

Analysis of the Legal Role of Geospatial Intelligence: A Case Study of South China Sea Arbitration of 2016

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Abstract:- The enforcement of the law has been analysing the promotional and effective policies in the areas which require investigation and intelligence operations. The planning and managing of the resources in these specific areas are under the geographical information Science and Technology as well as the geospatial intelligence bodies. In this, the analysis and conclusion are determined by keeping in mind the investigation and the data collected. This is also dependent upon the behavioural theories from a Geospatial perspective. This research has been based on the South China sea arbitration. The area that this research is covering has ruled in the favour of the country Philippines which has been determining elements of major importance in China's claim. This has also included the 9-dash line, Land reclamation activities and the overall monitoring of the Philippine waters. The arbitration started 5 years ago when the international tribunal ruling party dismissed the claim in the South China sea. The tribunal at the court of arbitration regarding the situation is unacceptable to the government in the Republic of China. This study has also used different resources in the analysis and measurement of the radar heights of towers which are combined with radio waves to provide factual results. Radar horizon measurements of the range have provided a factual analysis of the coverage concerning different altitudes and the estimates that can be deferred by changing these measurements.

Keywords:- Geographical information, Radar horizon measurements, Arbitration, South China

I. INTRODUCTION

Geospatial Intelligence (GEOINT) is defined as the exploration of geospatial information that depicts the physical features of the earth and earth-bound activities. In essence, GEOINT is used as a discipline that is further categorised into various related activities such as mapping, imagery intelligence, imagery analysis and charting. For example, GEOINT techniques were used to analyse the illegal deforestation and timber laundering issues in Amazon, that revealed inconsistencies of the transport time and prices declared by the authorities, incompatibility between official forest inventories and volumetric information, signs of unauthorised exploration beyond the polygon limits and so on.¹ Thus, the wide range of applications of GEOINT is seen

in recent times to address and resolve various Earth-related issues, be it on sea or land, with the aid of sophisticated technology.

The paper aims at analysing the legal role or the legal support portrayed by the GEOINT to address the law of the sea regarding South China Sea. The case study analysis of the significance of the United Nations Convention on the Law of the Sea (UNCLOS) and its statements regarding the South China Sea, convened under Annex VII of 1982 specifically, is conducted. The territorial dispute for sovereignty between China, Brunei Darussalam, Malaysia, Vietnam, the Philippines and Taiwan along with the question of loss of international territorial sovereignty brought about the issues addressed by the UNCLOS.² The maritime claims of China for acquiring the mainland territory as well as the offshore geographic features and provisions are also explored in the study in association with GEOINT.

Geographically, the South China Sea has a total of four island groups, namely the Spratly Islands on the east side of the South China Sea, in the Philippines the island of Palawan, northern part of the island of Borneo and Sabah and Sarawak of East Malaysia. The centre of dispute stemmed from the territorial sovereignty of the Spratly Islands, spanning over 410,000 square kilometres. The denial of territorial sovereignty by China after the occupation of South Vietnam in 1974, the conflict between China and Vietnam had been prominent, regarding the seas and island territory. Similar territorial issues are also witnessed in the conflict between the Philippines and China which was addressed in The Permanent Court of Arbitration in 2016. The loss of sovereignty laws also consists of legal parameters such as the proof of sovereignty and display of continuous peaceful sovereignty. Furthermore, the acquisition or usurpation of a State by its acquiescence and/or implied consent, in practice, is applicable for territory claimants. On the other hand, the resolution for such a dispute is not effectively possible as the cases are complex and cannot be presented in the international court without the consent of all claimants.

However, in 2016, through the Permanent Court of Arbitration awarding the Philippines with the In the Matter of the South China Sea Arbitration, the process of arbitration had been initiated against the People's Republic of China. The Philippines initiated arbitration in 2013 under Article 287 and Annex VII UNCLOS firstly sought to address the dispute

¹Perazzoni, Franco, Paula Bacelar-Nicolau, and Marco Painho. "Geointelligence against Illegal Deforestation and Timber Laundering in the Brazilian Amazon." *ISPRS International Journal of Geo-Information* 9, no. 6 (2020): 398.

²Beckman, Robert. "International law, UNCLOS and the south China sea." In *Beyond Territorial Disputes in the South China Sea*, pp. 47-90. Edward Elgar Publishing, 2013.

of 2012 when the Philippines fishermen were forcefully prevented by China from entering Scarborough Shoal.³ The position of China in this regard is acknowledged as guilty. It is stated that The Republic of China violated the UNCLOS provisions regarding the protection of marine environment⁴. In essence, the Tribunal Award is regarded as the provision for maritime protection, regardless of the sovereignty issue. Thus, the use of GEOINT is expected to aid the resolution of the core dispute in South China Sea by providing proper and reliable information about the spatial limits of all the states involved whereas the lack of proper evidence can disrupt the arbitration process. The main objective of the paper is therefore to demonstrate the legal role and consequences that GEOINT can occupy in this arbitration process. As GEOINT uses technology and methods for maintaining maritime safety and proper operational procedures, reducing the scope of risks, it is helpful to demonstrate its role for the effective promotion of international law of the sea. Furthermore, the collection of geographical data using sophisticated sensor technology, the accuracy of acquired data is measurable and reliable, attributing credit to its legal consequences that aids territorial conflict resolutions.

II. LITERATURE REVIEW

A. Defining geospatial intelligence and its multidimensional application

Geospatial intelligence (GEOINT), as a discipline to assess and analyse the human activities on the planet through imagery and sensory signals, constitutes the core function of it. In essence, GEOINT is used for visual projection of Earth related activities by human beings. A specific geographical location can be analysed by GEOINT, such as providing imagery of coastal zones or forest boundaries. GEOINT and GEOBIA (a new paradigm of GEOINT) uses information for climatic or environmental change detection and assessment of accuracy⁵. The Geographic Object-Based Image Analysis (GEOBIA) acknowledged as a new segment of GEOINT is also indicative of the rapid development of this particular discipline. In many cases, a pre-pixel approach is undertaken to align the received imagery and the final visual representation. Thus, the concept of image analysis and assessment is related to the presentation of verifiable data, scaled to provide distinct characteristics of any geographical location.

³Agusman, DamosDumoli. "The South China Sea UNCLOS Tribunal Award 2016: What It Has Changed and What It Does Mean to Indonesia." *Indonesian J. Int'l L.* 14 (2016): 130.

⁴Oral, Nilüfer. "The South China Sea Arbitral Award, Part XII of UNCLOS, and the protection and preservation of the marineenvironment." In *The South China Sea Arbitration*. Edward Elgar Publishing, 2018.

⁵Blaschke, Thomas, Geoffrey J. Hay, Maggi Kelly, Stefan Lang, Peter Hofmann, Elisabeth Addink, Raul Queiroz Feitosa et al. "Geographic object-based image analysis—towards a new paradigm." *ISPRS journal of photogrammetry and remote sensing* 87 (2014): 180-191.

On the other hand, information received from GEOINT can be used to resolve food security issues. It is states that 9.2% of the global population fail to attain the required economic freedom to meet their basic needs⁶. In such a case GEOINT can be used to provide a multidimensional data for creating a sustainable ecosystem service reduction and eventual elimination of food security issues due to global poverty. In other words, the data received from GEOINT can be utilised to demonstrate the sustainable options, providing equality to all despite the discrepancies of the economic status. On the other hand, as GEOINT is capable of receiving data from satellites, GPS waypoints and so on, an accurate image of the Earth can be presented to researchers, aiming at recognition and resolution of issues. Furthermore, as rapid growth of demand for human activities in geography is presented, GEOINT is able to provide a legal definition of demographic and ethnographic data.

The use of accurate computer algorithms and satellite registered images used in GEOINT has been defined by the US as a reliable form of intelligence. It is acknowledged that GEOINT using feature recognition algorithm can enhance the geographical analytical perspective⁷. The documents from Central Intelligence Agency further highlight two septic discoveries, namely, the earliest feature-recognition initiative dating before the National Photographic Interpretation Centre (NPIC) in 1961 and the earliest neural network software, Frank Rosenblatt's Mark I Perceptron. Thus, the feature recognition model of GEOINT can be used to support the resolution of maritime conflicts internationally.

Furthermore, the use of GEOINT is seen in the maritime delimitation of Nansha Islands. It is revealed that usage of satellite imagery along with historical data can benefit the maritime issues of Nansha Islands in South China Sea, from an investigative standpoint of UNCLOS⁸. The investigation is supported by satellite images, sailing directions and nautical charting over a certain time period that has concluded the position of reef platforms as the subject for external disturbances. Therefore, it can be stated that by definition GEOINT is highly efficient for providing validated and accurate imagery that is used in multidimensional spheres where the question of human activities related to geographical elements are involved.

B. Evaluation of the South China Sea conflict and its arbitration process

⁶Karanja, Faith Njoki. "Geo-Intelligence for Ecosystem Services in Poverty Alleviation and Food Security." In *Geo-intelligence for Sustainable Development*, pp. 65-81. Springer, Singapore, 2021.

⁷O'Connor, Jack. "Undercover Algorithm: A Secret Chapter in the Early History of Artificial Intelligence and Satellite Imagery." *International Journal of Intelligence and CounterIntelligence* (2022): 1-15.

⁸Jiang, Huiping, FenzhenSu, Chenghu Zhou, Xiaomei Yang, Qi Wang, and Fei Cheng. "The geographical characteristics of Nansha Islands in the South China Sea." *Journal of Geographical Sciences* 28, no. 7 (2018): 957-972.

The dispute of the South China Sea and its associated arbitration process is evaluated to consider the role of GEOINT later on in the study. Tracing the origin of the conflict that is related to the occupation of South China Sea Islands by China and its forceful activities against other states such as the Philippines, Vietnam, Taiwan and so on, it is seen that the vast maritime borders are not accurately defined, nor are the legal traces of the rightful territorial sovereignty. It is seen that Article 192 of UNCLOS that defines the marine environmental protection obligations which has implicated strict marine policies of protection by China⁹. The obligations clearly addressed in the Tribunal concentrates on the protection of the marine environment, during and after a proper resolution for the territorial sovereignty.

On the other hand, the interpretation of the Article 121(3) mentioned in the U.N. Convention on the Law of the Sea in 1982 and in 2016 can have differences that impact the situation. It is stated that, in the interpretation process, the Tribunal made use of generic terms such as high tide feature (HTF) interchangeably with the island, as each HTF is required to undergo the process of a disqualification test mentioned in Article 121(3) prior to featuring the entitlements to an exclusive economic zone¹⁰. The contribution of the Tribunal in analysing the situation and providing resolution is further extended to the use of the term "rock" which defines a feature of the island that is incapable of sustaining the human life or economy. In essence, the conflict that had arisen and the associated arbitration process allocated to the Philippines is expected to protect the maritime environment foremost before the territorial sovereignty question that is rather critical and complex in current political standpoint.

C. Role of modern GEOINT

The role of modern GEOINT is defined with a greater scope for geospatial information, imagery intelligence and analysis. The evolution of GEOINT from the National Imagery and Mapping Agency (NIMA) projects a clear outline of the development of the program among US agencies after the Gulf War in 1991. The recognition of accuracy and efficiency acknowledged by the US government, as geospatial information can be utilised to accurately address national security questions, territorial

conflict issues and other human activity related to the planet and its protection. It is further stated that the doctrines of the U.N for the "Responsibility to Protect" (R2P) requires a proactive role for humanitarian issues and the human rights crisis¹¹. The Humanitarian approach for peacekeeping is supported by the GEOINT analysis, providing visual imagery received from remote sensing platforms that ultimately serves to explore the militaristic epistemologies for human rights narratives. Thus, it holds considerable legal consequences, both negative and positive.

On the other hand, the NIMA Act of 1996 which highlights the creation of a singular agency that supports the combative and intelligence requirements contributed to the evolution of modern GEOINT. It is articulated that gaming recognition from the congress as a separate discipline paved the way for modernisation, using sophisticated satellite and drone images, aimed at the enhancement of federal purposes¹². However, its extension from a strict government use to non-government entities marks the question of its legal role, supported internationally as discipline for acquiring adequate information and guiding procedures of geo-political and legal significance.

Another example of the Gulf of Guinea can be cited to demonstrate the role of GEOINT in modern security and legal operations. It is stated that GEOINT was used to assess the economic assets present in the Gulf of Guinea by state security council members to gain adequate intelligence for enforcing security measures against terrorism, piracy, kidnapping and so on¹³. The deployment of advanced intelligence technologies such as GEOINT works as an entity that can create a network for AI intelligence with layers of information. Furthermore, the consistently escalating issues of environmental damage addressed by UNCLOS are supported by the intelligent information gathered from GEOINT, to be used for creating provisional plans and enabling equitable conclusions to disruptive social, political and geographical conflicts.

D. Internationalisation and democratisation of GEOINT

Internationalisation process of GEOINT was conducted in phases as its usage expanded beyond the recognition of the US government. The use of sophisticated artificial intelligence, specifically designed to provide visually accurate imagery and information on a global basis demanded such expansion which was made possible after the establishment of NIMA. It was acknowledged that US

⁹Guo, Jianping. "The developments of marine environmental protection obligation in article 192 of UNCLOS and the operational impact on China's marine policy—A south China sea fisheries perspective." *Marine Policy* 120 (2020): 104140.

¹⁰Gau, Michael Sheng-ti. "The interpretation of Article 121 (3) of UNCLOS by the Tribunal for the South China Sea Arbitration: A critique." *Ocean Development & International Law* 50, no. 1 (2019): 49-69.

¹¹Walker, James R. "The rise of GEOINT: Technology, intelligence and human rights." In *Visual Imagery and Human Rights Practice*, pp. 67-88. Palgrave Macmillan, Cham, 2018.

¹²Keating, Steven G. "Rock or Island? It Was an UNCLOS Call: The Legal Consequence of Geospatial Intelligence to the 2016 South China Sea Arbitration and The Law of the Sea." *American Intelligence Journal* 35, no. 2 (2018): 101-123.

¹³Abiodun, Temitope Francis, and M. Y. Dahiru. "Maritime insecurity in the Gulf of Guinea (GoG) and the quest for security intelligence deployment in combating the menace." *International Journal of Advanced Academic Research* 6, no. 4 (2020): 79-99.

dominance over the technological cyberspace and the economic monopoly limits the dynamic interaction of organised systems in the digital spaces used for data retrieval and sharing¹⁴. The requirement for internationalisation is attributed to paving the way for other nation-states to attain equal benefits of such a system that can be used internationally to demonstrate resolutions.

On the other hand, monopolisation of advanced technology by the US government is also countered, in order to ensure that intelligence is used for peacekeeping and elimination of illegal activities. The internationalisation process of GEOINT also ensures that satellite remote sensing technology is used for countering emergencies and crises collaboratively. It is articulated that the adoption of technology and building a narrative around it influence the perception of non-government organisations, requiring active advocating to mitigate the gaps between traditional intelligence technology and GEOINT¹⁵. Various organisations have thus contributed to the process of internationalisation, enhancing acceptance through decades of advocacy in favour of GEOINT. The multilateral organisations such as The Multinational Geospatial Co-Production Program (MGCP), The International Hydrographic Organisation (IHO), and The Allied System for Geospatial Intelligence have supported the internationalisation process of GEOINT through diplomacy and international judicial processes.

On the other hand, the democratisation of GEOINT depicts the proposition of this technology in the industrial or commercial market, further eliminating government monopoly. As globalisation and technological trends demanding advanced and accurate AI systems for public use increases, the internationalisation naturally leads to democratisation. The U.N's accountability mechanisms to provide or produce accurate global data contributed to the growing market demands and opportunities for democratisation¹⁶. The information presented in an international forum is expected to meet the standards of justice and accountability. Hence, as the market demands by government and non-government entities to acquire accurate information rises, a rapid democratisation is seen.

The satellite generated visual imagery by the introduction of micro-satellites for higher quality visualisations and subsequent revisits for lower frequency resolutions is seen to be advanced by the democratisation process. In essence, the acquisition of this technology by other for-profit organisations contributes to rapid

development of the system based on market demands and industrial profit margins. Promotion of transparency through the proliferation of geographical and spatial data aids the democratisation process while also highlighting the need for democratisation beyond the limits of government organisations. The retrieval and analysis of data gathered for resolving conflict such as maritime issues in the South China Sea can be illustrated as a positive example that supports the internationalisation and democratisation process. GEOINT is also explored for maintaining neutrality in case of addressing international issues of territorial conflicts.

E. Challenges of GEOINT

The challenges and risks associated with the use of GEOINT are related to the complexity of internal network design and accurate management of robust databases. Especially in the domain of national security, accurate exploration of complex databases holds utmost significance. The core doctrine for sustainable intelligence management by The National Geospatial-Intelligence Agency's (NGA's) requires adequate infrastructural design for robust data exploitation¹⁷. The problematic notions of accurate designing alignment with organisational visions can limit the capacity of GEOINT and reduce efficiency for data analysis. On the other hand, exploitation of data related to national security, for example, detection of mass weapons can be challenging as the detection process is dependent on the accurate visual projection of satellite information. Furthermore, following the time sequence and relaying it accurately to the imagery and information can be challenging.

Complexities of generating a network for accurate 3D terrain representation has revolutionised the process of data retrieval and analysis. The rapid growth for the introduction of small satellites and unmanned aerial systems (UAS) has aided the projection of 3D terrain using GEOINT¹⁸. In essence, the challenges associated with creating an accurate information relaying network based on satellite sensory responses can be critical. Additionally, as a detailed understanding of the data is required for imagery analysis, the requirement for expert human resources and its lack in the current market can also be cited as a challenge. However, human resources issues are nominal compared to the challenges faced by technology issues.

Lack of technological infrastructure can further be associated with the requirements for financial support. The installation of models and engineers in the physical environment are emphasised as a defining factor for high efficiency. The lack of proper installation of technology in

¹⁴Laurent, Sébastien- Yves. "The United States, States and the False Claims of the End of the Global Internet." *Conflicts, Crimes and Regulations in Cyberspace 2* (2021): 1-42.

¹⁵Walker, James Robin. *Grounding the view from nowhere: The role of remote sensing technology in international human rights practice*. University of California, Los Angeles, 2021.

¹⁶D'Alessandra, Federica, and Kirsty Sutherland. "The promise and challenges of new actors and new technologies in international justice." *Journal of International Criminal Justice* 19, no. 1 (2021): 9-34.

¹⁷O'Connor, Jack. "GEOINT: From NIMA to NGA." (2021): 832-835.

¹⁸Oxendine, Christopher, Matt O'Banion, William Wright, Ian Irmischer, and Steven Fleming. "Rapid Terrain Generation for GeoVisualization, Simulation, Mission Rehearsal, & Operations." *United States Geospatial Intelligence Foundation's 2019 State and Future of GeoINT Report* (2019): 21.

the physical environment creates challenges that require strategic mitigation plans.

III. RESEARCH METHODOLOGY

The adoption of a well-structured methodology for research was significant to ensure that the quality of the study is high. This particular paper analyses various types of research methodology for creating a logical methodological structure that has aided the research plan. The incorporation of a specific research philosophy contributes to the development of principles based on which truth is discovered. The study thus adopted a positivism philosophy that guides the paper in analysing the data related to social phenomena. Positivist philosophy helps in the data analysis process by indicating specific patterns within the society¹⁹. On the other hand, a deductive approach was adopted for the study as it can provide the required framework for a detailed empirical analysis of the data. The deductive approach is largely associated with a comprehensive approach taken for both qualitative and quantitative research. As this study explored qualitative analysis of data, the deductive approach had provided a beneficial framework for gaining insight into the required data and making arguments based on it.

A descriptive approach was adopted to support the case study analysis of the arbitration process of South China Sea by the Tribunal of 2016. The descriptive research design depicts an accurate analysis of collected data to present logical conclusions²⁰. The descriptive design was applied to the analysis of secondary qualitative data acquired from a targeted internet search in various databases such as ProQuest and Google Scholar. The data collection process was selected to aid the fulfilment of research objectives. The secondary data sampling process provides further assistance to the process of case study analysis.

A purposive sampling process was adopted to ensure that the researcher has optimum control over the selection and sampling process of the collected data. A purposive sampling defines the development of a selection process that aids the collection of valuable resources²¹. The sampling technique was further modified by the establishment of an inclusion-exclusion criteria. Based on the criteria settings, data selection was completed which included peer-reviewed journal articles, government websites and official reports, publications within the last 10 years and publications made in English language. The criteria also accepted resources that

contained certain keywords such as *geospatial intelligence*, *UNCLOS*, *South China Sea conflict*, *South China Sea arbitration process*, *Tribunal 2016* and so on.

A thematic analysis strategy was adopted to ensure that a systematic and detailed analysis is conducted. The findings of the study based on the thematic analysis provided a structured framework for analysing and addressing the research questions. On the other hand, it also ensured that validity and reliability was maintained with a logical and objective presentation of data, independent of manipulations. As the collected data was based on previous relevant literature, the qualitative analysis conducted in this paper was highly efficient and reliable. Thus, the methodological structure provided this paper with adequate support and a scientific backbone that enhanced the overall quality of the paper.

IV. ANALYSIS AND DISCUSSION

A. Analysis

• Theme 1: “The Estimation Radar of Horizon from Monoscopic Shadow Photogrammetry of Radar Structures: A Case Study in the South China Sea”

The study depicts that “The People’s republic of China” has established a new featured radar system on the “artificial island” located in “the South China Sea”. The study demonstrates the role of “Geospatial Intelligence” and “Remote sensing” to understand the structure of radar horizon. In this context, it can be observed that china’s defense system utilise radar services to freely monitor the activities inside their territory.in order to maintain a strict military defense system, the “People’s Republic of China” conducted some tests to measure the accuracy and working area or range of those radars²². Some traditional raiders have limited capacity for transferring radio waves by “line of sight” and sometimes China’s defense system has experienced difficulties while measuring the radio waves from different heights and positions.

On the other hand the territorial issues of “The South China Sea” have been impacted on the international relationship. Due to the disputed distribution of Sea boundaries of “SCS”, the international geopolitical committees have discussed the issues of the “South China Sea” through some models. Therefore, the US government has proposed the “US Caribbean Model” to describe “the disintegrated hegemony”²³. The government of “The

¹⁹Alharahsheh, Husam Helmi, and Abraham Pius. "A review of key paradigms: Positivism VS interpretivism." *Global Academic Journal of Humanities and Social Sciences* 2, no. 3 (2020): 39-43.

²⁰Shorey, Shefaly, and Esperanza Debby Ng. "Examining characteristics of descriptive phenomenological nursing studies: A scoping review." *Journal of Advanced Nursing* (2022).

²¹Campbell, Steve, Melanie Greenwood, Sarah Prior, Toniele Shearer, Kerrie Walkem, Sarah Young, Danielle Bywaters, and Kim Walker. "Purposive sampling: complex or simple?

Research case examples." *Journal of research in Nursing* 25, no. 8 (2020): 652-661.

²²Luttrull, James E. "Radar Horizon Estimation from Monoscopic Shadow Photogrammetry of Radar Structures: A Case Study in the South China Sea." PhD diss., University of Southern California, 2018.

²³Dolven, Ben, Susan V. Lawrence, and Ronald O'Rourke. "China Primer: South China Sea Disputes." LIBRARY OF CONGRESS WASHINGTON DC, 2021.

People's Republic of China" mainly utilise the "The south china sea" for trade and also dominated the other country's business. The role of various weapon systems is considered an important tool for detecting radar warnings. In this context, "Geospatial intelligence" has been used by the defense management team in China to obtain a perfect measurement of the range of radar on Chinese territory. The term "Geospatial intelligence" can be defined as an "imaginary intelligence system" that can transfer geospatial information. The reinforcement of GEOINT by the US government has enabled to provide of proper solutions to disputes regarding trade and business through Sea. The study portrayed the continuous issues between the Philippines and "The People's Republic of China" regarding the "South sea Arbitration" and it can be observed that Philippines claimed, the Chinese government has forcefully ruled the SCS. On the other hand, "The people's Republic of China" proposed a declaration that both countries use SCS peacefully after maintaining transparency in their legal action. Therefore, the defense system of china planned to implement new technologies of GEOINT to maintain safety in SCS, measure the range of radars, navigation, sailing direction, and rule in the International system.

- **Theme 2: "China Primer: South China Sea Disputes"**

The South Asian Sea and its related areas are full of natural resources and it can be observed that several Asian Governments have declared sovereignty over reefs and geographic features. On this note, it can be observed that "The People's Republic of China" has made the most assertive claim on the accessing of natural resources in SCS. On the other hand, The government of the US did not claim anything regarding SCS, however, the US government urged to solve the territorial issues with the help of international law. In addition, the US and China both disagreed on the decision of "international law" to conduct operations, sail, and other trade-related activities in the "Exclusive Economic Zone" of SCS . From the year 2013, controversies can be noticed in the US and China military activities and aircraft convergence in the region of SCS. The main objective of the US government was to prohibit China to form a "regional hegemon". As a result, the "Secretary of Defense Lloyd Austin" declared that China wants to rule the world after becoming a Superpower.

According to the "US department of defense", China borrowed an artificial land of 3200acres at the disputed portion of SCS to build their military base. In that case, the Chinese government wanted to control the other seven countries of the South Asia Pacific region. In the year 2018, the Chinese government planned to construct an "advanced aircraft missile system" and "antiship missile systems" on that disputed region of SCS. On contrary, china claimed "indisputable sovereignty" on that land mass of SCS and also depicts the connection of the "nine-dash line" with the territory of China. Therefore, according to the Chinese government, they have the right to access resources and water from the 62% area of SCS²⁴. The Significance of the "Nine Dash Line" was never explained by the Chinese Government. There are more than 200 islands are located in the "South China Sea" region and china, Taiwan, philippines already competing with each other to hold sovereignty on these Islands. Issues regarding this disputed SCS can be observed since 2012 and it can be observed that the "Nine Dash line" from China and "The Eleven Dash Line" of Taiwan have overlapped with the "200 nautical Mile" of EEZ²⁵. On this note, it can be noticed that multiple US government administrators have tried to mitigate the tension in the "South China Sea" portion. The Commerce Department of US government has mandated business licenses for Chinese Ship Builders, Construction, and other companies. In 2021, Antony. J.Blinken the secretary of state, declared that Phillipines has signed a treaty with the US military to form a "mutual defense system" near the "south china sea".

- **Theme 3: "Geospatial Intelligence Analysis to Support National Defense Interests"**

The term "National defense" can be defined as the strategies to maintain a country's integrity, Safety, and Sovereignty from any kind of internal and external threat. Therefore, the government of China has implemented Geospatial Intelligence to solve conflicts, promote public safety, and resolve terrorism. In order to understand the legal consequences imaginary intelligence, maritime domain, and GEOINT, the "law of arbitration" in the SCS was proposed in the year 2016²⁶. The United States has defined the for the transparent relation with every country during international trade and other purposes. The United State has used man-made information to visualise the activities of different countries on Earth. Geospatial information can be constructed through the "Space-based

²⁴Utomo, Agung Mulyo, Giant Nugroho Wijayanto, Muhammad AldinYusfan, PramuditaWardani, Aris Poniman, AsepAdangSupriyadi, Rudy AG Gultom, Sukendra Martha, Susilo Adi Purwantoro, and SyachrulArief. "Geospatial Intelligence Analysis to Support National Defense Interests." In *2021 International Conference on Advanced Computer Science and Information Systems (ICACSIS)*, pp. 1-8. , 2021.

²⁵Song, Lili, and Morsen Mosses. "Revisiting ocean boundary disputes in the South Pacific in light of the South China Sea arbitration: a legal perspective." *The International Journal of Marine and Coastal Law* 33, no. 4 (2018): 768-798.

²⁶Hendler, Bruno, and André Luiz Caçado Motta. "Military Build-up in Southeast Asia and the South China Sea: How Relevant Are the Disputes with China?." *ContextoInternacional* 43 (2021): 565-591.

national intelligence” system. In that case, the Chinese government acquired the assistance of satellites, “unmanned aerial vehicles” and also “airborne platforms”. After gathering the Geospatial information regarding different activities happening in the SCS region, the Chinese government then interprets those information to look at the territorial activities. The term Geospatial information can be defined as the identification of different “geographic locations” such as boundaries and any areas on Earth. In that case, statistical information can be obtained by mapping, “remote sensing” and charting.

On the other hand, surrounding countries of China such as Taiwan, Philippines, and Indonesia have already started to implement GEOINT To obtain information regarding the military activities of the Chinese Government in the “South China Sea. According to the “National Geospatial-Intelligence Agency,” the role of GEOINT is mainly to support the defense system by providing “Accurate image” and “relevant geospatial information”²⁷. In order to show the support for the successful implementation of GEOINT, the Chinese government has decided to strengthen the base of the scientific academic training center for GEOINT. On the other hand, other countries of South Asian origin also developed their defense system with the advanced “remote sensing technologies”.

• Theme 4: International trade relations

The problem was that the South China sea arbitration could have certain interests in international trade relations with the domestic and the rest of the world. Trade links which were formed due to this water channel were not qualified to feature to the extent of improving the lives of the residents. The tribunal notes are official or military counts which did not act as evidence incapable of sustenance of habitation. Article 132 was placed to put a barrier in excessive and unfair proclamations by the state . The Philippines challenged the existence of the Republic of China in the areas of marine time regarding the South China sea²⁸. The facts submitted by the country indicated that the historical maps of China dated back to 1136 incorporated the depiction of the entirety of the Republic of China that reduces the extending territory from the South. The facts also indicated that in the periods of the 14th century to 16th century the Imperial government of

China prohibited trade in marine time with the subjects of the country. With the achievement in participation on a global basis, the 3rd United nation conference hoped to be conscious of proceeding and packing a deal which would adopt the main decision-making methods in the convention. There has been evidence in the historical rights regarding the islands, where it has been noticed that China was not having any marine time rides in the living resources within the proposed 9-dash line . The navigation entered boundaries as well as the fishing territories were influenced by the freedom and were not able in forming the basis for an emergency in a historic right.

China has always claimed right over the South China sea islands and all the international waters. This has allocated the upper hand in dominating the middle wing dominance in the international market from the specific routes . The main claim put forward was the estimation of 11 billion barrels of oil and 190 trillion cubic feet of natural gas which has antagonised the rivals of Indonesia Malaysia Philippines and more. In recent years many satellite images have depicted the increased efforts made by China to reclaim the land in the South Asia sea ²⁹. Is either by the creation of new islands or increasing the size of existing ones so as to put dominance on the International territorial waters. It has also been revealed that there is a piling up of sand in the existing reefs that have been used by the Republic of China in the construction of boats and airstrips for the military. This assertive dominance over international trade waters has created tensions between the Republic of China and Philippines and Vietnam. The South China sea is one of the main water lines in the international segment. The majority of the export and import for the adjustment countries are from the area. Total control over the South China sea would be putting forward a prominent power in those waters. In addition to it, this could also mean the reviving of existing international laws regarding taxes and exports.

B. Discussion

The study depicted that the US government has aimed to maintain International laws with the help of GEOINT. The concept of “Geospatial intelligence” mainly includes “geospatial information” and “imagery intelligence” and the term was primarily coded in US law. After that, the other countries from all over the world also recognised the benefits of GEOINT and the policies of GEOINT have already been placed in “democratization” and “internationalization” to make decisions regarding any disputes. The article helps to know the legal factors and consequences of GEOINT to solve the previously occurred disputes in the “south China sea”³⁰.

²⁷Sandy, Jordan M. "Chinese Nationalism and the South China Sea." PhD diss., Wright State University, 2020.

²⁸Schofield, Clive. "Competing maritime claims and enduring disputes in the South China Sea." In *Routledge Handbook of the South China Sea*, pp. 104-122. Routledge, 2021.

²⁹Dang, Vu Hai. "Entitlements of maritime features and the Paracels dispute revisited." In *Building a Normative Order in the South China Sea*. Edward Elgar Publishing, 2019.

³⁰O'Rourke, Ronald. "China's Actions in South and East China Seas: Implications for US Interests—Background and

Therefore, the matter of SCS arbitration has been placed under the “Tribunal constituted” of “Annex VII”. On this note, it can be stated that the disputes become a massive issue between the Philippines and “The People’s republic of China”. The issues occurred between these two countries on the basis of “the UNCLOS” and the “maritime Rights”. Philippines claimed that the “Chinese government” has allegedly captured the resources of the South China Sea and implemented different laws on that specific geographic location.

In other words, the Chinese government has aimed to control the other countries in the South Asia Pacific by implementing their own laws after abusing their military power. Hence, the study successfully demonstrated that non-government organisations have already utilized GEOINT to bring peace at the international level regarding distribution of natural resources and also trade. With the help of GEOINT, other countries can also monitor the military activities that happened in the SCS region³¹. Hence, transparency can be maintained and that can influence the legitimacy of that specific country. On the other hand, the research also portrayed the utilisation of advanced technologies just as, “dove” satellites that enhance the working capacity of GEOINT in the “maritime domain”. The Chinese government has successfully occupied a portion of land named LTE situated in the South China sea region. The term LTE can be defined as a piece of land that is already surrounded by water during the “low tide” and also “submerged in the high tide”. The Chinese government forcefully occupied those kinds of lands after giving an explanation of connecting those land with the territory of China. They basically use those lands for constructing military bases with weapons to control and dominate the South China sea. In this process, the Tribunals already done their experiments regarding GEOINT after examining the “nautical charts”, “maritime features”, “satellite airborne imagery”, and “sailing directions”. In the year 2016, the arbitration process has already witnessed that the utilisation of satellite systems can be beneficial for any country. On this note, it can be satiated that Philippines have used the GEOINT by nations and they have collaboratively done this with the US government.

The GEOINT proliferated the government analysis on the operational activities of China regarding the construction of militarised base and “outposts” in the “South China Sea”. in that context, it can be noticed that the SCS region is

become loaded with natural resources, reefs, and Islands. Therefore, several countries from the South Asian Zone have been competing with each other for acquiring those resources and water. Specifically, China wanted to hold the leading position in the SCS after implementing its own laws. Even the Chinese government has denied different International treaties or laws applied by the US government. On the other hand, the US government did not show any kind of sovereignty in the “south china sea” and also did not claim anything from that area. In order to prevent the forceful occupation of the Chinese government of different islands located near the territory of China, the US government has already signed to form “mutual defense contacts” with the Philippines³². The US government also provided advanced technologies and weapons to the adjacent countries of China. International issues on multiple matters were already present between the Chinese government and the US government since 2013. In contrast, the Chinese government has strengthened its Rader system to detect any kind of radio waves or signals sent by other countries. Therefore, one of the fundamental objectives of the “Chinese government” behind the allegedly capturing Islands near the SCS was to build Radar towers in that region³³. On this note, it can be said that the successful implementation of GEOINT, helps other countries to monitor the activities of the government of China near the “South China sea” area.

The main findings from this research are regarding the articles and journals which have been presenting the South China case from different perspectives. The political cold war between China and the Philippines regarding the dominance of the South China sea has proven to be faithful for the concerned parties involved³⁴. The freedom of navigation and flight in the China region has been restricted due to this political tribunal. Many of the land reclamation and artificial construction over these areas could hamper the verdict which has been passed and give rise to new political wars. The US has also been an active participant in the South China issues as it serves as a major connecting waterway in the international segment. This active participation has been the result of a change in political authority from Trump to Biden in the US area. The active participation of the regional and international sectors in this dispute has turned it into a form of alliance against the democratic Republic of China. Any of the evidence revealed that there are increasingly legal grounds that girl grounds have been discussing the South

Issues for Congress." *Page Congressional Research Service. Congressional Research Service* (2018).

³¹Hoi, Nguyen Chu, and Vu Hai Dang. "Environmental Issues in the South China Sea: Legal Obligation and Cooperation Drivers i." *International Journal of Law and Public Administration* 1, no. 1 (2018): 8-23.

³²Chinese Society of International Law. "The South China Sea arbitration awards: A critical study." *Chinese Journal of International Law* 17, no. 2 (2018): 207-748.

³³Bautista, Lowell. "The South China Sea Arbitral Award: Evolving Post-Arbitration Strategies, Implications and Challenges." *Asian Politics & Policy* 10, no. 2 (2018): 178-189.

³⁴Zhao, Suisheng. "China and the South China Sea arbitration: Geopolitics versus international law." *Journal of Contemporary China* 27, no. 109 (2018): 1-15.

China sea issues on the international level³⁵. However, the government has denied any participation or recognition regarding the commands passed away from the authorities in this region. Satellite imagery has been showing an increase in army bases and ports over the islands in the South China sea. The dispute regarding the territories and resources has made the SCS in expecting development along the sensitive maritime areas of the arctic and sudden oceans. It has also been noticed that this has provided nations and institutions responding with legal processes and diplomacy regarding this issue.

V. CONCLUSION

Conflicts resulting from territorial conflicts in the South China Sea are illustrated in the paper to assess the gravity of the situation, in the context of international politics. The position of China in opposition to Taiwan, the Philippines and Vietnam projects the criticality of condition and the necessity for quick resolution. The International Arbitral Tribunal awarded in 2016, under the conveyance of Annex VII of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) to issue the Philippines as accountable for starting the arbitration process is seen by various scholars as inefficient. In essence, the trial process had been merely partially successful in resolving the territorial issues of the law of the sea. On the other hand, the qualitative data analysed in the paper supports the contribution of the Tribunal to the enhancement of maritime environment protection policies adopted by China.

Considering the role of geospatial intelligence in this should be acknowledged in a positive light, shifting the paradigms of accurate assessment and visual representation of data. In essence, the legal position of GEOINT is positively referred for benign use in multidimensional issues such as national security, territory conflicts, land and sea mapping and charting and sustainability issues in the ecosystem. The U.N, promoting justice and accountability of data can utilise the information and imagery analysis of GEOINT to address questions of international significance. As the case study suggests, the lack of prominent territorial markers and historical occupational information led to China's occupation of the Spratly islands located in the South China Sea. It can be stated that using GEOINT for gaining accurate information can be beneficial to dissolving the issues related to territorial parameters of the islands and the South China Sea. Furthermore, it can also exploit historical data and make scope for analysis to assess the geographical changes over a specific period of time for further accuracy to be used as legal evidences in the international or tribunal court.

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