



# NUCLEAR POWERED WARSHIP, DOES INDONESIA NEED IT?

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## ABSTRACT

*The regional security environment is heating up due to the formation of defense cooperation between Australia, America and Britain (AUKUS) with their first agreement, namely the procurement of nuclear-powered attack submarines for Australia from the US. Through the Minister of Foreign Affairs, Indonesia expressed that Indonesia is concerned about the decision because it could disrupt regional security stability and also lead to an arms race. However, this nuclear-powered submarine has many advantages that conventional diesel-powered submarines do not have. Actually, what is a nuclear-powered submarine? Which countries have used it? And does Indonesia also need submarines or other nuclear-powered warships? These three questions will be discussed in research using qualitative methods by considering previous research and international law related to maritime affairs and defense. Although Indonesia needs modernization of defense equipment to be able to balance its power with regional countries, there are many considerations if the modernization is carried out by procuring nuclear-powered submarines, ranging from costs, human resources, facilities, Indonesian principles to applicable international law .*

**Keywords:** *AUKUS (Australia, United Kingdom, United States), Indonesia, Nuclear-powered Submarine, Southeast Asia, Indo-Pacific*

## Introduction

International conditions \_ lately this currently enlivened with conversation about existence cooperation defense between Australia, the United States and the United Kingdom or for short with AUKUS. Defense cooperation that is effort political abroad United States (US) in balance China's continued influence and power continuously increasing in the Indo - Pacific Region ( Hananto , 2021).

Agreement first done \_ in cooperation this is that US and UK will give technology and capabilities boat dive powerful nuclear to Australia. Goal is for give Australia strength defense the most modern and surviving sea in the middle constant threat \_ changed fast . Unfortunately , Australia doesn't get permission



cross from Iceland New for boat dive powerful nuclear that , plus again with Australia maybe will depend on other related countries ingredient burn nuclear the remember Australia doesn't have industry nuclear domestically . \_(Wijaya, 2021)

Besides Becomes big and influential breakthrough \_ to security in the Indo-Pacific Region on US courage to give Australia a ship dive powerful nuclear , treaty it also makes French , by personal , feel rigged by Australia. Previously , Australia had have agreement for buy boat conventional diesel diving from France . However with existence cooperation this , plan the already confirmed failed . because of that too, a lot observer defense international consider \_ that cooperation this precisely seen like a alliance defense new for secure interest all three in the Indo - Pacific region .

Actually , what that boat dive powerful nuclear ? Which countries have \_ use it ? And does Indonesia need ships too ? dive or boat another powerful war nuclear ? In article this will explained by complete answer from third question above .

In article this writer use a number of theory for analyze case that is , theory Realism and *Sea Power*. Realism is one \_ the most dominant and most influential perspective in connection international (Burchill, 2001). by general , realists believe \_ that connection between countries are in system anarchy international . System anarchy the is something system without existence excessive power over the state and the state holds sovereignty absolute . Realism look at that a country must compete with other countries in fight over strength (Wardhani, 2014).

normative basis realism that is security and continuity living the country (survival) (Dunne, 2001). Second Thing the is essence important for formation a country. A country will use whole his strength for guard wholeness the sovereignty of the country . The survival of a country is also important in guard continuity live the country in get its national interest. Focus from realists , namely the struggle for power, hal this emphasized with action from every country always take into account *cost* and *benefit* on every the action he did .



In Thing this , perspective realism used for analyze that Indonesia as a country must also make interests and security as well as national defense as something absolute . \_ because of things the related with state sovereignty that must be take care and don't until there are other countries that bother him . This thing means Indonesia must always compete with increase capability security so you can maintain continuity country life . AUKUS issue should be can Becomes drive for Indonesia in do *survival* and put forward *security* with a number of fixed way \_ character *defensive* .

Theory next one will be used is *Sea Power*. D nature field defense , mastery sea means capable ensure use sea for interest national and prevent opponent use it (Marsetio, 2014). Theory first *time sea power* used by Alfred Thayer Mahan in the book *The Influence of Sea Power upon History* . Mahan explained that required six element principal and universal that will become the main capital in build a country that has strength the big sea , namely : location geography ( *geographical position* ), wake up advance earth ( *physical conformation* ), area and length of territory ( *extent of territory* ), character population , number population , and character government .

In Indonesian thing , president first Indonesia Ir. Soekarno, during his tenure often very convey related mandate \_ with defense and security , more specifically maritime security , considering that Indonesia is an archipelagic country which at that time that not yet there is regulation International regarding the archipelagic state . Until finally Indonesia through expert law sea International , Prof. Hasjim Djalal and the Indonesian Minister of Foreign Affairs, Prof. Mochtar Kusumaatmadja enter island nation concept in conference law sea international and adopted to in UNCLOS 1982 (Marsetio, 2014).

Soekarno ever say " When " sea is alone life nation and state , then sea is his life " , so could concluded that one \_ element for Becomes glorious nation \_ is with dominate ocean . In the early days independence , Sukarno put the Navy as the largest *military power* in Southeast Asia and armed with 234 ships war consisting of



from various type . Soekarno really implement theory *sea power* at level empirical and should Thing this can implemented by Indonesia in this modern era considering that the countries around Indonesia have To do modernization defense equipment sea even more than that of Indonesia. Indonesia as the largest country in Southeast Asia must capable return Becomes greatest maritime power , as stated \_ President Jokowi in his vision for making Indonesia the World Maritime Axis.

### **Method Study**

In study this writer use approach qualitative . In the book Sugiyono (Sugiyono, 2010) about study qualitative mentioned that researcher is instrument key from research . According to Sugiyono , research method qualitative is method study philosophy postpositivism , used for research on conditions natural object , where \_ writer is instrument key , technique data collection is done by triangulation ( combined ), qualitative data analysis , and results study qualitative more emphasize meaning than generalization .

Study this aim for look for know Indonesia 's urgency in need boat dive powerful nuclear in the middle condition regional security that occurred when this , in Thing this , the consideration no only dynamics environment regional security , but also about \_ Indonesia 's capability alone from aspect economy .

Study this use method library review . What is meant study literature is research conducted \_ only based on on creation written , including results study good that has been or not \_ published ( Dew , 2012). According to (Zed, 2014), on research library ( *library research* ), search References no only for step beginning prepare framework research ( *research design* ) will but at a time utilise sources library for obtain research data .

In other words, research this use the method which is summary comprehensive from study previously about boat dive and about boat dive powerful nuclear . Study this originated or sourced from relevant and complementary research \_ existing research \_ before . Type of data used are secondary data . Method



data collection is studies library . The method to be used for assessment this studies literature . Data obtained compiled , analyzed , and concluded so that get conclusion about studies literature .

## Results and Discussion

Boat dive is ship moving below \_ \_ sea level and in general used for goals and interests military . Part of the Navy own and operate boat dive even though number and population from each country is different . Based on power the driver , there is three that is powerful nuclear , diesel and without machine . Boat dive conventional at first diesel powered , ship dive powerful nuclear start developed around month March year 1939 or 6 months before World War II (Setyawan, 2013).

Boat dive nuclear first from the United States which was launched in 1954 was given USS Nautilus name with length of 98 meters whose construction led by US Navy officer Hyman G. Rickover. USS Nautilus stops To do the mission after 25 years namely in 1980. As \_ rivals during war It's cold , the Soviet Union joins launch boat war powerful nuclear the first in 1957 which was given the name K-3 Leninsky Komsomol. In the Asian region, China is the first country to have boat dive powerful nuclear , namely in 1970 with \_ Type 091 Han-Class (Sabat, 2021).

Based on explanation in First Post, ship dive powerful a nuclear reactor have amount advantages compared with boat dive conventional diesel- electric powered (Staff, 2021). With power nuclear , though size the ship more big , more many possible distance \_ taken without limit and even without detected like boat conventional must \_ routine appear to surface . The speed can more tall until reach 55KM/hour and even more fast again when diving , compared with boat dive conventional only \_ can be 10-27KM/hour.

Profit other , ship dive nuclear with ingredient will be enriched uranium reach 80% can used for operational without the *refueling* process until with 30 years , so that suitable for the "blue ocean" area, far away compared boat dive conventional only \_ could be 5 years . (Carlin, 2012). Boat dive be strong nuclear have more a little

moving parts \_ than using diesel so that more calm and so perfect for mission stealth behind enemy lines . \_ Even once recorded case meeting no on purpose Among boat dive nuclear England and France brought \_ missile Ballistics in the Ocean Atlantic (Saputra, 2021).

Also, though boat dive Nuclear neither \_ can turn off such as diesel powered , hot water exhaust used \_ for chill reactor will ejected and ascended to surface use imaging good thermal , so that will more calm more if the generator turned off , as revealed by the expert technologist defense University of South Wales Dr. Jay Galliot .

Boat dive powerful nuclear this only used by 6 major countries in the world, namely the US, UK , China , France , India and Russia. United States hold rating first with amount boat war nuclear the most in the world , namely 68 ships . Followed by Russia 29 ships , China 12 ships , Britain 11 ships , France 8 ships and India 1 ship .

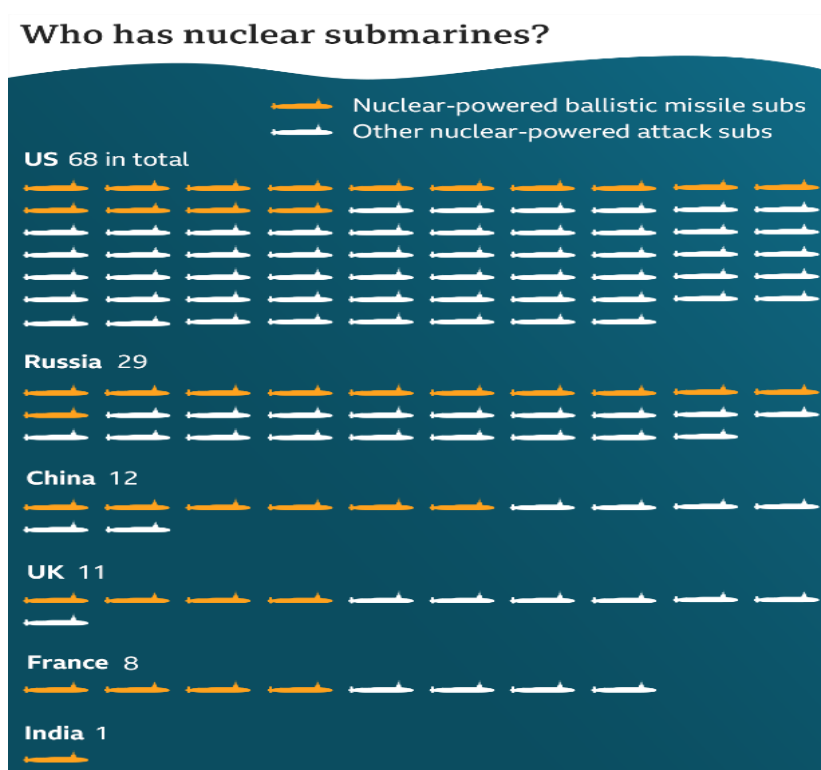


Figure 1. List of Country Owners Boat Dive Powerful Nuclear  
Source : Hananto . 2021



There is two type boat dive powerful common nuclear \_ owned by the six countries above , namely: boat dive missile ballistics ( *nuclear-powered ballistic missile submarine*) and Ships dive attack ( *nuclear-powered attacks submarine* ). Both of them You're welcome powered by reactor nuclear , but what sets it apart is boat dive missile ballistic or what is called with "boomer" cause have weapon nuclear with upstream explode nuclear on missiles ballistics . Temporary boat dive attack designed for seek and destroy boat dive enemy and ship surface , projecting strength to land with missile roam Tomhawk and Troops Operation Special (SOF), implement mission intelligence , surveillance and reconnaissance (ISR), support operation group battle and engage in war mines , according to the United States Navy (Saputra, 2021).

Boat dive missile ballistic UK and US can bring missile Armed Trident ballistics with a number of upstream explode nuclear . Mission they , basically , are for live in the sea During months , part big dive , and get ready for launch attack nuclear revenge if enemy attack English or US. Boat dive missile ballistic calm down below waves and very difficult detected . They is key main prevention , ensure that US enemy or English will replied with terrible way \_ for attack nuclear attack first .

Related with AUKUS, the Indonesian government through the Minister of Foreign Affairs Retno LP Marsudi Secrete statement that : Indonesia observes with full caution about decision Australian Government for have boat dive powerful nuclear ; Indonesia is very concerned on Keep going continuation race weapons and projection strength military in the region ; Indonesia emphasizes importance Australia 's commitment to Keep going Fulfill his obligations regarding non-proliferation nuclear ; Indonesia encourages Australia to Keep going Fulfill his obligations for guard peace , stability , and security in the appropriate area with the Treaty of Amity and Cooperation; and, Indonesia encourages Australia and the parties related other for Keep going promote dialogue in complete difference by peace . In connection this , Indonesia emphasizes importance respect to law



international including UNCLOS 1982 in guard peace and security in the Region (Kementerian Luar Negeri Republik Indonesia, 2021).

If rated from statement Foreign Minister above , see clear that Indonesia is real feel no comfortable and feel Australia 's decision clear will disturbing stability security area . Though , it's been a long time no occur race weapons in Asia and the Indo- Pacific region . Of course just Thing this also means that no existence Indonesia 's plan , diplomacy general , in balancing strength defense with Australia. Because , even though actually Thing that is form from Political Overseas United States towards China in the Indo - Pacific region , Indonesia as the largest country in Southeast Asia tends to wants Australia to consider many other aspects include responsibility related with procurement boat dive powerful nuclear that .

in line with statement Foreign Minister , observer military from *Institute for Security and Strategic Studies* (ISESS) Khairul Fahmi, said : that with presence boat dive Australia 's nuclear power , Indonesia 's threat scenario map can be change and follow with adjustment in build posture Indonesian defense ( Hananto , 2021). Though according to Teuku Rezasyah , teacher connection international at Padjadjaran University , p this can used by Indonesia in To do the role for increase *confident building measure* with permanent character non-active without take sides to China and the United States .

However by contrast , analysis defense and military , Connie Rahakundini Bakrie, in the interview with *Republika.com*, says that boat dive powerful nuclear from the US for that Australia is a things that are not should worried though permanent must Indonesia is wary of . Because power nuclear is energy renewable that is not easy finished , Indonesia one moment definitely will \_ need it and indeed already should develop it since moment this (Hiru, 2021).

This thing supported with data that by substantial countries \_ such as the US, India, China, and Pakistan have already be equipped with weapon nor boat powerful nuclear . Then Indonesia too at least must have 12-14 ships dive with 4





ships parent (Hiru, 2021). Besides for system power ingredient fuel , energy nuclear has also developed for other aspects of the military world , such as for produce electricity , materials testing, aerospace development , and also for produce hydrogen (Ngarayana, 2015).

However , Connie mentioned that implementation return again to policies and interests national want \_ achieved by the government . Indonesia must have a sense of pride as well as desire for enforce his supremacy as other countries have done considering moment this condition regional and international security currently heats up . Like strife and tension at sea North Natuna and formation AUKUS alliance . So have boat dives and boats parent powerful nuclear is a necessity and necessity (Hiru, 2021).

However , according to expert law at the University of Indonesia Hikmahanto Juwana , Indonesia also needs consider the concept of ZOPFAN (Zone of Peace, Freedom, and Neutrality) ( Hananto , 2021). Declaration put forward in Kuala Lumpur , Malaysia on 27 November 1971 Becomes cooperation field politics and security that states that ASEAN region and also the Asia- Pacific region as area free weapon nuclear .

The way Australia does it in AUKUS with more choose boat dive attack only \_ powerful nuclear only and without weapons nuclear , maybe can also adopted by Indonesia so that permanent in accordance with ZOPFAN agreement . Yet another dilemma come from possibility that ASEAN countries, as has been done by zealand New , will reject ships dive nuclear in enter Southeast Asia region and if violated of course will trigger friction connection between countries ( Hananto , 2021).

by personal , author feel Indonesia for sure need long enough for \_ \_ can realize plan defense equipment made from burn nuclear . Because many very conflicting rules and things \_ it's very contradictory with the principle of a free-active Indonesia . Because with existence defense equipment especially boat dive powerful nuclear , similar response \_ with the one obtained by Australia is also

possible will obtained by Indonesia. Moreover , Indonesia does not have sure enemy and not \_ under \_ \_ control alliance anywhere , so policy outside his country more stout focus to peaceful matter . \_ Of course only countries in the region and the world will wonder will Indonesia 's interest in develop boat dive powerful nuclear .

Besides it , build boat dive nuclear need cost high maintenance , as well as many investation technology and industry. It also makes \_ cost capital something boat the more swell because one type no produced by bulk . in terms of source power humans , ships dive nuclear it also requires personnel who have certified special , of course need more cost \_ many again .

| Type                      | Type                             | Capital Cost | Fuel _ | Perso nnel | De kom | Other  | total    |
|---------------------------|----------------------------------|--------------|--------|------------|--------|--------|----------|
| Boat Dive                 | Type 209/1300 (Diesel)           | 360          | 228.93 | 400        | -      | 150    | 1,138.93 |
|                           | Los Angeles Type                 | 1.100        | *      | 508        | 10     | 150    | 1,768    |
| Boat Parent               | USS John F. Kennedy (Diesel-gas) | 2,916        | 738    | 4.797      | 53     | 5.590  | 14,094   |
|                           | USS Nimitz ( nuclear )           | 6.441        | *      | 8.358      | 899    | 6.523  | 22,222   |
| Destroyer                 | DDG 51 Ariegh Burke (Diesel)     | 938.46       | 266.67 | 502.56     | -      | 141.03 | 1,848,72 |
|                           | DDG 51 Ariegh Burke ( nuclear )  | 1,441.03     | *      | 617.95     | 10.26  | 141.03 | 2,210,27 |
| WASP Amphibians           | Diesel                           | 1,240        | 420    | 840        | -      | 320    | 2,820    |
|                           | Nuclear                          | 1.640        | *      | 920        | 20     | 320    | 2,900    |
| Amphibious Whidbey Island | Diesel                           | 525          | 158.33 | 400        | -      | 158.33 | 1,241.66 |
|                           | Nuclear                          | 966.67       | *      | 508.33     | 16.66  | 158.33 | 1,649.99 |

Table 1. Comparison Economy Boat War Nuclear and Conventional

Source : Ngarayana , I. W, 2015



Note :

- (\*) cost ingredient burn nuclear already covered in cost capital
- All cost in million US\$
- Assumption age operation effective 40 years , unless boat parent 50 years
- Assumption price ingredient burn oil at US\$ 1 per liter and experienced 1% increase per year

From table the could seen that by economy all boat war nuclear will eat far total cost \_ more big from boat conventional diesel warfare . Boat dive Powerful Los Angeles type nuclear only capable rival economy type 209/1300 if price oil experience increase by 6.7% per year , or with another scenario if price oil calculated flat at a price of US \$ 4.56 per liter. This thing certain will Becomes consideration for government , especially not yet existence technology development nuclear *massive* local \_ so that not yet enough capable good by facility nor economy .

### **Conclusion**

Environment regional security is getting heat up consequence formation cooperation defense between Australia, America and the UK (AUKUS) with agreement first they that is procurement boat dive attack powerful nuclear for Australia from the US. Through the Minister of Foreign Affairs, Indonesia revealed : that Indonesia is concerned with decision the because can disturb stability regional security and also causes race weapons . However , the ship dive powerful nuclear this have many very advantages that do not owned by ship dive conventional diesel powered .

A number of expert of course evaluate that Indonesia will change direction focus threat and fix posture his defense related with Australian modernization . \_ Because , Indonesia as a big country in the Indo- Pacific responsible answer to stability security area . So that no close possibility that Indonesia also needs develop boat dive or boat war powerful nuclear . However , besides very potential



advantages like speed and ability its long and capable dive for mission quiet , cost operational requirements \_ for boat dive powerful nuclear really high . Indonesian for sure will be very difficult in make it happen remember budget Indonesian defense is very limited in number . Not yet from aspect source power man who requires personnel certified special so that operate boat dive powerful nuclear .

Besides consideration from aspect cost , by law as well as principles , it's difficult for Indonesia to realize experience boat dive or boat war powerful nuclear , though of course no can denied that Thing the needed . Indonesia is included in the ZOPFAN area, where no allowed for To do development nuclear more for destination weaponry . will be a lot very obstacle like ban sail if indeed Indonesia has boat dive powerful nuclear . Because of the surrounding country certain will skeptic and think that nuclear the no only used for ingredient burn but also for weaponry . Stability area of course just will more chaotic again . So that , even though boat dive nuclear have many very real advantages \_ needed by Indonesia, however there is many very final consideration \_ make boat dive powerful nuclear no something urgency for Indonesia.

### **Recommendation**

Study this made at a time when boat dive attack powerful nuclear owned by Australia still in Step agreement procurement and not launched . Recommendation for study next is for return researching urgency for Indonesia to also have boat dive powerful nuclear power at a time when Australia had have boat dive . Because dynamics \_ area certain will many change and can only in the future appear regulation or agreement new related boat dive nuclear by Specific so that use can just allowed in scale certain . So that Indonesia can return consider procurement boat dive powerful nuclear as well consequence from ingredient burn more fossils \_ rare in the future



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