

## **The Royal Rainmaking**

Water scarcity is one of the most pressing issues facing our world today. The United Nations estimates that more than 40 percent of the global population live in conditions where there is shortage of water. In most of the agrarian countries where agriculture represents a significant source of GDP, the need for water consumption in the sector has inflated to more than 80 percent of the overall demand.

In Thailand, farming activities take up almost 70 percent of total land use. This requires a high amount of water supply, mostly for the agro-industrial sector. The result is a sporadic dry spell throughout the country. Coupled with high levels of deforestation over decades, the lack of rainfall intensifies aridity, especially during the dry season.

Having shown interest in science and technology at a young age before enrolling in the Faculty of Science at the University of Lausanne, His Majesty King Bhumibol Adulyadej employed his knowledge based on his vision to improve the living conditions of the people, especially for disadvantaged farmers who continue to suffer from shortages of water. In 1955, during a visit to the most remote areas in Thailand's northeastern provinces, His Majesty observed how weather conditions were cloudy, yet not producing any precipitation. The incident marked the beginning of artificial rain making, acknowledged by Thais as the 'Royal Rainmaking Project'. His Majesty had realised the feasibility of this project after conducting a series of relevant research on meteorology and weather modification.

The first experiment was conducted on 1 July 1969 under the supervision of His Majesty, with Mom Rajawongse (M.R.) Debariddhi Devakula, an expert in agricultural engineering, as an assistant. With the initial result being a success, in 2003 His Majesty was granted a patent from the European Patent Office for weather modification through the Royal Rainmaking technology.

Ever since the invention was introduced, it has gone through a series of transformations, enabling transfers of technological expertise and attracting cooperation from different actors with a common hope to enhance the efficiency and effectiveness of the artificial rainmaking process. In doing so, the following steps are employed: 'agitating' to activate cloud formation by using weather modification techniques; 'fattening' to activate the accumulation of cloud droplets, and lastly 'attacking' to initiate rainfall from the cloud.

The project later evolved into the Bureau of Royal Rainmaking and Agricultural Aviation under the Ministry of Agriculture and Cooperatives. The establishment manifests the technology's success and practicality in alleviating the water resource management crisis in Thailand. In addition to this, the project serves as a basis for providing technical cooperation to countries with the same desire to combat droughts and improve water management.

The success of artificial rainmaking drew global attention and brought in requests for knowledge sharing from several Asian countries. The calling has been pronounced as far as the Middle East, where farmers suffer from arid climates and extremely long periods of dry season. Jordan, experiencing a range of 20-200 millimetres of rain annually, has so far been the only country eligible for the operation due to its uniquely disadvantaged geography and climate conditions. The operation is expected to ease the side impact of climate change suffered by the country, which causes a decrease in precipitation from 15 to 60 percent per year.

Since its birth in 1969, the Royal Rainmaking project continues to alleviate drought problem in Thailand's rural area enabling farmers to harvest without disruption. The Royal Rainmaking Project was made possible through His Majesty's persistent efforts, talent, skill and most importantly, a sincere and genuine regard for his people and country.

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