

Analysis of the Implementation of Singapore's Flight Information Region (FIR) Policy in Controlling Airspace Over Indonesia's Riau and Natuna Islands

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Abstract

The airspace over the Riau and Natuna islands is still controlled by the Singapore *Flight Information Region* (FIR), this has an impact on the Indonesian state. The takeover of Singapore's FIR by Indonesia was finally carried out through an agreement between the Government of Indonesia and Singapore signed on January 25, 2022. In order for this takeover to be implemented properly and smoothly and provide benefits for Indonesia both in terms of sovereignty, safety and economy, concrete steps are needed. This research aims to analyze how the implementation of the Singapore FIR takeover policy is implemented from a public policy perspective. This research uses a qualitative method with data collection techniques through in-depth interviews with each *stakeholder* directly involved. The data validation used used a triangulation technique, where the research location was carried out at the Ministry of Transportation, the Indonesian Air Force, and AirNav Indonesia. In this study, it was found that the implementation of the Singapore FIR takeover policy after the signing of the agreement experienced quite complex dynamics. Initially, the policy of taking over the FIR had not been conveyed holistically and clearly to all personnel involved in it, including procedures, technical instructions, and work plans were still not available, so this became an inhibiting factor in its implementation. In terms of resources, budgets, and equipment, these three *stakeholders* are still relying on their respective institutions. Bureaucratic inefficiencies that include aspects of organizational structure, division of authority, relationships between organizational units and so on make this implementation less effective in achieving the policy objectives that have been set. This research is the first research conducted on government science, especially in the field of Public Policy, so this research is a novelty. Some of the things that need to be suggested are the need to form an adhoc organization equipped with a legal umbrella, as well as the existence of a budget allocation to support all activities that will be carried out, so that the implementation is carried out properly in accordance with its objectives.

Keywords: Public Policy, Edward III, Singapore FIR, Indonesian Sovereignty

INTRODUCTION

Indonesian airspace is a highly considered area in the world of aviation, because many international flights pass through (*About Fly*) Indonesian airspace, or exiting/entering (*in/out*) in Indonesia. To serve aviation safety arrangements, the International civil aviation organization or known as *International Civil Aviation Organization* (ICAO) form *Flight Information Region* (FIR). FIR is an area with a certain dimension where flight information services or *Flight Information Service* and preparedness services or *Alerting Service* given to all aircraft that pass through the region. The formation of this FIR is based on the 1944 Chicago Convention and its

implementation is a manifestation of Annex 11 of the *Air Traffic Service (ATS)* (Garuda, 2023; Indrawati, 2022; Rabbani, 2023).

The division and boundaries regulated by an FIR can in fact cover the territory of other countries, so it does not have to be exactly the same as the boundaries of the country's territory. If a country delegates its airspace to another country, it does not mean that the delegated country has sovereignty over the area of the FIR it covers. The main purpose of the division of the FIR area is for the sake of aviation safety by providing air traffic management services to prevent accidents (Nugroho, 2006).

Indonesia's airspace is divided into two FIRs, namely the Jakarta FIR covering an area of 2,593,150 km² and the Ujung Pandang FIR covering an area of 4,946,543 km². Indonesia's airspace is directly adjacent to a number of other countries' airspace, including Australia (Melbourne FIR and Brisbane FIR), Sri Lanka (Colombo FIR), Singapore (Singapore FIR), Malaysia (Kuala Lumpur FIR and Kota Kinabalu FIR), Philippines (Manila FIR), United States (Oakland Oceanic FIR), Papua New Guinea (Port Moresby FIR), and India (Chennai FIR).

The division of Indonesia's FIR area (Jakarta FIR and Ujung Pandang FIR) should have covered all Indonesian airspace, but there are some Indonesian airspace that are still controlled by other countries, namely by the Singapore FIR. The territory of Indonesia controlled by Singapore's FIR is the islands of Riau, Tanjung Pinang and Natuna which cover about 100 nautical miles (1,825 kilometers) (Airnav, 2022).

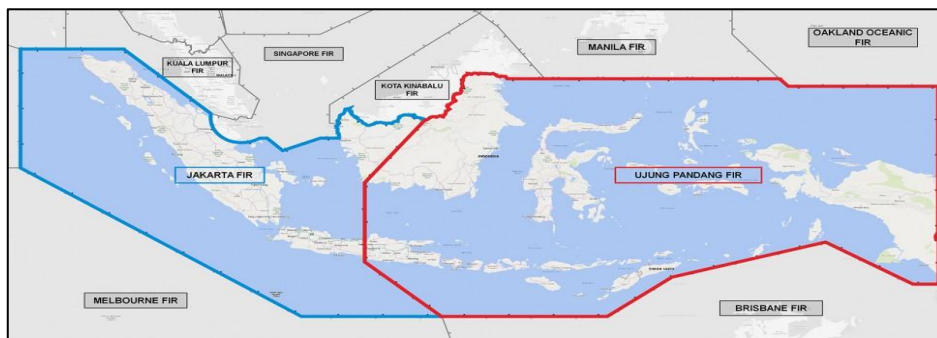


Figure 1. Map of Indonesia's FIR that borders the FIR of other countries (Source : Airnav Indonesia)

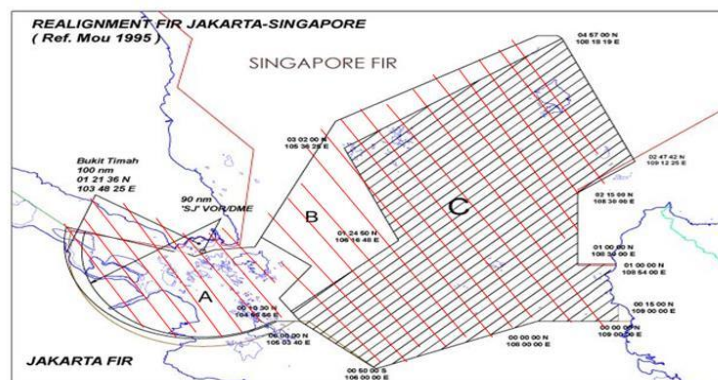


Figure 2. Singapore-Controlled ABC FIR Sector (Source : airmagz.com)

The impact of the control of airspace A and B by the Singapore FIR requires all aircraft, both foreign aircraft and Indonesian civil/military aircraft that will fly or land at

airports in the Riau and Natuna Islands, are required to report to the Singapore ATC. Foreign aircraft that receive services from ATC Singapore mean that they must provide flight services to Singapore, even though these planes fly in Indonesian airspace. Indonesian aircraft flying in Indonesia's own airspace are no exception, where these aircraft are required to report their position to the Singapore ATC, resulting in Indonesian pilots feeling that they do not have the sovereignty to fly in their own country's airspace. Not to mention on the defense side, many illegal flights were found in Indonesian territory that crossed without permission. The National Air Defense Command (Kohanudnas) which is now transformed into the National Air Operations Command (Koopsudnas) through the radar units under it detects the movement of many foreign aircraft, especially Singapore military aircraft flying over the Riau islands. This is very disruptive from a defense point of view and is a potential threat to the sovereignty of the Indonesian state (Kohanudnas, 2018).

The Indonesian government's serious efforts to restore the management of FIR over Riau Islands and Natuna have started since 2009. This step is taken using the legal basis of Law Number 1 of 2009 concerning Aviation. Article 6 of the Law states: "In the context of the implementation of state sovereignty over the airspace of the Unitary State of the Republic of Indonesia, the government exercises the authority and responsibility to regulate airspace for the benefit of aviation, national economy, state defense and security, socio-cultural, and air environment"

Article 458 of Law number 1 of 2009 also explains that the airspace of the Republic of Indonesia, whose flight navigation services are delegated to other countries based on agreements, must be evaluated and served by the Indonesian aviation navigation service provider. The regulation also mandates that this can be realized no later than 15 years after the Law comes into effect, meaning that by 2024 at the latest navigation services in the Riau and Natuna islands must be taken over by Indonesia. Based on the mandate of the law, the government has taken a policy, where President Jokowi through a Presidential Instruction dated September 18, 2015 instructed that the takeover of the FIR from Singapore be carried out faster, namely in 2019. On this basis, the president director of the National Aviation Navigation Service Provider Institute (LPPNPI) or known as AirNav Indonesia, Novie Riyanto in 2018 said that Airnav had made a massive investment to prepare for the management of the FIR in its entirety in 2019 (Aprilyani & Hidayat, 2018). On September 12, 2019, the negotiating framework was signed, then since October 7, 2019, the technical teams of the two countries held an intensive meeting.

The takeover of Singapore's FIR was finally signed on January 25, 2022 by Indonesia's Minister of Transportation Budi Karya Sumadi with Singapore's Minister of Transport S. Iswaran which was witnessed directly by Indonesian President Ir. Joko Widodo and Singapore Prime Minister Lee Hsien Loong on Bintan Island, Riau Islands. However, in the course of this takeover, it still experienced pros and cons by some Indonesian people. Professor of International Relations, University of Indonesia, Prof. Hikmahanto Juwana on a webinar occasion stated that the takeover of the Singapore FIR needs to be investigated further, what was taken over? because the content of the agreement is the same as the agreement signed by Indonesia and Singapore in 1995.

Responding to the same thing, Adya Paramita Prabandari, an aviation law expert at Diponegoro University, Semarang, saw that the takeover of Singapore's FIR contained many positive things (Sucahyo, 2022). The contradictory Singapore FIR is still ongoing, according to some experts stating that the Singapore FIR which controls part of

Indonesian airspace is something that is commonly done in the aviation world, this condition is part of aviation safety services and has no relationship with state sovereignty.

Another phenomenon is that some people argue that it is clearly very contrary to the sovereignty of the Indonesian state because it is not in accordance with the 1944 Chicago Convention, which states that the sovereign airspace of a country is complete and exclusive, (*The contracting Parties recognize that every sovereign state has complete and exclusive sovereignty over the airspace above its territory*) (Kattopo et al, 2001; 44). With absolute and full sovereignty over its airspace, a country has the right to regulate and manage its airspace free from interference by other countries (the provisions regarding sovereignty are also regulated in Article 2 paragraph (2) of the 1982 UN Convention on the Law of the Sea) has been ratified by Indonesia with Law of the Republic of Indonesia Number 17 of 1985, stating that state sovereignty includes airspace over the territorial sea as well as the seabed and land underneath. Furthermore, the right of peaceful passage in a country's national airspace, such as in the law of the sea, is abolished. So, no foreign aircraft are allowed to pass through the airspace of a country without the permission of the country concerned.

The policy of taking over Singapore's FIR has undergone a very long process in the midst of internal controversy over the issue of aviation safety services with Indonesian state sovereignty. The major policy that has been taken by the Indonesian government is to sign an FIR takeover agreement which was carried out on January 25, 2022, then ratified by Presidential Regulation Number 109 of 2022 related to the Ratification of the Agreement between the Government of the Republic of Indonesia and the Government of the Republic of Singapore on the Adjustment of the Boundary Between *the Flight Information Region* of Jakarta and *the Flight Information Region* of Singapore.

The big question now is, how is the implementation or policy implemented? Policies that have been set must be implemented immediately, policy implementation is a series of activities after a policy is formulated and determined (Ramdhani & Ramdhani, 2017). Policy implementation is the most important stage and strategic and even more important than making the policy itself, because this implementation requires concrete implementation to be able to achieve the goals so as to provide benefits for the FIR problems that have existed so far (Supriatna, 2015).

The purpose of this study is to analyze the implementation of the takeover policy of Singapore's Flight Information Region (FIR) over the Riau and Natuna Islands areas after the signing of the FIR takeover agreement. This research also aims to identify factors that support and hinder the policy implementation process, both from regulatory, technical, and institutional aspects. In addition, this research is expected to provide strategic recommendations for related institutions, such as the Ministry of Transportation, LPPNPI/AirNav, and the Indonesian Air Force, in order to optimize the implementation and synchronization of the FIR takeover program to strengthen Indonesia's air sovereignty in the future.

METHOD

Methodology

This study uses a qualitative research method with a descriptive-analytical approach to understand the implementation of Singapore's *Flight Information Region* (FIR) policy in controlling airspace over the Riau and Natuna Islands.

Selection of Respondents

The target population in this study is government agencies and institutions related to FIR implementation policies, such as: Ministry of Communication and Information, Ministry of Law and Human Rights, Ministry of Foreign Affairs, Ministry of Defense, Ministry of Transportation, LPPNPI/AirNav, Air Force, Basaranas, and the Climatology and Geophysics Meteorology Agency (BMKG). The sample that will be used in this study uses the purposive sampling technique, which is sampling that is done deliberately for a specific purpose. The samples taken by the researcher are: the Ministry of Transportation of the Republic of Indonesia (Kemenhub RI) represented by the Directorate General of Civil Aviation, the Indonesian Air Force represented by Koopsudnas, and LPPNPI/AirNav Indonesia.

Data Collection

The data in this study was obtained through *library research* and interviews with related parties, such as the Ministry of Transportation, LPPNPI/AirNav Indonesia, the Indonesian Air Force, as well as aviation law and policy experts. The data collection technique is carried out through the analysis of official documents, laws and regulations, and policy reports related to the management of FIRs. In addition, in-depth interviews with stakeholders were conducted to explore their perspectives and experiences in the implementation of the FIR takeover policy from Singapore.

Data Analysis

The development procedures in processing qualitative data are:

1. *Collecting Data*, which is the process of collecting data.
2. *Data Editing*, which is the process of cleaning data, means double-checking the answer to whether the answer is correct.
3. *Reducing Data*, i.e. data that is simplified, minimized, tidy, organized and discarded incorrectly.
4. *Data Display*, which is the presentation of data in a verbalist descriptive form.
5. *Data verification*, which is a re-examination of data repetition.
6. *Conclusion Data*, namely the formulation of the conclusions of the research results presented, both general and specific formulations (Tanzeh, 2004).

The validity of the data in this study was tested through triangulation techniques which included source triangulation, method triangulation, and data/analysis triangulation. Source triangulation is carried out by confirming and *cross-checking* data from various different sources, especially by selecting sources who are directly involved in the implementation of the Indonesia-Singapore FIR policy over the Riau and Natuna Islands. In addition, unstructured interviews are used to obtain additional information from other sources. The triangulation method is applied by combining several data collection methods, such as *in-depth interviews* with related parties and direct observation to ascertain factual conditions in the field. Meanwhile, data triangulation/analysis is carried out by asking for feedback from sources to ensure accuracy and improve the quality of reports, data, and conclusions obtained. In this process, the researcher also double-checks the answers given by the resource persons by clarifying the purpose of the answers to ensure their correctness and consistency. Through the application of this triangulation, the research can ensure the validity and

reliability of the data used in analyzing the implementation of the Singapore FIR takeover policy by Indonesia.

RESULTS AND DISCUSSION

Implementation analysis reviewed from communication factors

An interview conducted with Rear Marshal TNI Jorry Koloway as Chief of Staff of the National Air Operations Command revealed that the discussion of the Flight Information Region (FIR) has become the center of attention of the Indonesian government, including various *stakeholders* involved, one of which is the Indonesian Air Force. In preparation for the takeover of Singapore's FIR into Jakarta's FIR, Koopsudnas has anticipated and prepared strategic steps that must be taken. According to Marsda TNI Jorry Koloway, until November 2023, Koopsudnas is still focusing on socializing Presidential Regulation Number 109 of 2022 to all ranks under him. In addition, Koopsudnas also prepared a draft agreement that had been agreed with the Government of Singapore regarding the area of takeover and delegation of authority, which has become a joint stipulation between the Republic of Indonesia and the Republic of Singapore.

Based on the explanation of the Chief of Staff of Koopsudnas, after the issuance of Presidential Regulation 109 of 2022, Koopsudnas has conducted socialization both to its personnel and those under them. This Presidential Regulation is a form of ratification of the agreement that has been signed by Indonesia and Singapore regarding the takeover of the Singapore FIR. In accordance with Law Number 24 of 2000, ratification is a form of ratification of international agreements that have been signed by the relevant countries. With the enactment of Presidential Regulation 109 of 2022, Presidential Regulation 7 of 1996 which previously regulated the boundaries of the FIR between Indonesia and Singapore was declared invalid. In its implementation, there are five main points of the Indonesia-Singapore FIR agreement that must be socialized, namely: (a) the Jakarta FIR now covers the entire territory of Indonesia; (b) Indonesia is responsible for the Provision of Aviation Services (PJP) above 37,000 feet in the airspace of the Riau and Natuna Islands, while Singapore is responsible for the PJP at an altitude of 0-37,000 feet; (c) the establishment of a framework for civil and military cooperation in Flight Traffic Management or *Civil Military Coordination in ATC* (CMAC); (d) Singapore is required to deposit a quote for flight service fees to Indonesia; and (e) Indonesia has the right to evaluate the operations of flight navigation services by Singapore to ensure compliance with ICAO regulations.

The *clarity factor* in policy communication is crucial, as clarity can lead to confusion among the implementers. The first speaker emphasized that Koopsudnas has ensured the understanding of the ranks regarding the Indonesia-Singapore bilateral agreement regarding the FIR through various coordination

and socialization of Presidential Regulation Number 109 of 2022. In general, global aspects such as the scope of rules, FIR boundaries, and control mechanisms have been understood. However, a detailed understanding is still limited because derivative rules in the form of *Standard Operational Procedures* (SOPs) are still in the process of being drafted, with four of the six SOPs that have been made but have not been socialized as they wait for the agreement of the two countries.

Mr. Bambang Riyanto, Director of Operations of AirNav, as the second speaker said that the *Realignment of FIR Boundary* between the Jakarta FIR and the Singapore FIR is one of AirNav's priority programs in recent years. For this reason, each directorate at the head office and work units at the branch office synergize in preparing for the implementation of flight navigation services over Natuna, Riau Islands. Regarding the socialization of the takeover of the Singapore FIR, he explained that the development of this process has often been informed through routine meetings and correspondence from the head office to each branch. Socialization to AirNav personnel has been carried out, especially for those who handle technical aspects, with a focus on documentation readiness, operational technicalities, and personnel needs. This activity was carried out online and offline. In general, the clarity of this program has been understood by all ranks of AirNav, with feedback that is then evaluated and followed up if there are things that are not clear. The socialization mechanism has been running consistently in accordance with AirNav's internal provisions, starting with the direction of the Board of Directors, the presentation of material from the head office, and discussions to ensure a thorough understanding.

Next is from the third speaker, namely Captain Sigit Hani, Director of Aviation Navigation of the Ministry of Transportation, said that after the agreement was agreed, communication was more focused on stakeholders related to policy implementation, while socialization to the wider community was still limited. Until now, coordination between the Ministry of Transportation, the Ministry of Foreign Affairs, the Ministry of Defense, AirNav, and the Indonesian Air Force continues to be carried out to ensure good communication. In addition, the Indonesian government, through the Ministry of Transportation, the Indonesian Air Force, and AirNav, has established intensive communication with the Singapore government and ICAO from the planning stage to the implementation of this policy.

The Directorate of Aviation Navigation (Dirnavpen) at the Ministry of Transportation plays an active role in the implementation of the FIR takeover policy, not only at the time of signing the agreement but also from the negotiation stage. Dirnavpen synergizes with the legal department related to the substance of the agreement, the public relations department for socialization, and the Directorate of Airworthiness and Aircraft Operations (DKPPU) in making aviation regulations. In addition, the Center for International Partnership and Institutional

Facilitation (PFKKI) also plays a role in the implementation of agreements within the Ministry of Transportation. Communication is very important because the implementation of this policy involves various work units with their respective tasks and functions. Initially, within Dirnavpen there was still uncertainty regarding the implementation of this policy, but through further discussion, the understanding of the FIR takeover policy became clearer. Initially, there was also skepticism within the Ministry of Transportation about the benefits of this policy for Indonesia, but this attitude decreased along with the socialization carried out, including by the Indonesian Ambassador to Singapore. Discussions and presentations on the benefits of this policy, such as the receipt of air control services in the FIR area that was taken over, helped to increase understanding and support for the policy. Although the Ministry of Transportation does not have a consistent socialization schedule, information on policy developments is always conveyed in line with the dynamics of submitting *Proposals for Amendment (PfA)* to ICAO. This submission was then responded to by ICAO, which encouraged the Ministry of Transportation to convey the results to relevant stakeholders.

The above description can provide a conclusion that the implementation of the Singapore FIR takeover policy, judging from the communication factors, has been implemented by the three *stakeholders* in accordance with their respective duties and functions. Koopsudnas as a unit of the Indonesian Air Force that has the task of supervising air defense has carried out socialization in every dalwas (control and supervision) activity in all ranks or during the activities of the commander of all ranks of air bases or command units of the air defense sector. In general, we already know about the agreements between countries that are bound by a bilateral agreement between Indonesia and Singapore. Socialization has been carried out by Koopsudnas well, by providing information related to policies that have been made by the government and continued with its derivative regulations that are technical. However, a detailed explanation of the mechanism and derivative rules cannot be socialized, because there is no technical agreement in the future regarding the issues that will be outlined in the SOP, both macro and micro. So currently there is no clarity on the duties and functions of who does what and how the mechanism will be implemented in the future.

Previous research relevant to implementation analysis reviewed from communication factors has been carried out a lot, one of which is by Beads (2022) which emphasizes that the success of policy implementation is greatly influenced by the effectiveness of communication between policymakers and implementers on the ground. Studies conducted by Alfiah et al., (2025) It also shows that clear and consistent communication in a policy will determine the extent to which the policy can be implemented properly. The studies support the importance of structured and continuous communication in the implementation of FIR takeover policies, where coordination between institutions such as the Ministry of Transportation, AirNav, Indonesian Air Force, and ICAO is a key factor in its success.

The three *stakeholders* who were resource persons, in general, said that the drivers and inhibitors of the communication factor came from the internal *stakeholders* themselves. After that, corrections and bottom-up coordination processes were carried out in stages to ICAO. This is what makes policy implementation less effective and efficient due to coordination that is still too long up to four steps. Initial coordination begins at the internal *stakeholders*, after that coordination between *stakeholders* within the Government of Indonesia, then coordination between Governments (Government of Indonesia and Government of Singapore), and finally coordination with ICAO as a determinant of the application for cooperation documents submitted.

Edwards III defines communication as "the process of conveying information from a communicator to a communicator" (Montoali et al., 2018). According to Edwards III, information about public policy needs to be conveyed to *Squirrel* involved in this case the Indonesian Air Force (Koopsudnas), the Ministry of Transportation, and AirNav so that all *Squirrel* can know what they must prepare and do to carry out the policy so that the policy goals and objectives can be achieved as expected. In this case, the FIR takeover policy has not been conveyed holistically and comprehensively, including procedures, technical instructions, and others. In policy implementation communication, there are several important points involved in it, namely the dimensions of transmission, clarity, and consistency. In terms of transmission, it turns out that not everyone knows the purpose and purpose of the implementation of the policies implemented. In terms of clarity, not all the information and important points of the policy are known to all *Squirrel* such as the purpose, purpose, objectives, and substance of the FIR takeover policy.

Implementation analysis reviewed from resource factors

The mechanism carried out by Koopsudnas in carrying out the process of taking over Singapore's FIR so far is to send its representatives to every meeting both at home and abroad, and then the results of the meeting will be studied and discussed internally so that matters or special emphasis from the Indonesian Air Force from operational and technical aspects can be accommodated. Regarding incentives for personnel involved in this program from the Indonesian Air Force and Koopsudnas, they do not provide special incentives, because this is still seen as part of their duties as representatives of the Indonesian Air Force.

Koopsudnas still faces limited facilities and infrastructure in supporting the implementation of the takeover of Singapore's FIR. Kas Koopsudnas said that communication between CMAC Singapore and Puskodal Koopsudnas is not fully available, especially in Posek Kosek IKN which does not have a direct connection. The coordination meeting continues to discuss the fulfillment of long distance call (SLJJ) communication between Singapore and the center in Indonesia, including to the AirNav operation center. The procurement of operational facilities is still under discussion, including the budget and funding sources. Today, the control command center still relies on standard equipment used in operational tasks.

Furthermore, Mr. Bambang Rianto said that AirNav has placed human resources according to competence in the Jakarta FIR Realignment program. The placement of personnel is carried out through the Decree of the Board of Directors, with the number meeting the provisions of the regulator based on KP 287/2015 and PR 15/2022 related to optimal calculation and fatigue management.

AirNav personnel appointed in air traffic services are adjusted to competencies in each sector, such as ACC Surveillance for services above FL245, APP Surveillance under FL245, as well as Aerodrome Control Tower and APP Procedural for Tower units. This designation still refers to qualifications and ratings in accordance with civil aviation regulations. AirNav does not provide special incentives as these tasks are part of the routine. To support the takeover of Singapore's FIR, AirNav has provided various facilities and infrastructure, including A/G and G/G COMMUNICATION FACILITIES, MSSR and ADSB Surveillance in several locations, simulators for personnel training, ATC System in Tanjungpinang for Approach services, and ATS System at JATSC for Area Control services. Some facilities are new procurement, while others are modified, such as the addition of working positions. In addition, service units were increased by adding five APP sectors in Tanjungpinang and ACC sectors in JATSC to 14. AirNav has also disseminated service standard documents that include SOPs and LOCA to personnel involved in the Jakarta FIR realignment program.

The Director of Aviation Navigation of the Ministry of Transportation stated that the availability of human resources for the takeover of the FIR did not experience any obstacles. Although not a routine task, the Ministry of Transportation has prepared personnel and support units and played a role in meetings with ministries and agencies, including bilateral coordination with Singapore. The implementation of this policy is coordinated by the Coordinating Ministry for Maritime Affairs, with the involvement of the Ministry of Law and Human Rights for the extradition agreement and the Ministry of Defense in the Defence Cooperation Agreement (DCA). The Directorate of Aviation Navigation is responsible for policy formulation, procedure preparation, and supervision and evaluation in the field of aviation navigation. Today, the main focus is on preparing a core team with the capabilities and capacity to meet the standards.

The results of the above interview show that Koopsudnas has not yet formed a special team for the takeover of Singapore's FIR, but the Indonesian Air Force has sent representatives partially, including a mid-level officer from Koopsudnas. The Ministry of Transportation stated that the readiness of human resources does not experience obstacles because adequacy is assessed by capabilities and capacity, not just quantity. Meanwhile, AirNav has placed its personnel in all service unit sectors according to competency standards and formed a Jakarta FIR realignment team through the Decree of the Board of Directors as the legal basis for implementation.

Riswandi (2020) emphasizing that human resource policies play an important role in the implementation of organizational policies, including in the takeover of FIRs, where unstructured human resources hinder its effectiveness. Sirait & Noer (2021) It also emphasizes that the linkage between policies and resources is indispensable for successful implementation. In the context of the takeover of the Singapore FIR, the availability of adequate human resources, both in quantity and quality, is a key factor in the successful implementation of the policy.

George C. Edward III in his theory stated that the sources that can determine the success of the implementation of a policy are the available resources, because resources are the source of driving and implementing. People, budget, infrastructure and information are the most important resources in determining the success of the policy implementation process.

Implementation analysis reviewed from disposition factors

The leadership's attitude in the implementation of the takeover policy of the Singapore FIR is reflected in the full support provided by the Pangkoopsudnas. Koopsudnas prepares the necessary resources, including personnel, devices, and units involved. Concrete steps are being taken including the preparation of procedures for staying on standby at the Puskodal, communication and coordination mechanisms with CMAC, as well as the preparation of radar-qualified personnel who are ready to stand by 24 hours. Despite facing challenges in preparing personnel, Koopsudnas still strives to optimize existing resources to ensure that airspace supervision runs effectively. The positive attitude of the leadership of the Indonesian Air Force can be seen from the various activities that have been carried out, although there are still technical obstacles both internally and externally.

In the implementation of the takeover of the Singapore FIR, there are several main stakeholders who are actively involved, namely the Ministry of Transportation, the Indonesian Air Force, and AirNav Indonesia. These three agencies have an important role ranging from the preparation of agreements to the implementation of policies. However, in some stages of coordination, not all stakeholders are always involved, especially in the initial discussion between the Indonesian and Singapore Ministries of Transportation. The FIR takeover agreement, which has been ratified in Presidential Regulation No. 109 of 2022, is an agreement between the transportation ministers of the two countries. After the agreement is agreed, Koopsudnas will be more active in operational and technical discussions to ensure that the transition of FIR to Jakarta FIR runs smoothly.

From the work system implemented, it can be seen that Koopsudnas has a proactive attitude and fully supports this policy. In bureaucratic dynamics that are often colored by sectoral egos, Koopsudnas took the initiative to lead a meeting to prepare timelines and implementation targets, even though the response from other ministries and institutions has not been optimal. The Indonesian Air Force has even prepared a draft planning earlier than other parties. This shows the concern and responsiveness of the Koopsudnas leadership to the tasks given, even though there are no special incentives for the personnel involved. This attitude reflects the high responsibility of Indonesian Air Force personnel in maintaining the sovereignty of national airspace.

Furthermore, the AirNav operations manager as the second resource person in the interview that has been conducted regarding the attitude or disposition of the leadership in responding to the government's policy on the takeover of the Singapore FIR stated that:

"In accordance with Government Regulation 77 of 2012, it is called Perum Aviation Navigation Service Providers have the duty to provide flight navigation services; The

flight navigation services provided prioritize safety, flight efficiency, and environmental friendliness to meet the expectations of service users; The flight navigation services that are organized consist of air traffic *services*, aeronautical *information services*, flight telecommunication services (CNS), Aviation Meteorological Information (MET), and search and rescue information (SAR). MET information is held in coordination with BMKG in accordance with Law No. 1 of 2009 concerning Aviation. The same is true for search and rescue information. It is carried out in coordination with Basarnas."

AirNav's leadership has shown its commitment in responding to Singapore's FIR takeover policy by ensuring the readiness of facilities, human resources, and service procedures that have been certified in accordance with civil aviation regulations. AirNav also carries out *Safety Assessments* to mitigate potential hazards and assists the Ministry of Transportation in the *Proposal for Amendment* (PfA) process to ICAO. In bureaucracy that runs vertically or horizontally, AirNav supports policies directed by the Ministry of Transportation, the Ministry of Commerce, and always reports developments to the Ministry of SOEs. Internally, this policy is implemented in accordance with the provisions within the LPPNPI Perum. From the implementation that has been carried out, it can be seen that AirNav staff generally support the government's priority program in the takeover of the Singapore FIR.

The results of the interview with the Director of Aviation Navigation at the Director General of Civil Aviation, Ministry of Transportation, showed that "the concern, support, and motivation of the leadership had a significant effect on the performance of subordinates in the implementation of the FIR takeover policy. The high spirit of nationalism also strengthens *the sense of responsibility* of each personnel. For example, a staff member named Novi continued to carry out negotiation duties in Singapore despite being eight months pregnant, showing dedication that was more than just an incentive push. This confirms that the factor of responsibility and the spirit of nationalism are the main drivers in the implementation of this policy."

The results of an interview with the Director of Aviation Navigation at the Director General of Civil Aviation, Ministry of Transportation, revealed that the concern, support, and motivation of the leadership had a great influence on the performance of subordinates in the implementation of the FIR takeover policy. The high spirit of nationalism also strengthens *the sense of responsibility* of each personnel. For example, a staff member named Novi continued to carry out negotiation duties in Singapore despite being eight months pregnant, showing dedication that was more than just an incentive push. This proves that the factor of responsibility and the spirit of nationalism are the main drivers in the implementation of this policy.

Furthermore, Dirnavpen highlighted how the personnel involved in this policy see the success of the program as a *legacy* for the country. The history that has occurred since 1995 or even before, when senior personnel at the Ministry of Transportation faced the process of discussing the Singapore FIR, has had a positive effect on the current implementation. Their enthusiasm at the time had a major impact, although ICAO has not yet given a positive response. Now, seniors who have become officials at the Ministry of Transportation play a role in encouraging the work process in a better direction, providing valuable experience and lessons to the next generation.

The great motivation from the experienced leaders of the Ministry of Transportation is also an encouragement for current personnel in carrying out their duties. Seniors who previously carried out the mandate in the FIR realignment continue to provide guidance, communication, and confirmation regarding ongoing programs. This creates an effective and conducive work environment. The motivation given is not only material, but rather pride in recording the history of the successful takeover of Singapore's FIR. Thus, their contribution is not only a personal achievement, but also part of an important legacy for the country.

Based on the three interviews above, the support and motivation given by the leadership for the implementation at the Ministry of Transportation has a good influence on the implementation of the FIR takeover policy. *Legacy* in the context of the FIR takeover policy has a positive effect on its implementation in the field. Seniors who have had experience in the same matter at the Ministry of Transportation often provide motivation and often provide positive experience sharing. So this is what motivates the technical personnel in carrying out activities in the context of the FIR takeover policy.

Meanwhile, AirNav stated that the leadership's commitment in responding to the policy was carried out by fulfilling the readiness of facilities, human resources, and procedures to carry out services in the area that was taken over, and all elements involved had gone through a certification process in accordance with applicable civil aviation regulations.

Previous research related to the analysis of policy implementation from disposition factors shows that the attitude and commitment of policy implementers have an important role in determining the effectiveness of the implementation of a public policy. Studies conducted by Wijayanti et al., (2025) emphasizing that dispositional factors, which include the attitude, commitment, and understanding of the implementer of the policy, can accelerate or even hinder the successful implementation of the policy. In the context of the implementation of the takeover policy *Flight Information Region (FIR)* from Singapore, the disposition factor is one of the crucial aspects that affect the effectiveness of policy implementation. The skepticism of some of the personnel involved, as found in this study, suggests that a lack of confidence in policies can slow down the implementation process. Therefore, a strong understanding and support from policy implementers, both in terms of motivation and national interests, is essential in ensuring the successful implementation of this policy.

Based on the implementation theory presented by Edwards III, the dispositional factor can be reflected by the appointment of bureaucracy and incentives. What happened from the three *stakeholders* in the implementation of the FIR takeover policy, the bureaucratic appointments carried out on each *stakeholder* still use seconded duties so that the task in implementing the FIR takeover policy is an additional task in addition to the main task attached to the position held. In addition, the incentives given to each personnel are still attached to the cost of the duties obtained at each of the personnel agencies on duty.

Implementation Analysis Reviewed from Bureaucratic Structure Factors

The first speaker conveyed in an in-depth interview:

"Yes, we can see that with the result of the agreement that the Singapore FIR becomes the Jakarta FIR, it means that he accepts it first, secondly he still asks for the Alfa and Bravo areas because there is an interest in controlling the airspace that is very busy there in the Bravo area, in the interest of flight routes that go directly to and from Singapore, or passing through Singapore it is still asked which means that he wants to still have a share in the control there, Because it will involve many things, both safety and security to economic and diplomatic aspects, but basically in general he accepts the takeover."

From this statement, the Singapore government did accept the agreement that had been agreed, but the Singapore government still asked for the Alfa and Bravo areas because there is an interest in controlling airspace in its very busy and congested area. In addition to the problem of congestion of flights from or to Singapore, *safety, security* and economic aspects as well as diplomacy are also considerations. But so far, the Singapore government has basically generally accepted the takeover. On the other hand, even though the agreement has been signed, violations of Indonesian airspace still occur as before the signing of the MOU. This condition could be due to the lack of formal stipulations from ICAO so they still use the old rules.

In responding to these violations, Koopsudnas still responds if, for example, there are violations committed by foreign aircraft entering the sovereign territory of the Republic of Indonesia by reporting to the Singapore Government. This process starts from the IKN Kosek, in this case the Tanjung Pinang Satrad conducts identification, then the National Koopsudnas makes a report to the TNI Commander, a copy of which is also given to the Director General of Civil Aviation, the Ministry of Transportation and the Ministry of Foreign Affairs. So far, all of these stakeholders strongly agree with what Koopsudnas has done regarding actions for violations of the sovereignty of the Republic of Indonesia, so that what is done by the Indonesian Air Force Government in cracking down on violations committed by other aircraft is very supported. Therefore, Koopsudnas must be able to carry out all the tasks given even though the new rules have not been finalized. The work commitment of the personnel at the executive level is quite high where they have carried out their duties proactively in accordance with the provisions of the SOP, even though the attention of the leadership is not given directly.

Next is the information of the second resource person at AirNav, from the interviews that have been conducted by the researcher, data was obtained that the organizational structure at AirNav refers to the duties and authority that exists within AirNav itself. The document that has been prepared in the implementation of the policy later is a work mechanism document, this document is one of the service standard documents that is one of the requirements for fulfillment of a service unit at AirNav.

"The SOP document is one of the service standard documents that is one of the requirements for fulfillment of a service unit at AirNav. All service units have received certification from the Ministry of Transportation in accordance with applicable laws and regulations".

All service units have received certification from the Ministry of Transportation in accordance with applicable laws and regulations. Service SOPs in each ATS unit will be effective and can be implemented when the implementation of the Jakarta FIR

realignment program is enforced. Regarding juklak and juknis, in each program at AirNav it is an obligation to prepare an operation concept as an initial guide for each activity program. In the *Jakarta FIR realignment program*, AirNav has developed a concept of operations for the implementation of flight navigation services in the airspace over the Riau islands as an initial guide for the implementation of the policy. Furthermore, the operation concept must be approved by the directorate of flight navigation of the Directorate General of Transportation at the Ministry of Transportation.

Next is the results of an interview with the third speaker, namely the director of aviation navigation, he stated that related to the organizational structure for the implementation of the FIR policy, a special team was formed from the Ministry of Transportation that handles more technical issues in detail. This special team was formed before the signing of the agreement between the Indonesian government and the Singapore government, which was subsequently legalized through the Decree of the Minister of Transportation. The Ministerial Decree contains personnel who are assigned to join teams from several parts of the Ministry of Transportation. The tasks given to the team formed in the decree are further described in detail according to a clear position through various division of tasks.

The current legal umbrella is in the form of a new decree from within the ministry that is made still refers to the old decree, but there are some adjustments to the names of ministries/institutions due to the many dynamics that occur in the field. Soyogi, if the tasks given to this special team are daily tasks that are usually done, then this special team will not be formed. However, to facilitate these unusual tasks, the first thing to do is to focus more on the selection and placement of personnel who are more technical and adapted to the competencies possessed by these personnel. Therefore, the form and chart of the organization as well as the assignment of duties of each personnel involved in this team have not been outlined in a rule.

The special work team formed from the initial preparation to the signing of the FIR takeover agreement has been completed in carrying out its duties. Furthermore, the team formed after the signing of the agreement is more individual to continue the preparation of SOPs and technical rules so that they can be implemented in the field. Indeed, the SOP that is a priority and is currently being finalized is the CMAC SOP, why is this SOP prioritized? because this SOP is indeed very important considering that there is an organizational structure and the assignment of duties of the Indonesian delegation assigned to Singapore. As long as the CMAC SOP has not been completed and has received approval from both countries, the applicable rules still use the old rules.

According to Paradise & Octistine (2018) There are 4 (four) bureaucratic functions, namely: 1) Instrumental function, 2) Political function, 3) Catalyst function *Public Interest* and 4) Functions *Enterprising*. A bureaucratic structure is needed to manage resources or implementers who can carry out their activities profitably and well coordinated. When carrying out activities that are difficult to understand or complex, there must be an effective bureaucratic structure and the ability to effectively coordinate human resources within it. Regarding the bureaucratic structure in accordance with the implementation theory of Edwards III, it is stated that the implementation of the FIR takeover policy can be said to be ineffective due to the inefficiency of the bureaucratic structure. This bureaucratic structure includes aspects such as bureaucratic structure,

division of authority, relationships between organizational units and so on. Until now, all *Squirrel* Those involved as actors in this policy are only formed in a special team that does not have a strong enough legal umbrella to be able to focus on implementing the policy. The division of duties and authorities that exist at this time still uses the tupoksi of the agencies or personnel institutions involved in it. This condition has resulted in the lack of a team formed in one organization to follow up on the creation of derivative regulations, both micro SOPs and macro SOPs.

According to (Rantung & Manaroinsong, 2021), bureaucratic structures that are less effective in some policy implementations have the potential to create large coordination problems within an institution. Vertical relationships between others *Squirrel* The implementation of policies in different institutions provides different results and performance in their implementation and this will trigger coordination problems between each *Squirrel* as a policy implementer. According to Snoop Dogg & Squirrel (2024), problems that occur in policy implementation, even though there is a complexity of consistency in policy implementation, it is not easy to standardize/generalize every policy implementation process. This can be caused by politics, the vision and mission of the institution, the standards of the institution, and the culture that is rooted in each institution *Squirrel* policy implementers. In the context of the implementation of the FIR takeover policy, a bureaucratic structure is needed that makes uniformity of a standard of norms, standards, procedures, and criteria from the implementation team of the FIR takeover policy. This is a challenge because of the structure *Squirrel* that are different from the TNI, the Ministry of Transportation, and AirNav.

New Implementation Model with the Concept of "DKI"

The results of the analysis of the implementation of the Singapore FIR takeover policy in controlling airspace in the Riau and Natuna archipelago regions of Indonesia, as well as the results of the development of theories that are used as a theoretical basis in the preparation of this research, as well as as a problem solving to reduce the gap between theory and empirical are obtained a new model in its implementation. The model found is the "DKI" model, which will provide a breakthrough so that the implementation of policies implemented will be more effective, efficient, accountable and transparent. Even if later the model has disadvantages and advantages, it will depend on the conditions in the field. The shape of the "DKI" Model can be illustrated in the following image.

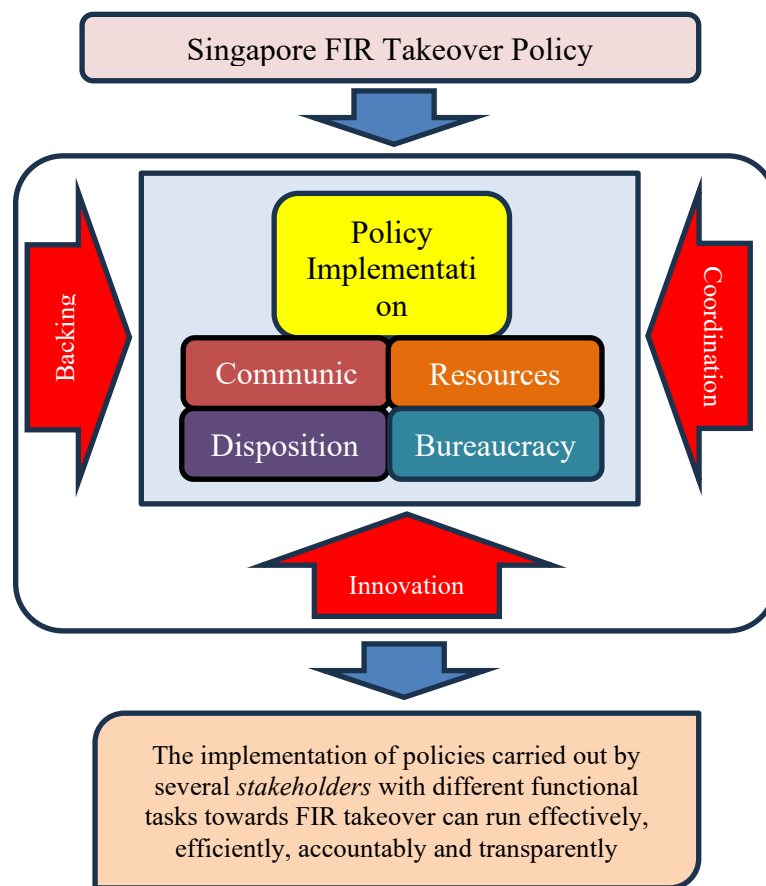


Figure 3. The "DKI" model combined with Edward III

(Source: Processed by Researcher)

Support, coordination, and innovation are the three main factors that can affect the successful implementation of the Singapore *Flight Information Region* (FIR) takeover policy by Indonesia. Support, both internal and external, is needed to accelerate the implementation of this policy without significant obstacles. Support factors include the subject of the support, the right timing, as well as the quantity and quality, including from the Indonesian people and international aviation organizations such as ICAO. In addition, effective coordination is a challenge because there is no formal organization to accommodate the implementation of this policy. As a solution, coordination is carried out

through informal communication networks, such as inter-agency WhatsApp groups, which have proven to be faster in conveying information than waiting for the formation of an official organization.

Meanwhile, innovation is also an important aspect in the implementation of this policy to be more efficient and effective. Innovation in public policy is not only applied at the evaluation stage, but also from planning to implementation. Unfortunately, in the implementation of the FIR takeover, the innovations carried out are still limited to individual initiatives in communicating, without any organizational breakthroughs that are able to accommodate all stakeholders. In fact, such innovations can help create a more transparent and structured work system, thereby speeding up the overall FIR takeover process.

By paying attention to the support, coordination, and innovation (*DKI*) factors, the implementation of the FIR takeover policy is expected to run more effectively and efficiently. This model provides a framework that allows the institutions and institutions involved to evaluate the deficiencies as well as optimize their strategies. With strong support, good coordination, and the right innovation, the successful implementation of this policy can be achieved, while having a positive impact on Indonesia's air sovereignty and aviation safety in the Riau and Natuna Islands regions.

CONCLUSION

The conclusion of this study shows that the implementation of the Singapore *Flight Information Region* (FIR) takeover policy over airspace in the Riau and Natuna Islands is experiencing quite complex dynamics. The main obstacle in the implementation of this policy is bureaucratic inefficiencies that include organizational structure, division of authority, and coordination between units that are still not optimal. Nevertheless, there are a number of supporting factors that strengthen the FIR takeover effort, such as Law No. 1 of 2009, President Jokowi's political commitment, improving technical capabilities, supporting facilities and infrastructure, and increasing public awareness of the importance of the sovereignty of the Republic of Indonesia.

On the other hand, several inhibiting factors were also found in the process of implementing this policy, including the existence of certain interests that influenced the takeover process, the skepticism of some of the personnel involved, the lack of an organization specifically handling this policy, and budget limitations that were not prepared from the beginning. To overcome these challenges, this study proposes an implementation model called the "DKI" model as an alternative approach in supporting the policy implementation factors proposed by Edward III. With this approach, it is hoped that the FIR takeover process can run more effectively, efficiently, and in line with Indonesia's national interests.

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