried out by PTTA for each force, so that there is no overlap in implementation. As is the case in many countries, PTTA with strategic capabilities is the domain of the Indonesian Air Force, while tactical PTTA is an extension of the elements of the Navy and TNI AD in carrying out operations at sea and land. The determination of the type of mission carried out by each force will affect the types and capabilities that must be possessed by PTTA which is operated by each dimension/force in the supervision of the Indonesian maritime area.

Coordinate the preparation of the PTTA TNI strength development road map, so that it can be a guide for each force in planning the development of the PTTA strength

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of each force. Carry out an assessment of technical specifications and matters needed to improve air surveillance and reconnaissance capabilities carried out by PTTA, particularly the tactical and strategic PTTA of the Indonesian Air Force and propose the procurement to the Ministry of Defense in accordance with the specifications and operational requirements proposed by the Indonesian Air Force. TNI Headquarters Carry out revisions to the TNI's posture and Minimum Essential Force by optimizing the use of PTTA in monitoring Indonesian waters for the implementation of a synergistic and integrated maritime defense system in the future.

TNI Headquarters coordinates the research and development functions contained in each Department of Research and Development (Dislitbang) forces in developing the PTTA payload so that it can increase the capability in air surveillance and reconnaissance which is very substantial in the implementation of maritime defense. Headquarters plans the equipment requirements needed for air surveillance and reconnaissance missions by PTTA TNI AU. The needs planning is based on a study of the capabilities of the PTTA TNI AU, especially the ability to carry various payloads and weapons systems but currently only equipped with cameras for observation and reconnaissance during the day and night. Carry out studies and preparation of technical specifications and operational requirements for strategic types of PTTA that have Medium Altitude and Long Endurance (MALE) capabilities, so that they are able to carry out continuous surveillance of Indonesian waters and have the ability to carry out attacks against maritime threats. Submit to the ministry of defense through the TNI Headquarters for the procurement of PTTA TNI AU in accordance with the technical specifications and operational requirements needed to support the implementation of maritime defense. Carry out research and development of PTTA TNI AU by Dislitbangau, in particular the development of air surveillance and reconnaissance equipment and sensor systems in collaboration with R&D and defense industries in the electronics sector.

Integrated maritime defense strategy

The national defense strategy aims to realize a national defense capable of handling maritime area security, land area security and aerospace security. In order to realize the security of the national air space area, it is carried out by deploying air elemental forces in order to support the security of land and sea borders in the territory of the Republic of Indonesia by increasing the capability of Unmanned Aircraft (PTTA). PTTA forces are deployed to support operations on land and at sea through air superiority and to support deterrence strategies and defense diplomacy. Therefore, in order to be able to support operations on land and especially to take action against potential threats at sea in the implementation of a synergistic and integrated maritime defense, PTTA TNI AU is needed which has the ability to attack targets that threaten the sovereignty and security of Indonesian territorial waters.

The TNI Headquarters provides advice and input to the Ministry of Defense regarding the need for PTTA TNI AU forces to be present in the middle of the ocean, taking into account the ability of the air element to be able to arrive quickly and have a long range.

Furthermore, it can be a priority for strengthening the air elements that directly affect the success of the implementation of the maritime defense system. TNI Headquarters carried out a revision of the TNI Doctrine and the combined Marine Operations Doctrine by involving the PTTA TNI AU force as an element of prosecution and attackers against various forms of potential threats in Indonesian waters.

TNI Headquarters is following up on the strategic steps of the ministry of defense in building strategic PTTA strengths in the implementation of a synergistic and integrated maritime defense, through the involvement of the research and development services of each force in each PTTA development program coordinated by the ministry of defense. Carry out seminars and scientific meetings involving the defense industry,

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universities , and R&D forces as an effort to develop an armed PTTA mission system (joint development mission system). From the implementation of seminars and scientific meetings, it is possible to identify problems and solutions in developing armed PTTA.

Headquarters conducts a study on the current capabilities of the tactical PTTA so that it can be equipped with weapons systems. The implementation of the study involves the domestic defense industry, based on the study it can be determined the ability of the domestic defense industry to carry out modifications to the current PTTA. Encouraging procurement based on the results of a study on the need for armed PTTA of the Indonesian Air Force to the Ministry of Defense which can be used to support the handling of problems in the middle of the ocean in a short, fast and responsive manner.

Setting priorities for the TNI-AU's strength development program to support the vision of the world maritime axis and national defense strategy by involving PTTA forces which have the ability to take action and attack various potential maritime threats. Carry out revisions to the operational requirements and technical specifications of the TNI AU's strategic PTTA and submit it to the ministry of defense through TNI Headquarters. Compile a road map for the development of the PTTA TNI AU strength in accordance with the TNI AU strategic plan, with the following stages:

Stage I.

Operation of 4 units of the 51st Air Squadron UAV for tactical (Surveillance and Reconnaisance) needs to support the maritime defense system.

The addition of the number of PTTA Air Squadron 51 with 4 units of tactical UAV.

Operation of the entire force of the 51st Air Squadron tactical UAV.

Development towards a strategically capable PTTA.

Strategic PTTA assessment towards a system that is integrated with the existing air defense system.

Stage II.

Procurement of PTTA with strategic capabilities and its supporters in stages.

The operational coverage area of PTTA TNI AU reaches 50% of the territory of the Republic of Indonesia.

Continuing studies and trials in order to integrate strategic PTTA with the national air defense system (ADOC/SOC).

Stage III.

Development of strategic PTTA strengths.

The operational coverage area of PTTA TNI AU reaches 100% of the territory of the Republic of Indonesia.

Operational time reaches 24 hours a day.

Assessment of the development of the armed strategic PTTA force or Unmanned Combat Aerial Vehicle (UCAV) by involving the R & D forces and the Strategic Industry State Owned Enterprise (BUMNIS).

Stage IV.

Operation of armed strategic PTTA throughout Indonesia for 24 hours.

Implementation of research and development in the context of tactical and strategic PTTA reverse engineering for pure procurement from the domestic defense industry adapted to the latest technology.

Improving PTTA's capability in integrated maritime defense system

The relationship between the two parties can result in a level of communication faced by the elements of cooperation and trust. Then develop into interoperability capability (interoperability) which is the key to the successful implementation of a synergistic and integrated maritime defense system. Interoperability between maritime defense forces aims to raise awareness of stakeholders, ministries or related institutions in the maritime sector to deal with various problems and potential maritime threats. In connection with the above, PTTA TNI AU as one of the important elements involved in

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maritime defense must have an integrated communication system with other maritime powers.

In order to increase PTTA's capability in the integrated maritime system, there are several steps taken by TNI Headquarters as follows:

Carry out coordination and consolidation within the TNI in the procurement of the TNI's defense equipment, so that interoperability is realized and avoids overlapping the use of these defense equipment in the implementation of operations.

Compile a study on the development of the TNI command and control system based on computer and satellite networks in order to realize the K4IPP siskodal within the TNI. In addition to using satellites, the TNI's K4IPP development can be carried out by using PTTA as a communication relay platform for elements of the TNI who are carrying out operations.

Support the procurement of the Indonesian Air Force's PTTA communication system that can function as a communication relay and present data both in voice and video in real time to other elements or maritime defense forces.

Carry out a study on the use of PTTA in joint TNI operations, as well as carry out revisions and preparation of implementation instructions on the use of PTTA in supporting interoperability in the implementation of TNI operations.

Carry out a study on the Indonesian maritime defense system, as input to the Ministry of Defense in formulating policies on the Indonesian maritime defense system

Increase the use of PTTA TNI AU in various joint TNI activities and in joint training so that it can analyze and evaluate deficiencies in PTTA's interoperability capability in carrying out missions with other maritime defense forces. From the results of the analysis and evaluation, it is possible to formulate steps to meet the equipment needs for the PTTA.

Headquarters coordinates and cooperates with the Indonesian Navy to establish a

command line, control and communication network in the implementation of joint sea operations involving the Indonesian Air Force's PTTA forces. Planning the needs of the Indonesian Air Force's PTTA communication system and its supporting facilities, so that it can be used as a platform for relay communications and presenting voice and video data in real time. Plan and propose the procurement of the PTTA communication system to the Ministry of Defense through the TNI Headquarters after coordinating with the Indonesian Navy, Indonesian Army, and Bakamla. This is done in order to realize a common vision and mission in the procurement of a defense equipment communication system that will be used in the implementation of a synergistic maritime defense among stakeholders in the maritime sector. Completing the PTTA Ground Control Station with communication systems in the form of VHF, UHF, HF, and satellite communications, so that PTTA operators or pilots can communicate directly with the Operations Command and Control Center and other elements or maritime defense forces directly, so that decisions are made to carry out an action against maritime threats can be carried out quickly and precisely.

Koopsau I planned a joint operation for securing the Indonesian Archipelago Sea Lane involving the Indonesian Navy in order to test the readiness of the communication system and the interoperability of the defense equipment used by the Indonesian Air Force, particularly PTTA with elements of KRI and Sea Rider of the Indonesian Navy. Propose the establishment of a permanent Puskodal organization to Srenaau and TNI Headquarters for the implementation of maritime defense manned by joint personnel of the Indonesian Air Force and Indonesian Navy. Carrying out coaching for personnel who oversee the PTTA TNI AU through education and training as well as the involvement of each personnel in the implementation of joint activities, joint exercises, and joint TNI operations. This can increase the situational awareness of PTTA TNI AU operators or pilots in support of increasing interoperability of the PTTA platform system with other maritime defense forces or elements.

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Conclusion

Based on the results of research and discussions that have been carried out, the following conclusions can be drawn:

The development of maritime defense forces is one of the pillars of the government's maritime axis policy which aims to deal with various forms of maritime threats, including protecting the security and safety of shipping in the national jurisdiction and maintaining a peaceful situation in the Indian and Pacific Ocean regions. The strategic steps taken include building the strength of Unmanned Aircraft (PTTA). The development of PTTA's strength is directed at being able to support and strengthen a synergistic and integrated maritime defense system in the future by involving PTTA in the implementation of integrated maritime operations. In addition to air surveillance and reconnaissance, PTTA's capabilities can be utilized for taking action against any form of potential maritime threats that threaten national defense and security as well as supporting law enforcement efforts in Indonesian waters.

The capability of the Indonesian Air Force PTTA is related to the implementation of maritime defense which includes air surveillance and reconnaissance capabilities, attacks against maritime threats, range, and interoperability capabilities are basic factors that must be achieved in the process of developing the PTTA TNI AU strength. The Indonesian Air Force as a core component of state defense in the air must be able to increase all the capabilities of the PTTA Alutsista owned for the implementation of a synergistic and integrated maritime defense in order to support Indonesia's policy as the world's maritime axis. Through a conception that includes policies, strategies, and efforts to improve PTTA's capabilities, it will be able to realize a maritime defense force that has a high deterrence effect so that security and law enforcement in Indonesian waters can be realized.

Some of the problems related to efforts to increase the capability of the PTTA TNI

AU above can be carried out through planned, systematic, gradual, and sustainable efforts. Problems related to air surveillance and reconnaissance capabilities, attack on maritime threats, range, and interoperability capabilities through software development and revision, assessment, research and development, recruitment and education and training of personnel, use of satellite systems for data transmission (data) link), repositioning the PTTA unit title pattern through organizational validation, integrating the PTTA communication system with other maritime defense elements or forces, as well as through holding joint exercises that support the implementation of maritime defense in order to support Indonesia's policy as the world's maritime axis.

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