

# An Anaylisis of Water Supply Cooperation Among Northern States in Malaysia, 1965-1981

Mohd Firdaus Abdullah<sup>1,\*</sup>, Arba'iyah Mohd Noor<sup>2</sup>

<sup>1</sup>History Section, School of Humanities, Universiti Sains Malaysia (USM), Penang, Malaysia.

<sup>2</sup>History Department, Faculty of Arts and Social Sciences, University of Malaya (UM), Kuala Lumpur, Malaysia

\*Corresponding author. Email: [mohdfirdaus\\_abdullah@usm.my](mailto:mohdfirdaus_abdullah@usm.my)

## ABSTRACT

The state of Kedah, Perlis and Penang are the northern states of Malaysia. Perlis and Penang experienced a severe lack of raw water resources for use in domestic water supply plans after independence. The construction of the Muda Irrigation Plan in 1969 has provided an excellent raw water source for Kedah for domestic use. The situation has attracted the attention of Perlis and Penang. Both states have sought permission from Kedah to use raw water resources from the Muda Irrigation Plan. Therefore, this paper examines the initial Agreement of Water Supply Between Penang and Kedah agreement between Kedah, Perlis, and Penang on the use of raw water resources from the Muda Irrigation Plan. This study adopted the descriptive research design.. These items were then described and analyzed using a content analysis approach in order to draw conclusions and generalizations. The primary and secondary sources are obtained from the National Archives of Malaysia, Lembaga Sumber Air Negeri Kedah, Wisma Darul Aman, the Kedah Public Works Department (JKR) and other. The findings show that water supply issues arising between the states of Kedah, Perlis and Penang today is related to the cooperation of water supply in the state from 1965 to 1981.

**Keywords:** Agreement, Kedah, Penang, Perlis, Water Supply, Muda Irrigation Plan, Malaysia.

## 1. INTRODUCTION

The issues and problems of water supply between Kedah, Perlis and Penang have not reached a settlement until now. The conflict between Kedah and Penang on the issue of claims for raw water resources obtained by Penang via the Muda Irrigation Plans or better known as the Sungai Muda is still ongoing and there is no settlement between the two states. This issue has shown that relations between the states of Kedah and Penang are cold since both states do not want to resolve the issue properly and prudently. The two states take the approach by issuing contradicting statements through mainstream media such as newspapers, television, radio and others. This situation worsens when the opposition party administration gains control of Penang yet Kedah is dominated by Barisan Nasional (BN) which formed the federal government at that time (Mahmood, 2017). Through several previous Chief Ministers such as Datuk Seri Azizan Abdul Razak, Dato 'Seri Ahmad Bashah Md Hanipah, and Dato' Seri Mukhriz Tun Dr Mahathir, Kedah often issued statements on the demand for raw

water supplies obtained through Sungai Muda to the Penang Government.

For example, Datuk Seri Azizan Abdul Razak entered into a RM 20 million profit from the sale of water to Penang in Budget 2013 although it is uncertain whether Penang at the time agreed or vice versa with the proposal submitted by the Kedah Chief Minister (Sinar Harian, 2012). Even Dato' Seri Mukhriz was observed to hold promising discussions with the Penang Government on the payment of raw water resources obtained from the Muda Water Programme. After GE14, the Kedah Government is observed to not place significant focus on this issue as before (Berita Harian, 2018). The issue of water demand for raw water over Penang has its own significance to the Kedah Government. This is because if Penang pays the raw water source obtained from Sungai Muda, the payment will increase Kedah's revenue which has been facing severe financial difficulties due to the ineffective management and administration (Berita Harian, 2018). Penang has never paid for the raw water resources from Kedah and only pays a land lease totalling to RM

10,000 a year to Kedah to date. Furthermore, the Kedah Government is seen to be punishing Penang through its plans to increase land lease payments to RM 100 million a year (Utusan Malaysia, 2015).

But, Penang said Kedah had no right to demand the payment of raw water resources obtained from Sungai Muda. This is because Penang states they only extract raw water resources from Sungai Muda in Penang as Sungai Muda is a river flowing naturally to Penang and Kedah does not pump raw water to Penang. Penang was also seen scrapping raw water from Sungai Muda for 44 years because they claimed no agreement, contract or charge was sealed between Kedah and Penang before. Referring to the opening of the Sungai Muda Water Supply Scheme on 9 November 1973, Penang indirectly claimed not to mention the need for Penang to pay the raw water source obtained from Sungai Muda. Through statements issued by the Penang Government, they are seen to be very confident in denying the claims made by Kedah during this time (Press Statement by Dato 'Ir Jaseni Maidinsa). Indeed, the water issue between Kedah and Penang is seen to be highly regarded in the political stage and the development of the country's academic world.

Until now, Perlis continued to receive raw water from the Muda Irrigation although the last time they had to pay in 1998. This situation had led to a revenue loss of water because the water supply is indeed a business over the years. Kedah Government through Lembaga Sumber Air Negeri Kedah have been trying to find a way to make Perlis pay back source of raw water for their acquired through a series of meetings held today (LSANK 600-7/2/2). Although the issue of water between Kedah and Perlis did not receive extensive coverage by the media of our country, but through the actions undertaken by the Kedah Government shows they are very serious to resolve the water issue between Perlis.

Through the issues raised at the top, the issues pertaining to the water supply are seen as current issues which need to be urgently addressed yet are still not solved till today. The management of water supply facilities in Malaysia is located under the state government's management but the federal government is seen to have its own autonomy on the supply of water to every state in Malaysia. The Federal Government has the power to enforce laws and regulations on water supply throughout Malaysia. The Federal Government can also plan and implement water supply plans through cooperation between state governments (Abdullah & Mohd Noor 2017). Today, the Muda Irrigation Plans are observed to supply 80% of raw water resources to Penang, 65% of raw water resources and raw water resources to the Bukit Pinang Water Plant in Kedah (Utusan Malaysia, 2016). This shows that the raw water resources of the Muda Irrigation Plans are critical to the

three states to be processed for domestic consumption and economic sectors in the state. The various issues and problems posed to the view have confused all parties about the real situation in Kedah, Perlis and Penang. Many questioned the truth of the water sale issue between Kedah and Penang. Is there a water agreement between Penang and Kedah or before? What is the relevance of water supply issues and issues affecting Perlis, Kedah, and Penang with previous events? Through the stated statement, this research aims to provide a detailed understanding of the water supply issues in Kedah, Perlis, and Penang that took place over the years. This is because this research will examine the relevance of past events and actions with the current water supply issues in Kedah, Perlis, and Penang. This should be highlighted so that new views on the issues can be communicated to all those who are interested in addressing water supply issues in the listed states. In addition, this research will also highlight the new side of the Muda Irrigation Plan. This is because many previous studies only focus on agricultural purposes exclusively. The past research on The Muda Irrigation Plan does not discuss the connection with domestic water supply. According to Hill (2012), Ibrahim and Siwar (2012), Ibrahim (1991) and Omar (1990) have focused on the relation between the development of paddy in northern state in Malaysia. Even, the research on the development of water supply in Malaysia is very focused on the issue of water supply agreement between Malaysia and Singapore before and after independence. According to A. Rahman Tang (2013) (2014), Padzil (2007) Abdan and Hussin (2011) have carried out research on the issue of water supply agreement between the two countries. This situation shows that the issue of water supply agreement between Malaysia and Singapore is the most interesting research topics in this country though there are still issues of water supply agreements in several states that have not yet been studied and analysed. However, several researchers such as Abdullah and Mohd Noor (2017) (2018) (2019), Poniah (2010), Moo and Joseph (2018) have carried out research on water supply in Kedah, Perlis and Kuala Lumpur. Although the issue of water supply agreement between the states of Kedah, Perlis and Penang were not discussed in the research stated, it is seen very helpful to give an initial overview of relevant research. Through this research, will highlight the new side of the Muda Irrigation Plan that function to provide raw water to Perlis and Penang through an agreement signed. This research can be used as a reference to the academic world, the state government, government agencies, private sector or otherwise and to increase research on water supply in Malaysia.

## **2. THE BACKGROUND OF WATER SUPPLY DEVELOPMENT IN KEDAH, PENANG AND PERLIS BEFORE 1969**

The states of Perlis and Penang are part of Kedah before the separation from this state (CO 716/1). Thus, the development of water supply in Kedah at the early stage automatically represented the development of water supply in Perlis and Penang. Kedah has 370 rivers which play a role in supplying water to the state for a long time (Utusan Malaysia, 2016). It was noted in history that Kedah received the introduction of modern water supplies from British at a later time following the administration of the Unfederated Malay States (NNMTB). The delays are seen as not a deficiency but an advantage that the development of water supply in Kedah which has become wider and independent compared to other states (Abdullah & Arba'iyah 2019). The development of water supply in Kedah is seen as a source of dependence on natural rivers, artificial streams, canals, wells, water on a hillside, rainwater, untreated modern water supply, treated water supply, and underground water supply.

The early settlement in Kedah is believed to have originated from Sungai Qilah or known as Sungai Babur at that time (Buyong Adil, 1950). Sungai Babur is now better known as Sungai Merbok which is located in Sungai Petani, Kedah. The advantages found in Sungai Merbok are that it provides good water supply and food resources which have pioneered the emergence of early settlements in Kedah and the formation of political units at the site. The formation of political units in the area has created a ruler and governing hierarchy. The King and the Sultan were at the highest level while the people and servants were at the bottom of the hierarchy. As the government is responsible for maintaining the welfare of the people, the facilitation of obtaining water supply is seen as an important part of a traditional Malay government at that time. The government will choose a nearby settlement with a good source of water supply to ensure that the welfare of the people under the government is maintained and preserved. In addition, it is of the government's interest to provide such facilities since rulers are seen as a major contributor to the economic, military, and administrative aspects of a traditional Malay Kingdom. To avoid the instability and emergence of other problems to the government, the government should provide good living facilities to residents from time to time (Abdullah & Mohd Noor 2017).

The mastery of the environment has become the basis for constructing artificial rivers constructed in conjunction with natural rivers. Water from natural rivers will flow to the artificial streams and form new rivers that can be used by residents to source water supplies. Referring to the Al-Tarikh Salasilah Kedah manuscript, one of the earliest evidence showing the

construction of artificial rivers was identified in the reign of Kerma Emperor who was commanded to dredge a river from a place called Batang Pasir through the Arung-Arungan City and then to the sea. The river is finally named Sungai Kuala Muda which located in Kuala Muda district today. The development of paddy crops requires good water irrigation. Although the basic construction of the artificial rivers is described as irrigation, it helps the residents to obtain water for their daily use (Mohd Arshad, 1968).

Sungai Perlis is seen as the earliest location of population development and settlements in Perlis when the 15th Sultan of Kedah, Sultan Dhaiuddin Mukarram Shah I (1661- 1687) built the Tebing Tinggi port as the centre of Kedah at this time (Dewan Budaya, 1994). The selection of the location emphasises the importance of water supply in the development of life at that time. Not explaining the way and the actual procurement of water supply, but residents in the location will use the water supply through Sungai Perlis for domestic purposes. Due to the strong influence of Kedah on Perlis, the development of the water supply system in Perlis mirrors the development of water supply in Kedah. For instance, with the development of paddy cultivation in Perlis, Sultan Dhaiuddin has ruled to construct a canal from Sungai Perlis bank at Bukit Nasi Sebungkus to the banks of Sungai Kedah and eventually to Anak Bukit. Residents living near the canal have the advantage of using the water source for their domestic activities. With Sungai Perlis becoming the dependence of the people on water supply, it has led to the development of towns in Perlis such as the Kuala Perlis town and the city of Kangar (Dewan Budaya, 1994).

The arrival of the colonialists has introduced a water supply imperialism in Malaya state. Pulau Pinang was the first state to acquire modern water supply in 1804 following the British's interest in Penang. At that time, Penang had a total population of 10, 000. The British used labourers consisting of prisoners to construct aqueduct to allow the process of raw water resources from the mountainous areas to be channelled to urban areas. Water was constructed along the road in Penang city so water supply was easily obtained by the target group at that time. This aqueduct water supply system has been replaced by the "cast iron man" system in 1877 and this system was recorded to be used in Penang only. The current water supply is coming entirely from untreated water sources and channelled directly to the target group as previously stated (Malaysia Water Industry Report, 1995).

In Perlis, among the initial actions taken by the British to develop the water supply facility in Perlis can be referred through the State of Perlis, Annual Report for the Year A.H. 1389 (9th June, 1929 to 28th May 1930). At present, it is stated that the water supply project in Arau and Kangar was fully completed in

November 1927 and cost \$ 227,700. This water supply is an untreated water supply and is derived from a spring source of limestone hills nearby and groundwater as well as water from the nearby caves. Through this water supply plan, 95 000 thousand gallons of water can be discharged daily and meet the demand at that point. The introduction of modern water supply in Kedah was traced in 1915 when Bukit Wang Water Plant and Bukit Pinang Water Plant in 1931 were built to process clean water supply to the population (S. E. 1091-1355). The construction of the watertreatment plant was seen to provide access to a water supply to the people of Kedah and to reduce water-related disorders such as cholera and dysentery which were assisted with modern treatments (R. C. Ps. 64-1946). The Report of The Medical Department of Kedah And Perlis 1936 stated that the cholera epidemic has not been reported for 10 years which demonstrates that the implementation of domestic water supply plans by the British is capable of preventing the spread of the disease mentioned in Kedah (Report of the Medical Department of Kedah and Perlis, 1936).

After the independence of Malay Federation, the Kedah state continued its water supply development plan as various water supply plans such as Alor Setar Stage I Water Supply Plan, Alor Setar Stage II Water Supply Plan, Sungai Petani Water Supply Plan were implemented (Abdullah & Mohd Noor, 2018). Penang also has several water supply plans such as Bukit Toh Alang Water Plant, Bukit Mertajam Water Plant, Supply Plan on Pulau Jerejak, and Pulau Aman and others (Public Work Department, 1964). All the implementation and planning of water supply plans throughout Malaysia were then under the responsibility of the state and the Public Works Department (JKR) Division of Water in their respective states.

Between 1957 and 1969, Perlis faced a lack of raw water resources for domestic and economic use. Although some water supply planning plans formulated by the Perlis Public Works Department (JKR) in 1965 were found, the plans often fell through which can be attributed to the problem of raw water scarcity in Perlis as this problem remained unsolved. In fact, Perlis JKR was observed to have failed in implementing the water supply development plan due to their limited authority and lack of experience in the development of water supply as well as no expertise in planning large-scale water supply plans. This is further compounded by the location of the Perlis JKR headquarters located in Alor Setar, Kedah, which is seen as unable to provide a change in the water supply development landscape of Perlis (Public Works Department of Perlis, 1990).

### **3. RESULT AND DISCUSSION**

#### ***3.1. The Muda Irrigation Plans/Muda Dam Strategy***

The Muda Irrigation Plan was introduced in 1969 which aimed at increasing rice production and supplying water supply in Kedah. To build this irrigation, the Kedah Government has applied for a loan from the World Bank to finance part of the construction of the irrigation mentioned. The World Bank has approved a loan of US \$ 45 million to the Kedah Government. Through the amount stated, it was sufficient to finance part of the Muda Dam constructs. Some of the dam's construction costs will be borne by the Kedah Government (Ibrahim & Siwar 2012). However, based on a report issued by MADA, it did not specify the amount of expenditure incurred by the Kedah Government in financing the construction of this dam. However, through the World Bank-approved loan volume, this construction plan has cost considerably and the actions taken by the Government of Kedah to apply for loans from the Federal Government have alleviated their financial burden in the construction of the dam. Through this plan, the Muda Dam has been built and was an excellent irrigation system which provided good water resources to paddy crops in the state (Omar, 1990). The Muda Irrigation Plan involves an area of 126,155 hectares, covering 105,851 hectares in Kedah and 20,304 hectares in Perlis. The Kedah JKR Water Division feels that Sungai Muda has the potential to supply good raw water resources and acts to build a raw water reservoir centre in Nami. Through the stated reservoir, the Catchment Area will be measured and set to provide a good raw water source.

Thus, Sungai Muda associated with the Sungai Pedu is used as the Catchment Area. The dams are built on the specified location with hydro-electric powerhouse. Raw water sources were moved to Padang Terap river and subsequently processed through the Padang Terap Water Plant and used to meet the demands of the water supply plan in Alor Setar (Report On The Development of The Alor Star Water Supply September 1962). The Kedah Government's effort to build the Muda Dam for the stated purpose has helped improve water supply performance in Kedah. The increase of raw water supply through the Muda Dam has been a fun process for the production of water supply which was previously faced with restricted raw water resources. Therefore, Kedah Water Division JKR is no longer faced with the problem of shortage of raw water resources as raw water resources from the Muda Dam will be used for water supply processing in Kedah.

The construction of the Muda Irrigation Plan actually records its own history as it is the first dam built in Kedah. The construction of the dam shows that the Kedah Government is no longer overshadowed by

the British strategy in the implementation of water supply plans in Kedah. The construction of the dam shows that the Kedah Division of Water Division began exploiting the advantages of raw water supply resources in Kedah. With the raw water source from the Muda Dam, raw water sources used are more secure and safe than the use of raw water sources from major rivers in Kedah. This is because the specified dam is a known sanctuary location by the people of Kedah. Through the stated circumstances, it can preserve the quality of raw water resources in the dam as described and improve the quality of raw water resources before being processed and distributed to the population.

The advantages of the Muda Irrigation Plan are that it attracted Penang and Perlis to utilise the raw water resources for domestic water supply planning purposes in their respective states. Penang is faced with problems to provide water supply facilities in Penang. This is due to the lack of rain catchment area which has led to the slow implementation of water supply plans in Penang after the Independence of the Federation of Malaya. Even in 1958, Penang had sought assistance from Kedah to obtain raw water supplies from Sungai Kechil, Kedah to a water reservoir at Bukit Pachor Pulau for the supply of water to the southern part of the state (Public Work Department 1958). This incident shows that Penang is indeed dependent on raw water resources from Kedah after independence and this situation has prompted Penang to obtain water through the Irrigation Plan afterwards.

After independence, Perlis was opted for another alternative by obtaining raw water resources from underground water sources. Excavations started in the rubber plantation area of Kampung Paya, Kangar. Once dug up to 157 feet, it is found that the area contains limestone content, thus, excavations was discontinued. Subsequently, excavation continued with the diamond drill method but during the excavation process, the damage to the diamond drill equipment was due to the location of clay and fine sand. This effort failed despite Perlis trying to find other alternatives to develop a water supply system in their state (Khalid, 1967). The state of Perlis is very much interested in the advantages of raw water resources from the Muda Irrigation Plan. Hence, Perlis is seen to maintain a close relationship and cooperated with Kedah to obtain the raw water source specified for the change in water supply facilities in the state of after that.

### ***3.2. The Initial Agreement of Water Supply Between Penang and Kedah***

In 1966, Penang appointed Binnie & Partners from Kuala Lumpur as water supply engineering consultants to plan water supply plans from the Muda Irrigation Plans (Public Work Department, 1966). The company has provided a report to the Penang Government in 1967

to implement a three-stage water supply plan that could produce 100 million gallons of water through Muda Dam. For that purpose, the Penang Government is advised to apply for a loan from the Federal Government to implement a water supply plan. The plan also received a loan of RM 22, 000, 000 from the Asian Development Bank (BPA). The total water supply expenditure amounted to RM 42, 000, 000 in the first stage. However, to obtain a loan from BPA, the Penang Government should seek the permission of the Kedah Government to use the raw water resources from Sungai Muda without any restrictions and limitations of time. If the Kedah Government does not allow it, the loan will not be approved and it will be difficult for the Penang Government to develop a water supply plan at the stated location (PKR (N2TM) W 37/121 Vol 8 (413))

The Penang Government held a meeting with the Federal Government and the Kedah Government on 13 July 1973 at the Finance, Treasury Division of Malaysia. The meeting discussed Penang's intention to use raw water resources from the Muda river to implement the Muda Water Supply Plan. The Penang Government has presented a Tripartite Agreement to the Kedah Government and the Federal Government. In the agreement, the Penang Government has outlined several requests such as the quantity of raw water resources of 8.5 m<sup>3</sup> (300 "cusecs") from Sungai Muda after 1988 to be guaranteed by the Kedah Government. However, other sources such as raw water source fees obtained from the Kedah state were not immediately stated and not emphasised in the meeting. The Kedah government disagreed with the Penang Government's request and assures that the flow of water from the Sungai Muda to Penang is not blocked and the Tripartite Agreement is not in the connection of this meeting as the Kedah Government's representative has no mandate to approve the agreement. Overall, the stated meeting did not resolve the issue faced by the Penang Government as the Kedah Government did not approve the request of the Penang Government through a Tripartite Agreement. Even representatives from the Kedah Government have chosen to bring the issues outlined in the discussion with the Kedah Government administration. The Kedah government did not demonstrate any problems with the request of the Penang Government. But, the actions of the Penang Government to urge the Kedah Government caused cold relations between the two states. The Penang government is desperate because it requires the approval of the Kedah Government and Federal Government in the use of raw water resources from Sungai Muda (PKR (N2TM) W 37/121 Vol 8 (413)).

On 9 November 1973, Tun Abdul Razak officiated the Muda Water Supply Scheme. Through this inauguration, the Penang Government was keen to develop water supply facilities in Penang. Through the events mentioned, the Penang Government was seriously seeking permission to use raw water resources

from Sungai Muda. This situation actually gave a great blow to the Kedah Government because before, they did not give clear cooperation with the Penang Government's request to allow Penang to use the raw water source from Sungai Muda. On 26 September 1974, the Secretary-General of the Federal Government Treasury had acted in writing a directive to the Kedah Government and the Penang Government for matters relating to the "Tripartite Agreement" to be resolved immediately. This is because if the Kedah Government and the Penang Government are still unanimous in the deal, the loan from the BPA cannot be issued as no guarantee is given to BPA from Penang. The Federal Government has the power to draft special laws relating to relevant agreements and the law will determine the decision on the relevant agreement. Based on the revision made on draft 4, on 21 June 1975, the Kedah Government and the Penang Government have agreed to sign a Tripartite Agreement (PKR (N2TM) W 37/121 Vol 8 (413)). Under the agreement, several matters were clearly agreed such as a loan agreement from the BPA aimed at financing the Penang Water Supply Plan using raw water sources from Sungai Muda Kedah, Penang which only allowed Penang to extract raw water from Sungai Muda which flowed to the border areas of the island of Pulau Pinang only and the Penang Government will ensure a minimum flow of 8.5 m<sup>3</sup> of raw water resources from Sungai Muda to be used for the Penang Water Supply Plan (PKR (N2TM) W 37/121 Vol 8).

In addition to the above agreements, the Kedah, Penang, and Federal governments have outlined some of the areas to be followed in the Penang Water Supply Plan. One of the conditions is that the Kedah Government should ensure that the quantity of raw water supply channelled into the water supply plan continues even after the end of the BPA loan to Penang. Another condition is that the Penang Government is prohibited from having cooperation between the government or private sector to implement a water supply plan that will use the supply source raw water from Sungai Muda without the permission of the Kedah Government and the Federal Government as well. The Penang Government will issue flood cost of flood preparation along Sungai Muda which is also a condition stipulated in the agreement (PKR (N2TM) W 37/121 Vol 8).

In conclusion, an agreement was concluded between the Kedah Government, the Penang Government, and the Federal Government on the raw water resources obtained through Sungai Muda. With this discovery, this research solves the issue arising between Kedah and Penang which cannot be resolved well. Kedah claims that Penang has to pay the raw water resources from Sungai Muda should not arise because through the above agreement, there is no requirement that stipulates Pulau Pinang has to pay Kedah. Even Penang who claimed that there was no agreement between the Kedah

Government and the Penang Government was seen to be cautious in issuing a statement as an agreement was concluded between Kedah and Penang. Penang felt fortunate that the sealed agreement is in favour of their current counter-statement, stating that there was no need for Penang to pay for the raw water supply from Sungai Muda. Even Penang should revise the agreement as opposed to a statement issued by Penang today that they only use raw water supplies from Sungai Muda flowing from their territory while through the process of the agreement, they work hard to get the permission of the Kedah Government to use raw water resources from Sungai Muda. This shows that although the raw water source from Sungai Muda flows into the territory of Penang, the source is absolutely indispensable to the Kedah state without any disagreement.

### ***3.3. Water Supply Agreement Between Kedah and Perlis***

Compared to Penang, the process of water supply agreements between Kedah and Perlis is smooth without any coercion and the subsequent cold relations. The partnership between the Kedah Government and the Perlis Government in the water supply plan in Perlis is identified in 1969 after Perlis sees the Advantages and Advancements of the Muda Irrigation Plan in Kedah to help Perlis acquire raw water resources for water supply plans in Perlis. As a result, a meeting was held on 24 September 1969 at the Ministry of Agriculture and Cooperation in Kuala Lumpur which involves the Chief Minister of Kedah, Chief Minister of Perlis, Ministry of Agriculture and Cooperation, Perlis State Engineer, Perlis Drainage and Drainage Engineer (JPT), The Muda Irrigation Project Engineer, and many more (SUK Ps 510 SK 3). The meeting was aimed at discussing the problems faced by Perlis in developing water supply plans. Perlis intends to use 2 million gallons of raw water resources daily through the Muda Irrigation Plan and hoped that the Kedah Government and the World Bank agree with the request. The Kedah Government reacted well as the government agreed and accepted the proposals from Perlis (SUK Ps 510 SK 3 (35)).

On 28 October 1971, the agreement between the Kedah Government and the Perlis Government was officially sealed by outlining some of the conditions that the Perlis Government had to adhere to. The conditions stipulated that the Kedah JPT will supply up to 2 million gallons of water for the purpose of the Perlis water supply, subject to the consent of the World Bank for this action. It was also stipulated that JKR should provide untreated and treated water storage locations before being used for water supply in Perlis, JKR will bear all expenses during the Perlis water supply project, and JKR will be responsible and seek appropriate ventures in case of water resources disruption during the water supply project. Kedah recommends that in the event of

shortage and disruption of water supply, Perlis may use water through Sungai Arau immediately to avoid disturbance of water resources to be channelled in Perlis and Perlis is required to pay \$ 16,000 to the Kedah Government annually on the acquisition of 2 million gallons of water from the Young Water Plan (P.S.U (K) 690/1399).

The Perlis Government has agreed with the requirements of the Kedah Government as this is their first experience in implementing water supply plans involving cooperation from other states. Under the stipulated conditions, the Kedah Government has received benefits through this partnership as Perlis has to pay \$ 16, 000 a year for the water supply. Indirectly, these payments can increase the state's revenue and continue the ongoing development plans that will be implemented in Kedah. Through this partnership, the Kedah Government is seen to assist and provide exposure to Perlis to manage the water supply in the state in the future. After the official agreement was issued on 28 October 1971, the Perlis Government was seen to have initiated the initial work beginning in 1972 (SUK Ps 510 SK 3 (63)). The Perlis Government has appointed Consultant Sepakat Setia from Kuala Lumpur as a consultant for water supply to plan water supply plans in Perlis. The company is tasked with investigating, setting up, and supervising other important matters for the Perlis Water Supply plan and this is the largest project at that time which is fundamentally meant to supply 30,000 residents in Kangar, Arau, and other areas. The plan is estimated to swallow \$ 1.5 million and commended on 1 March 1972 (SUK Ps 510 SK 3 (63)).

#### **4. CONCLUSION**

Overall, water supply issues arising between the states of Kedah, Perlis, and Penang today is related to the cooperation of water supply in the state from 1965 to 1981. The issues of water were seen not be resolved till now. In fact, the issues raised have similarities to each other despite the issue of lack of water supply in Perlis is seen as an issue that has no solution and is also occurring in several other states in Malaysia. The stated issue is not a new issue. Indeed, in recent times, Perlis is facing a serious lack of water supply as the shortage of provisions and water supply equipment have not been exchanged. This research reveals Perlis do not comply with the water supply agreement that have been agreed between Kedah as they need to pay for raw water obtained from Kedah. It's showed Perlis had violated the agreement. The action by Kedah find a way to force Perlis pay is desirable because otherwise water supply is business. The revenue from the water can increase the income of the state

Meanwhile, this research is has addressed the water supply issue between Kedah and Penang. This is

because there has been a water supply agreement that was signed between the Kedah Government, the Penang Government, and the Federal Government. This research solved the problems that arise between Kedah and Penang which until now have not found a good solution between the two states. Claims from Kedah that Penang has to pay for their raw water sources should not arise. This is because, through the water supply agreement discussed earlier, there is no requirement that Penang should pay raw water resources to Kedah for a certain amount. This shows that denials made by Penang are indeed true and they act only in accordance with the mutual consent of the law.

However, Penang should revise the agreement as opposed to the statement issued by Penang today that they only use raw water sources from Sungai Muda flowing from their territory alone. This is because through the process of agreement, Penang is has exerted significant efforts to attain the Kedah Government's permission to use raw water resources from Sungai Muda. This shows that although the raw water source from Sungai Muda flows into the territory of Penang, the source is absolutely indispensable to the Kedah state without any disagreement.

With the availability of raw water supply from the Muda Irrigation Plan, various water supply plans have been implemented in Kedah, Perlis, and Penang. The implementation of the design of the water supply has provided various changes to three states which are observed in the rapid growth of the economic sector. In fact, the health of the people in every state was maintained through the water supply plan implemented at that time. With a good water supply, the housing sector is also seen to have grown rapidly. A good water supply offers many benefits and improves a country. This shows that water is the lifeblood of life. Lack of water supply will trigger ongoing polemics and deteriorate the established ecosystem.

#### **AUTHORS' CONTRIBUTIONS**

The contributions of each author are as follows conceived and designed the analysis, collect the data, contributed data or analysis tools, performed the analysis, and wrote the paper.

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