

## **The Water War between Kedah- Penang in Malaysia: The Relation in the Management of Sungai Muda Raw Water, 1965–1985**

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### **Abstract**

The aim of this study is to evaluate the degree to which the mentality and behaviour of the Kedah and Penang state administrations from 1965 to 1985 were impacted by the drawing of raw water from Sungai Muda, as a significant strategic factor. This article's goal is to explore the interactions between the two governments over raw water that they acquire from Sungai Muda. Additionally, it will assess the effects of Kedah's decision to permit Penang to use Sungai Muda's raw water. Based on previous studies, it was found that despite the issue's relevance and obvious connection to the current water supply dispute between the two states, researchers did not pay much attention to the management of raw water obtained from Sungai Muda by Kedah and Penang. Since it addresses issues that will still come up between the two states in light of the present water supply crisis, this study is relevant and important. The study used a qualitative methodology in addition to primary materials such as contract documents, archival records, and secondary sources such as books and articles. From the findings, it was observed that the use of raw water sources from Sungai Muda involves close engagement between the states of Kedah and Penang from 1965 to 1985. During this time, the state governments of Penang and Kedah played a crucial role in empowering the water supply sector in their respective states. The historical experience of Malaysia's water supply policy's consolidation in the twenty-first century adds a new dimension to the conversation about water issues in the country.

**Keywords:** Kedah, Penang, Water Management, Sungai Muda, Water Development.

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## **1. Introduction**

Chakraborty and Serageldin (2004) have predicted that unless properly and systematically handled, the competition for scarce water resources will lead to wars in the future (the wars of the next century will be about water). This prediction appears to be coming true in present-day Malaysia, as Kedah and Penang are seen to be 'at war' in attempting to defend their own strategic interests in relation to the Sungai Muda. However, the conflict between these two governments is not a conventional battle of guns; rather, it is a cold war for the utilisation of Sungai Muda's raw water resources. This situation demonstrates that people will fight to maintain control over the increasingly scarce and inadequate water supplies, both now and in the future (Nobahar and Kabiri Renani, 2020:183-207). It will have a worse impact than the past series of global wars if water supply or water resources are not effectively managed and do not adhere to the agreement that has been reached previously (Kavianirad and et al, 2022:71-93). This is the case since water is a necessity for life. If it is not properly managed, water properties—, which are typically thought of as cooling and relieving—will produce the opposite effect. Although not a typical conflict, it is possible that state authorities will be unable to solve the problem of water scarcity in the future (Mianabadi and Ghoreishi, 2022: 150-186). That failure is likely to start a catastrophic war due to the struggle for water among countries like Iran, Iraq, Pakistan, India, China, Myanmar, Laos, Thailand, Cambodia, and others (Peña-Ramos and et al, 2021:3479).

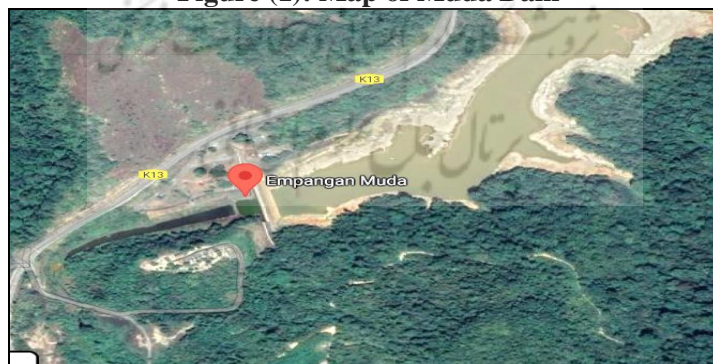
The Kedah state government regularly released statements regarding the demand for payment of raw water resources used by Penang through Sungai Muda, under the administration of several Menteri Besar, from Mukhriz Mahathir to the most recent, Muhammad Sanusi Md Nor. Kedah has insisted that Penang pays them RM50 million per year for using its raw water resources from Sungai Muda, which are reportedly utilised in the industrial sectors and shipping industry in Penang (Wan Mansor, 2020:36). This article argues that the current state of affairs shows that Kedah is attempting to exert political pressure on Penang by raising the issue of appropriating raw water resources of Sungai Muda. Kedah is believed to want to dominate the management of raw water resources in the northern region of Malaysia. This is so because the Kedah state government is aware that by controlling the water supplies in northern Malaysia, Penang can be economically and politically challenged. This circumstance is consistent

with Abdullah's (2021) statement, "If you can control water, you can control everything". Therefore, it is not surprising that Kedah is currently attempting to politicise the issue of Penang benefiting from raw water resources from Sungai Muda, as part of a political strategic plan. This situation reveals a new facet in Malaysian politics on the availability of increasingly scarce water resources and difficult political conditions (water politics) (Abdullah and Zakarya,2022:140). Not only that, on September 21, 2021, Muhammad Sanusi made a statement in the Kedah State Legislative Assembly session claiming that Penang was legally a Kedah's property and requesting that the state refrains from interfering in Kedah-related topics (Ikhsan,2021). However, Kedah's pressure has demonstrated that they are also less effective at using their own advantage—as a reliable raw water resource in northern Malaysia—to their benefit. This is true since Kedah, a state having 370 rivers totalling up to 2,900 kilometres (km) in length and a rain catchment area of 9,000 square metres, should be prosperous and produce abundant crops (Sungai-Sungai di Negeri Kedah, Pengarah Jabatan Pengairan Dan Saliran, Negeri Kedah Darul Aman). Despite having excellent raw water resources in the north of Malaysia, Kedah is one of the less successful states in managing the water supply sector in Malaysia today, because there are still issues and problems with water supply that have not been resolved (Abdullah and Mohd Noor,2020:89). Along with Kelantan and Perlis, Kedah also remains as one of the states with the lowest income in Malaysia (Hussin,2009:23). Moreover, it is still committed for maintaining its status as a rice-producing state, which forces Kedah to make compromises to meet the country's rice demands (Ismail,1972:1-14). Kedah has lost some of its economic potential as a result of needing to protect the water catchment area for Penang, Perlis, and its own domestic water supply (Abdullah,2021:1-24).

On the other hand, there was no legal justification for Kedah to demand payment from Penang for using Sungai Muda's raw water resources. This argument is valid since Penang has traditionally used Sungai Muda as a source of raw water inside the state's borders and in accordance with the idea of riparian rights. Even though Sungai Muda is a river that naturally flows into Penang and Kedah does not pump raw water there, this discussion does not concentrate on that issue. Penang is also seen to have been extracting raw water from Sungai Muda for 44 years since it claims that no agreement, contract, or payment has ever been signed between

Kedah and Penang. Penang has asserted that there was no mention of the raw water supply charge rate acquired from Sungai Muda when the Sungai Muda Water Supply Scheme was launched on November 9, 1973 (Media Statement By Dato' Ir. Jaseni Maidinsa, Chief Executive Officer, PBA Holdings Bhd (PBAHB) and Perbadanan Air Bekalan Air Pulau Pinang Sdn Bhd (PBAPP): Sungai Muda, There Is No Basis For Kedah To Demand Raw Water Charges From Penang). Penang has also made it public that if Kedah agrees to gazette and designate 163,000 hectares of Ulu Muda's rainforest as a permanent watershed forest, Penang will endorse Kedah in its demand for federal compensation to protect Ulu Muda. It is apparent that the state has consistently rejected Kedah's demands. However, in Penang's eagerness to respond to statements and pressure from the Kedah state government, PBAPP is seen to have made a mistake when it interfered in the affairs and challenged the sovereignty of the state of Kedah by proposing the establishment of Lembaga Lembangan Ulu Muda (Ulu Muda Basin Board) (UMBA), to manage the water resources of Sungai Muda in Kedah (Wan Mansor, 2021). This is true since the PBAPP is merely a water operator company and has no authority to discuss and make recommendations on the management of the water resources of other states. This incident gave the PBAPP a severe blow because it was thought to have focused less on the water dispute between Kedah and Penang and more on water politics with the Syarikat Air Darul Aman (SADA) in northern Malaysia.

**Figure (1): Map of Muda Dam**



Currently, 80% of the raw water used by Penang's water supply sector comes from Sungai Muda, even though only 44% of the water used by residents of Kedah comes from the same source (Media Statement from the

Office of the Deputy Chief Minister of Kedah Darul Aman Responding to the Statement Penang Water Supply Corporation (PBAPP) Dated August 23,2021 Titled 'Proposed Kulim Airport Project Should Not Affect Water Supply In Penang'). This shows that, despite variances and significant disparities in the functions and amounts of water used by the two states, Sungai Muda's raw water source is crucial to both Kedah and Penang. The cold war between Kedah and Penang over the utilisation of Sungai Muda's raw water resources has, in fact, generated confusion and has been a political talking point for an exceptionally long time. This is due to the fact that, up until this point, there has been no clear explanation or analysis of how raw water resources were developed in northern Malaysia in the past, which is seen to be closely tied to the current issue. The objective of this essay is to assess the degree to which the raw water source supplier of Sungai Muda, as a strategic element, had influenced the decisions and actions of the Kedah and Penang state governments between 1965 and 1985. Additionally, this article seeks to determine the degree to which problems and disputes regarding the usage of the raw water source from Sungai Muda, which is shared by Kedah and Penang, are connected to the historical development of raw water sources in northern Malaysia.

## **2. Literature Review**

There has never been previous investigation on the dispute between Kedah and Penang over the utilisation of raw water resources from Sungai Muda. However, Abdullah and et al. (2022) have mentioned the literature on the water supply arrangement from Sungai Muda involving Perlis and Kedah. They concluded that the two governments' relationship of tolerance gave Perlis "life" and a "lifeline" when the Kedah state government allowed Perlis to also collect raw water from the river between 1969 to 1978. Sungai Muda's significance to Kedah's water supply has also been described by Abdullah and Mohd Noor (2018). However, the emphasis on Penang is not made obvious, which gives this work the chance to add to the existing study. Researchers from a number of areas, including anthropology, sociology, economics, and history, as well as the environment and geography, have shown interest in the research on the Muda Dam or Sungai Muda. Researchers like Hill (2012) and Omar (1990) have studied the history of Sungai Muda. They concluded that Sungai Muda had contributed to improved irrigation and higher rice crop yields in northern Malaysia. However, the significance of the river as the primary source of raw water for



Malaysia's northern states was not mentioned in their work. They only paid attention to the long-term socioeconomic benefits of rice farming that Sungai Muda has brought to Kedah and Perlis.

### **3. Research Methodology**

This study is a historical research and uses qualitative methods. For this research to be objective in its historical analysis, several acts and processes, including heuristics, criticism, analysis, and historiography, have been used. The use of materials and primary and secondary sources helps to carry out the heuristic process. The researchers visited the Kedah/Perlis National Archives Branch, the National Archives of Malaysia, the Kedah State Chief Minister's Office, the Kedah State Public Works Department Office (JKR), and other locations to gather primary sources for the study. Secondary sources were obtained from the National Library of Malaysia, the Kedah State Library, and libraries of public institutes of higher education (IPTA) throughout Malaysia. The process of primary and secondary source criticism is then carried out by making comparisons with other materials, such as books, book chapters, journals, academic exercises, and so forth. This procedure is crucial for confirming the reliability of the sources used and weeding out any incorrect information about the topic of this research. The sources mentioned previously will be synthesised at this stage, leading to the study's conclusions. The writing of history, or historiography, is the last phase. In short, if historical research is refined using the procedures listed above, it can be put into practise.

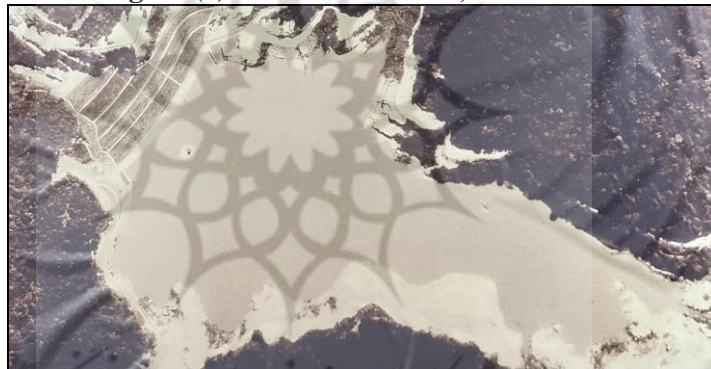
### **4. Findings and Discussion**

#### **4-1. Penang's Interest in Muda Dam**

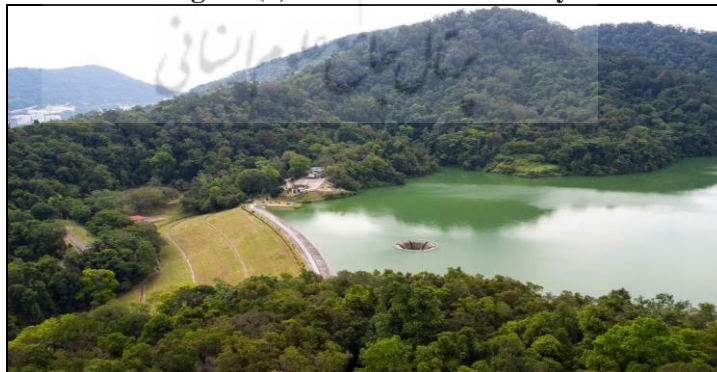
Following independence, Penang's state administration came to the realisation that the state's ability to function depends heavily on its ability to access reliable sources of raw water. It also acknowledges that the effectiveness with which the water delivery infrastructure was strengthened and expanded across Penang would determine the state's level of security and stability. The Itam Water Dam was constructed by the Penang state government beginning in 1957 and was formally opened at the end of 1962 (Wan Ibrahim, 2022:55). Although it did not ensure the distribution of continuous water supply in designated sites, the construction of this dam was able to meet the demand for water supply in the city of Georgetown until 1981 (City Council of Georgetown, 1966). Following that, Penang was

drawn to benefit from it, just like Kedah, as a result of the Muda Dam's construction and the potential of the Muda River. Penang took action in 1966 to employ Kuala Lumpur-based Binnie & Partners as a consultant for the water delivery project using the raw water source from Sungai Muda. The company is in charge of looking into, planning, and managing water supply-related issues in Penang as well as reporting to the state government on how well the water supply plans were working. The Penang state government received this company's report in 1967, which recommended the implementation of the water delivery plan in three phases. The plan is believed to be capable of producing 100 million gallons of water. It was estimated that the scheme could produce 100 million gallons of water (Federation Of Malaya, Annual Report Of The Public Works Department For The Year 1966).

**Figure (2): Itam Water Dam,1962**



**Figure (3): Air Itam Dam Today**



In relation to that, it was suggested that the Penang state government should request for a water supply loan from the Federal Government to put the Sungai Muda Water Supply Plan into action. Additionally, the Asian Development Bank (ADB), which provided a \$22 million loan, also contributed to the financing of this water delivery scheme. The first phase of this scheme costed \$42 million in total. However, in order to receive a ADB financing, the Penang state government needed Kedah's consent to gather raw water from Sungai Muda. It was also made very clear that the Penang state government should ask for the unrestricted, continuous usage of raw water resources from Sungai Muda for a set amount of time. The ADB loan would certainly not be successful if the Kedah state government forbade Penang from using the raw water source from Sungai Muda since Penang had not fulfilled the ADB's requirements (PKR (N2TM) W 37/121 Vol 8 (381)).

**Table (1): Information on Muda Dam, Kedah**

Dam	Catchment Location	Capacity	Year of Operation	Catchment Area	Usage
Muda Dam	Padang Terap Forest Reserve	169 million/m <sup>3</sup>	1969	984 km <sup>2</sup>	Domestic/industrial and agricultural water supply

Following that, on July 13, 1973, at the Finance Division of the Malaysian Treasury, the Penang state government conducted talks with the Federal Government and the Kedah state government to negotiate the state's request to utilise raw water from Sungai Muda through the Sungai Muda Water Supply Plan. The discussion involved the Secretary of the Penang State Government, Mr. Noh Abdullah; Kedah State Government Secretary, Datuk Zainal Abidin Haji Salleh; Kedah State Legal Adviser, Tunku Datuk Mukhtar; Penang State Legal Adviser, Mr. Abu Talib Othman; Director General JKR Water Supply Division, Mr. Chong Koon Kee and Solicitor of the Malaysian Treasury. The meeting began with an explanation of the tripartite agreement to be signed by the Federal Government, the Kedah state government and the Penang state government. The Penang state government indicated that this agreement was required in order to satisfy the requirements set forth by the ADB in MAL Loan Arrangement No. 4, which was a loan agreement between the ADB and Malaysia (PKR (N2TM) W 37/121 Vol 8 (432)). In fact, Penang admitted that they were in a desperate



situation and required the state of Kedah's approval in order to be able to extract as much as 8.5 m<sup>3</sup> (300 cusecs) of Sungai Muda's raw water resources after 1988, as long as there were no obstacles in the way, and for a specific amount of time (PKR (N2TM) W 37/121 Vol 8 (413)). Other issues, such as the costs associated with purchasing raw water from Kedah, were not listed and were not the subject of the meeting. If the Kedah state government objected, the ADB would not have approved the loan, which would be detrimental to Penang's future water supply industry. The Kedah state government did not at that time agree with the Penang state government's proposal, but it did guarantee that the flow of Sungai Muda water to Penang would not be obstructed. In hindsight, the tripartite agreement discussion should not have taken place because the representative of the Kedah state government lacked the authority to approve the agreement (PKR (N2TM) W 37/121 Vol 8 (413)).

The Federal Government also backed the Kedah state government's response, which rejected the Penang state government's proposal. The Federal Government also suggested that this matter be discussed at a higher level so that the ideas and opinions of all parties involved could be refined collectively before the final say could be given to the Penang state government. The Penang state government, however, disagreed with the Federal Government's and the Kedah state government's actions, arguing that the tripartite agreement discussion needed to be completed right away to speed up the long-delayed development of raw water resources. At the end of the meeting, the state representatives stated that they would forward all matters discussed to the state authorities for consideration (PKR (N2TM) W 37/121 Vol 8 (413)).

It is clear that the talks did not result in any concrete agreements, when Kedah and Penang decided against tolerating and instead chose to continue the conversation with their respective state administrations. It is clear that the Kedah state administration merely wanted the Penang state government to follow their decision and did not appear to have any issues with the problem at hand. The Penang state government, on the other hand, took a more assertive stance and essentially demanded that the Kedah state government grant their request.

#### **4-2.Sungai Muda Water Supply Scheme**

On November 9, 1973, Tun Abdul Razak, Malaysia's second prime minister, officially opened the Sungai Muda Water Supply Scheme implemented by Penang. Through this inauguration, it was made clear that the Penang state government placed a great priority on the state's water supply system's empowerment. It also demonstrated Penang's continued reliance on Kedah's state government to grant its request to use raw water source from Sungai Muda. From a different perspective, the launch of the Sungai Muda Water Supply Scheme was a major setback for the Kedah state government because it still had not granted Penang's request, despite assurances from the Kedah state government that the supply of Sungai Muda water to Penang would not be interrupted. At the same time, the Kedah state government also used the raw water source from the Muda Dam for another water supply plan, namely the Alor Setar Supply Plan Level III (Yusoff and Khalid, 1970: 1-20). On September 26, 1974, the Kedah and Penang state governments received an explanation letter from the Federal Government's Chief Secretary of the Treasury requesting that issues pertaining to the tripartite agreement be rectified right away. The Federal Government required the two states to come to an agreement, but they had not yet done so. Penang would not be able to receive loans from the ADB to carry out water supply projects if Kedah and Penang were still unable to come to an amicable agreement. Due to this, the Federal Government would pass a special law pertaining to the disputed agreement, and through this law, it would decide on the disputed agreement.

On Jun 21, 1975, the state governments of Kedah and Penang reached an agreement to form a framework for the purchase of raw water resources from Sungai Muda. This understanding would enable the tripartite agreement to operate as Penang expected it to, in order to strengthen its raw water supplies. The Kedah state administration received promises from the Federal Government and the Penang state government that matters pertaining to the border dispute between the two states would be resolved later. The two states were in a win-win situation as demonstrated by this, which brings to mind Kedah's transfer of Penang to the British East India Company (EIC). Several matters have been resolved between the Malaysian government and the ADB through the stated understanding, including:

- I. The ADB Loan Agreement aims to finance the Penang Water Supply Plan, which drew its raw water from Sungai Muda, Kedah.
- II. Only raw water from Sungai Muda, Kedah, which flows to the state border of Penang, might be taken by Penang.
- III. Penang must build the appropriate structures to stop the flow of seawater into the catchment area. A water pool, or "aqueduct," should be constructed in Sungai Muda in order to improve the amount of raw water reserves from that location for use in water supply projects in the future.
- IV. The Malaysian government would make sure that there was a minimum flow of 8.5 m<sup>3</sup> of raw water resources from Sungai Muda that would be used for the Penang Water Supply Plan as indicated and that future water supply projects would not be disrupted (PKR (N<sup>2</sup>TM) W 37/121 Vol 8).

In addition to the aforementioned agreement, the Kedah state government, the Penang state government, and the Federal Government specified a number of requirements that must be met in order to implement the Penang Water Supply Plan, including:

- I. The state of Kedah should make sure that raw water supply to the water supply project continued even after the ADB loan to the project expired in 1988.
- II. Without the consent of the state government of Kedah and the Federal Government, the state of Penang was not permitted to develop collaborative relationships between the public or private sectors to carry out water supply plans that would utilise the raw water supply source from Sungai Muda.
- III. The Sungai Muda flood mitigation costs would be disclosed by the Penang state government. However, the Malaysian Irrigation and Drainage Department should evaluate the situation before taking any further action (PKR (N<sup>2</sup>TM) W 37/121 Vol 8).

#### **4-3.Border Settlement between Kedah and Penang Under Act 325, 1985**

A memorandum of understanding (MoU) was signed in 1982 by the Kedah state government allowing Penang to unrestrictedly and within predetermined timeframes exploit raw water resources from Sungai Muda. After the Ampang Jajar Rantau Panjang dam was built, Penang transferred 10.88 hectares of land to Kedah through this MoU. In return, Kedah consented to relocate the state border to the centre of Sungai Muda so that

Penang might use the river's water within its own boundaries (Press Statement by YAB Tuan Lim Guan Eng Chief Minister of Penang and Chairman, Perbadanan Air Bekalan Air Pulau Pinang Sdn Bhd and PBA Holdings Bhd in Komtar, George Town on May 21, 2015). In fact, the decision to sign the aforementioned Memorandum of Understanding was influenced by the Federal Government's Fourth Malaysia Plan (RMK-4), which lasted from 1981 to 1985. The Federal Government sought to ensure that the long-term utilisation of the nation's natural resources was maximised and that the advantages of production from these resources were shared beyond regional and state lines in addition to the source state (Malaysia, Mid-Term Review of The Fourth Malaysia Plan 1981-1985). In one of his articles from 1977, the PBAPP Chief Engineer Lee Yow Ching suggested that several states work together to properly control water supply. Lee also recommended that Penang, Kedah, Perlis, and Perak form a water resource management organisation with the goal of discussing, allocating, and managing water resources so that each state could have a sufficient and affordable water supply (Lee, 1978:304-310). Due to the fact that each state manages its water supply differently, and that throughout the specified period water supply development was observed to be swift in the proposed states, this idea was unable to be implemented.

In retrospect, the Anglo-Siamese Agreement of 1869 served as the means of demarcating the states of Kedah and Penang. The agreement was signed by the Regent of Siam, who was also the Prime Minister of Siam, Chao Phya Sri Suriwongse Phra Kalahome, and the representative of the British Government, Thomas George Knox, the British Consul General in Siam. One of the arrangements made through the treaty was that as long as the British possessed Penang and the region next to it in Kedah, the Governor of the Straits Settlements would pay \$10,000 year to Kedah (Gullick, 1983:31-86). The areas on the mainland opposite Penang and bordering the sea on the west side, the right bank of Sungai Muda on the north side, the right bank of Sungai Kerian on the south side, and from the right bank of Sungai Muda to the east of Bukit Mertajam for the border on the eastern side, must all be recognised as parts of the British province of Kedah (Kamran and et al, 2020:264-287). To mark the eastern limit of the region that had been ceded, the governments of the Straits states and Kedah consented to place boundary bricks spaced apart by one brick each (Ahmad, 1957:9-10). The boundary stone, or terat stone, which stood when the Sultan of Kedah leased

Penang to the British, was the object of a second visit in 2015 by the Persatuan Sejarah Malaysia Kedah Branch (PSMCK). According to Wan Shamsudin Mohd Yusof, the chairman of PSMCK at the time, the *terat stone* marks the location of the border that divided Penang from Kedah, in accordance with the final agreement reached between the British, Siam, and Kedah on May 6, 1869. One of the most significant monuments in the state of Kedah is the terat stone, and as a result, the Kedah State Museum's Conservation and Monument Unit took the initiative to restore and preserve the monument because it reflects the standards of universal values that stand out in the development of art and science (The official portal of the Kedah Darul Aman State Museum Board, August 27,2019). It also demonstrates how the previously mentioned agreement served as the foundation for the realignment of the Kedah and Penang's state borders to the centre of Sungai Muda.

**Figure (4): Terat Stone or Boundary Stone when Penang was leased by the Sultan of Kedah to the British,1856.**





**Figure (5): Map Proposed delimitation Plan of the States of Kedah and Penang, 1982**



The Kedah and Penang (Alteration of Boundary) Act 1985 (Act 325) is referenced in the MoU and states:

An the Kedah and Penang (Alteration of Boundary) Act 1985 (Act 325) is referenced in the MoU and states:

An Act under Article 2 of the Federal Constitution to alter a part of the boundary between the States of Kedah and Penang.

WHEREAS it has been agreed between the State of Kedah and the State of Penang that part of the existing boundary between the said States be altered;

WHEREAS the Conference of Rulers has consented to this Act; AND

WHEREAS the State of Kedah and the State of Penang have expressed their consent to this Act by the Alteration of Boundary (Kedah and Penang) Enactment No. 3 of 1985 of Kedah and the Alteration of Boundary (State of Penang) Enactment No. 1 of 1985 of Penang;

BE IT ENACTED by the Seri Paduka Baginda Yang di-Pertuan Agong with the advice and consent of the Dewan Negara and Dewan Rakyat in Parliament assembled, and by the authority of the same, as follows:

1: This Act may be cited the Kedah and Penang (Alteration of Boundary) Act 1985 and will take effect on a date determined by the Yang di-Pertuan Agong after notification in the Gazette.

2: That part of the boundary between the State of Kedah and the State of Penang which runs along the Muda River is altered to one running along the centre line of the Muda River channel 6 Laws of Malaysia ACT 325 as the River flowed immediately before the commencement of this Act, the said alteration to the boundary being shown in the deposited Plans identified by reference to Gazette Plans Nos. PW 1000 to PW 1008 being the Plans:

(a) certified by the Director of Survey, Kedah/Perlis, and the Director of Survey, Penang, respectively as the approved and correct Plans of the boundary as so altered and the surrounding area; and

(b) dated and deposited in the office of the Director of Survey, Kedah/Perlis, and the Director of Survey, Penang, respectively.

(c) In the event of any change in the course of the Muda River due to the natural and gradual process of erosion and accretion, the boundary shall follow the changed course of the River along the centre line of the river channel.

3. That part of the State of Penang which comprises:

(a) the Muda River extending from the centre line of the Muda River channel to the north bank of the River; and (b) the area shaded green in the deposited Plan No. PW 1003 referred to in section 2;

(hereinafter in this Act referred to as "the said area") shall, in consequence of the aforesaid alteration of the boundary-- (aa) cease to form part of the State of Penang and the State Authority of Penang shall relinquish and cease to exercise any sovereignty over the said area, and all powers and jurisdiction of the State Authority of Penang and the Legislature of the State of Penang in and in respect thereof shall come to an end; and

(bb) form part of and vest in the State of Kedah, and the Ruler of the State of Kedah shall exercise sovereignty, power and jurisdiction in and in respect thereof, and the Legislature of the State of Kedah shall exercise its legislative power in and in respect thereof (Act 325, Kedah and Penang (Alteration of Boundary) 1985).

**Figure (6): The State Boundaries of Kedah and Penang Today**



The realignment of Kedah and Penang's state borders in 1985, according to Wan Shamsudin, created a distinct border between the two states. In contrast to the initial demarcation, which was placed outside the river, the 1985 boundary, shown in Figure 5, was in the middle of Sungai Muda. This instance demonstrates how the two states joined forces to make it easier for Penang to acquire raw water resources from Sungai Muda. The cooperation can be contrasted to the current situation, in which Kedah and Penang are squabbling over the extraction of raw water resources from Sungai Muda and are looking for an opportunity to initiate a conflict. The Kedah and Penang (Alteration of Boundary) Act 1985 (Act 325) makes it clear that Kedah has the legal right to claim Sungai Muda as its own. This circumstance right away acknowledges the state of Kedah's sovereignty after it had previously received a "reprimand" from the PBAPP in the most recent case involving Sungai Muda. If both states are aware of the agreement that was previously signed, which appears to have linked them in a "brotherhood" relationship, the conflict should not arise. Early in the 1980s, it was observed that Penang's economy was growing successfully and sustainably (Ooi,2009:54). Beginning in the 1970s and continuing into the middle of the 1990s, the state's industrial sector saw considerable expansion (Said,2019:149-198). At the same time, this article also notes that the MoU signed by the two states influenced the current water dispute (and political strategy around it) between Kedah and Penang. This is so because Kedah observes Penang's economic success today as a result of the "life" they provided through the usage of raw water resources from Sungai Muda. Kedah also had to forgo its local logging operations and incur costs to maintain Sungai Muda in order to protect Ulu Muda's water source from contamination. This circumstance is one of the key reasons Kedah is currently requesting payment from Penang for the usage of its raw water resources.

## **5. Conclusion**

In conclusion, this study clearly demonstrates that Kedah and Penang had worked effectively on issues pertaining to the usage of raw water resources from Sungai Muda from 1965 to 1985. In the time frame given, the state governments of Penang and Kedah were also seen to have played an important role in empowering the water supply sector in their respective states. Sungai Muda is truly unique because it is controlled by two different states, has differing barrage heights, and is owned and managed by two

different organisations, notably the PBAPP and the Kedah State Water Resources Board (LSANK). It is also managed by two different ministries, namely the Ministry of Environment and Water (KASA) through the Malaysian Irrigation and Drainage Department (JPS) and the Ministry of Agriculture and Food Industry through MADA. It is used for commercial activities as well as for domestic water supply. The discrepancy regarding the demand for payment of raw water resources between Kedah and Penang has become an issue that has received widespread attention in Malaysia. This article makes it evident that Kedah has no legal justification in expecting payment from Penang for using Sungai Muda's raw water resources. The reason for this is that Kedah and Penang have not come to a clear understanding or agreement over who will pay for the use of Sungai Muda's raw water resources. It demonstrates that the disagreements and conflicts Kedah has raised have their origins in water politics, specifically the political aspects of the availability of water resources in both states, which are further manipulated by the differences in sovereignty and governance (Mianabadi and Amini, 2019:54-86). This study also demonstrates Penang's attempts to approach Kedah and ask for authorisation to exploit Sungai Muda's raw water supplies. The efforts made have also refuted various claims made by Penang that it had been utilising Sungai Muda raw water sources in its territory without Kedah's consent for a long period of time. If these two states wish to settle the dispute, some recommendations include establishing a transparent and equitable agreement. A few suggestions include, the Federal Government and the state government of Penang to provide compensation to Kedah for maintaining and managing Sungai Muda for a long time; to cooperate in the care of Sungai Muda; to establish a Sungai Muda management committee involving a combination of various water resources expertise; and to ensure the sustainability of Sungai Muda, which appears to be increasingly threatened by the current state of modernisation. The research has provided important insights regarding the causes of the argument and the issue of the unresolved raw water resource use dispute between Kedah and Penang. Additionally, it has created a forum and possibilities for debates on those problems and controversies that no prior research had brought up.



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