



## **OPENING SPEECH**

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MINISTER OF WATER, LAND AND NATURAL RESOURCES (KATS)**

**NATIONAL GROUNDWATER CONFERENCE 2019 (NGWC2019)**

**CONCORDE HOTEL, SHAH ALAM**

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Deputy Director General, Operation Division, JMG  
Chairperson of the Organizing Committee of the National Groundwater  
Conference;

Distinguished guests, senior government officials,

Ladies and Gentlemen,

A very good afternoon,

1. Firstly, my gracious gratitude to the organiser for giving me the honour to officiate the inaugural National Groundwater Conference this afternoon. I am very pleased to see among those here today are representatives from various stakeholders of Federal Authorities and State Authorities and also water-related industry players.

2. Water is a commodity of strategic importance and vital for the country's economic development. Malaysia receives abundant rainfall averaging **3,000 mm annually** that contributes to an estimated annual water resource of some 900 billion cubic metres. From this amount, about 43% returns back to the atmosphere through evaporation, 6% percolates into the ground and the remaining 51% flows as surface runoff. Much of it going underground and subsequently flowing into lakes and rivers and on to the sea.

3. Dams, pipelines and irrigation canals built over the years have diverted water from these same lakes and rivers to meet the demands of domestic consumption, industrial use and agricultural activities and also not forgetting the needs of life below water.

4. We have been blessed with sufficient water resources over the years. But now, we have become a country faced with seasonal shortage of potable water. Temporal and spatial variability of rainfall, coupled with high population densities and/or extensive agricultural activities in several states, have led to water demands exceeding the carrying capacity of the respective river basins. The situation has been further exacerbated by

resultant pollution affecting the ecology and the functional capacity of the aquatic ecosystems.

5. Considering these factors, we must now change the framework of our water industry and look for alternative solutions in order to ensure the adequacy and reliability of our water supply. This conference is expected to open our eyes to other source of raw water which is groundwater.

6. Groundwater is often seen as a reliable source of clean water that is available at or close to the point of consumption, making it an ideal source for meeting the demand for potable water. As groundwater is found under the surface, stored in a geologic formation called an “**aquifer**”, it is a hidden asset. Unfortunately, being a hidden asset, it is also out of sight and consequently out of mind.

### **Groundwater Resources and Sustainable Development Goals (SDG)**

Ladies and Gentlemen,

7. A study conducted by the Japan International Cooperation Agency (JICA) in 1982 showed that Malaysia has **groundwater reserves of five (5) trillion cubic metres**; of which 2.0 trillion cubic metres in Peninsular, 1.1 trillion cubic metres in Sabah and 1.9 trillion cubic meters in Sarawak. In order to develop groundwater in a sustainable manner, we need to conduct comprehensive studies on the groundwater availability occurring in the nation’s 189 river basins (89 in Peninsular Malaysia, 78 in Sabah and 22 in Sarawak), to determine the groundwater availability in each basin before extensive sustainable extraction can be done throughout the country.

8. Of the many groundwater studies undertaken by the Department of Mineral and Geoscience Malaysia (JMG), of noteworthy importance are the studies undertaken on parts of two groundwater basins, the first at Sungai Kelantan Utara and the second at Sungai Langat. The studies found that, in the Kelantan Utara basin, 509 MLD can be safely extracted per day, with 125 MLD currently being used daily. In the Sungai Langat basin, 45 MLD can be safely extracted daily and 19 MLD is already being used per day.

9. Under the 11th Malaysia Plan, JMG undertake groundwater assessments in five basins; namely Lembangan Sungai Muda in Kedah, Lembangan Sungai Selangor in Selangor, Lembangan Sungai Pahang in Pahang, Lembangan Sungai Kedamaian-Tempasok in Sabah and Lembangan Sungai Miri in Sarawak.

10. To preserve groundwater resources, the development of groundwater must follow science-based rules, such as knowing the groundwater budget of the river basin being targeted and a factor known as **Safe Yield**. These rules simply entail that groundwater **extraction should not exceed recharge** in order to maintain the groundwater resource. Moreover, in order to manage groundwater sustainably, **groundwater management must cover a wider spectrum such as water quality, environment, land-use, economy and even governance and social concerns**. Although necessary, sustainable groundwater management is complex and it requires extensive technical knowledge and strong commitment from all parties concerned. There are some new technologies that can be used for groundwater storing purpose such as Off River Storage (ORS), Underground Dam, Hybrid Of River Augmentation System (HORAS) and River Bank Filtration (RBF).

## Groundwater use

Ladies and Gentlemen,

11. Due to the abundance of surface water in the river systems, groundwater for potable or irrigation use has not been much exploited except in North Kelantan and some parts of Sabah and Sarawak. Most of the water requirements in the country – for domestic, industrial, and irrigation water needs, come directly from rivers.

12. It is estimated that groundwater constitutes less than three (3.0) per cent of the water supply in Malaysia, with the remainder sourced from surface water. Currently, the two states using groundwater in large amounts are Kelantan for its public water supply system; and Selangor, for its industrial use.

13. Now, let us compare our groundwater utilisation with other countries around the globe. Denmark has 100% groundwater utilisation, Austria 98%, Thailand 80%, China 78%, USA 50% but Malaysia less than 3%.

14. Why is this the case for Malaysia? Groundwater resources in Malaysia face many serious problems that relate back to the absence of an adaptive and comprehensive management regime. In a groundwater study by the Academy of Sciences Malaysia (ASM) in 2009, among the major issues that must be grappled with in groundwater management are as follows:

- Fragmented Policy, Legal and Governance Framework;
- Pollution;
- Lack of Sustained Research and Development;
- Manpower and Human Resources Issues;

- Resource Data Collection, Management and Dissemination; and
- Public Awareness and Stakeholder Participation.

14. It is therefore very clear that for Malaysia to make use of its vast amount of groundwater, these issues must be faced with and effective and sustainable solutions found.

15. I believe strongly that the prudent use of groundwater can meet the national water requirements while reducing the impact of drought in the urban and rural environments. It is anticipated that more groundwater will be used in urban and rural areas for domestic, agriculture and industrial needs.

### **National Water Resources Policy**

Ladies and Gentlemen,

16. In 2012, Malaysia launched the National Water Resources Policy which focuses on Water Resources Security, Water Resources Sustainability, and Partnership.

17. The security and sustainability of water resources shall be made a national priority to ensure adequate and safe water for all, through sustainable use, conservation and effective management of water resources enabled by a mechanism of shared partnership involving all stakeholders.

18. Despite the formal declaration and adoption of the National Water Resources Policy, its implementation to date has yet to gain adequate traction on a national scale. Only minimal and sporadic successes have been reported to date. Fragmented management, a legacy from the past,

still prevails at the national level and the situation in the states is no better with few exceptions.

19. The National Water Resources Study (NWRS) for Peninsular Malaysia (2000-2050) has recommended the construction of more reservoirs to meet future potable and irrigation water demands up to the year 2050 for Peninsular Malaysia, while recognising groundwater can be an important supplementary resource for isolated rural areas that are not served by the national water supply networks and for emergency use.

20. It may therefore be necessary to revisit the National Water Resources Policy and the National Water Services Commission, which was set up more than a decade ago. Any new water policy must take into consideration the use of groundwater and its integration into the water supply system. In this context, I have been given to understand that, in this Conference, there will be a specific session to discuss on groundwater governance and policy which subsequently will be presenting a draft framework for formulating a groundwater policy for the nation.

Development of groundwater resources for water supply should be placed high on the national agenda which must be supported by the policy, planning and management strategies. Groundwater has many potentials uses such as potable water supply, industrial use, and irrigation water as well as assisting in peat fire-fighting.

### **Legal framework**

Ladies and Gentlemen,

21. Under the Federal Constitution, water resource is a state matter, thus the role of the Federal Government is limited. They also have greater

jurisdiction over land and local government. The absence of a comprehensive regulatory and governance framework is probably the most pervasive problem facing groundwater utilisation in the country.

22. The shortcomings in the provision for safe and affordable water supply services has led the federal government to seek solutions in sharing the responsibility with the state governments in reforming the water services to be self-sustainable. The development of groundwater resources is a means to guaranteeing a reliable water supply.

### **Congratulate JMG**

Ladies and Gentlemen,

23. The Department of Mineral and Geoscience is the main government agency in the mapping, exploration and development of groundwater resources and the following could be incorporated into their responsibilities:

- i. To undertake systematic hydrogeological investigation and groundwater modelling works in every state at the basin level to assess each basin's groundwater resources potential as well as the resource's development including the management of groundwater resources via proper planning and best management practices;
- ii. To collaborate with the respective State Authorities, to identify and maintain especially during severe droughts and water crises, all existing groundwater sources currently available for use. State hydrogeological maps prepared by JMG showing the

distribution of existing wells should be utilized as reference for groundwater abstraction in times of emergency;

- iii. To collaborate with the respective State Water Authorities in implementing best management practices for the conservation and management of the resource so as to avoid causing major problems to human users and to the environment through adoption of proper groundwater management practices and putting in place an appropriate monitoring system; and
- iv. To establish a comprehensive central groundwater databank for the planning, coordination and management of groundwater resources and related activities.

24. In this regard, I would like to take this opportunity to congratulate and thank JMG for successfully developing tube wells for clean water supply in the water-stressed areas as well as in certain rural areas during the recent dry season.

## **Closing**

Ladies and Gentlemen,

25. Finally, I would like to once again say thank you to the organisers, the Ministry, Department of Mineral and Geoscience (JMG) as well as the Board of Geologists Malaysia (BoG), Institute of Geology Malaysia (IGM) for successfully organising this event. I would also like to convey my heartfelt appreciation to all the participants for making the time to attend and participate in this Conference.

I do hope that this inaugural conference will be the beginning of many more in the future as well be the catalyst for a better utilisation of our groundwater resource through sustainable practices so as to supplement existing sources of water supply.

With that I hereby declare this **National Groundwater Conference and Exhibition 2019 themed Groundwater – a Sustainable Strategic Commodity, officially open.**

Thank you