

## Appendix 3

June 2003

# GIS@development

## The Asian GIS Monthly

### Dr Kaew Nualchawee A pioneer in GIS in Thailand



**Dr Kaew Nualchawee**  
Member, Executive Board,  
GISTDA, Thailand

It was at around 4 PM February 28, 2003 at AIT centre, Bangkok when I met Dr Kaew Nualchawee, Member, GISTDA Executive Board and Advisor to the Ministry of Science, Technology and Environment, Thailand. He is a popular and a highly regarded personality among the geo-informatics community in Thailand. During our discussion, a lady came to him and said, "Thank you, Dr Kaew. It is only because of your initiatives and efforts that we are working in GIS in this country". Very soon I realized that I was interacting with the father of GIS in Thailand. His life reflects some of the important moments of geo-informatics history in Thailand.

Dr Kaew belongs to a very simple family. His father was a teacher in a primary school. Despite having a rural and agricultural background, his father understood the importance of education and sent his children to school. Dr Kaew took full advantage of the opportunity and devoted much of his time to studies. After completion of his secondary education he went on to Chulalongkorn University and received a bachelor's degree in Physics.

After his graduation in 1964, he went to work for the Military Research and Development Center (MRDC), a joint program between the US Advanced Research Projects Agency (ARPA) of the US Department of Defense (DoD) and the Supreme Command Head Quarters of the Royal Thai Military in Bangkok. It was at this time that Dr Kaew realized the value of his physics background he gained from Chulalongkorn University because they match very well with the nature of work carried out at the MRDC. Here Dr Kaew had a first hand experience in remote sensing in one project: Advanced Multispectral Photographic and Infra-Red Test (AMPIRT) Project. The project was conducted in collaboration with Cornell University's Cornell Laboratory of New York, USA on photographic aspects and Willow Run Laboratories of University of Michigan, USA on infrared aspects of the project. Through this project, a full range of remote sensing activities were exercised and carried out, although they were not known as remote sensing at that time. The term "remote sensing" was adopted some time later in Michigan, USA.

In 1967, Dr Kaew was awarded Fulbright Scholarship to further his advanced studies at the University of Connecticut, Storrs, Connecticut. In 1968, Dr Kaew was awarded Master degree in Physics from the University of Connecticut, USA.

*In 1979, Dr Kaew joined the AIT as an Assistant Professor of Computing and Remote Sensing and Assistant to the Director of the Regional Computer Center (RCC) for Remote Sensing. In 1980, Dr Kaew established an academic course in Remote Sensing to be taught in the Computer Application Division of AIT.*

Upon arrival in Thailand in 1970, Dr Kaew joined the Applied Scientific Research Corporation of Thailand (ASRCT) in the position of an Experimental Officer (EO). It is at ASRCT where Dr Kaew got involved deeper in remote sensing and his stay here might be considered crucial for his decision for future endeavors. In 1973, Dr Kaew left for the US to pursue his Ph.D. program in Remote Sensing at the Department of Civil Engineering, Colorado State University, Fort Collins. At Colorado State University, Dr Kaew met with his predecessor, Dr Sathit Wacharakitti, who was already in the Ph.D. program in the Department of Forestry at the School of Natural Resources. Here, the two worked under the same academic advisor, Professor Dr Lee D. Miller. In the latter part of 1978, Dr Kaew completed his Ph.D. in Remote Sensing/Civil Engineering and came back to Thailand, despite the attraction of a green card and other welcoming distractions. He immediately, started assisting the National Research Council of Thailand (NRCT) on many committees under the National Remote Sensing Program that was just put in motion during that time.

In 1979, Dr Kaew joined the Asian Institute of Technology (AIT) as an Assistant Professor of Computing and Remote Sensing and Assistant to the Director of the Regional Computer Center (RCC) for Remote Sensing. In 1980, Dr Kaew established an academic course in Remote Sensing to be taught in the Computer Application Division of AIT. In 1982, with the assistance from the USAID and with the cooperation of the NRCT and the UN/ESCAP, AIT established the Asian Regional Remote Sensing Training Center (ARRSTC) at AIT to conduct remote sensing training and technology transfer to scientists and engineers from various disciplines from countries in Asia and the Pacific region. Dr Kaew was the first and only Director of the ARRSTC from 1982 to 1987 when ARRSTC was transformed into an academic program of AIT called Natural Resources Development and Management Program (NRDM Program) in which remote sensing and GIS were given main emphasis and other natural resources and environmental courses were brought in to use RS/GIS to help solve problems posed by scenarios. The NRDM Program has undergone changes in its name a few times and now it is renamed to reflect a combination of technology, applications and research, as 'Space Technology, Applications and Research Program'.

It is not an overstatement to say that Dr Kaew knew remote sensing and GIS before anybody else in Thailand. Recalling his background in Physics, especially radiation theory that blends smoothly with fundamental basis of remote sensing, the work conducted at the MRDC (mentioned earlier) covered a broad range of mission planning, actual data acquisition, instrumentation, scenario setting, actual equipment operations on board the aircraft during days and nights through the three-year test period, etc. While working for the ASRCT, Dr Kaew was on loan to the NRCT to assist Professor Dr Boon Indrambarya, the Head of the Principal Investigation Team of the NASA's First Earth Resources Technology Satellite (ERTS-1) Program, aiming at spreading the technology of remote sensing from space in order to create more knowledgeable end users to use (buy) satellite data generated by NASA's satellite program.

*In 1985-86 AIT/ARRSTC staged a big GIS promotion by bringing well known GIS resource persons to AIT in a highly publicized International GIS Workshop. The event was honored by the gracious attendance of HRH Princess Maha Chakri Sirindhorn among some 30-40 participants who come from Asia and the Pacific region. This was practically the formal launch of GIS in Thailand.*

The establishment of the ARRSTC at AIT was based on long term strategic planning of those involved in order to transfer remote sensing technology far and wide. One of the reasons was that AIT was already well known as an autonomous regional institute of higher learning and was strategically and centrally located to serve people from countries of Asia and the Pacific region. The establishment of the ARRSTC during 1982 and 1987 produced several hundred trained scientists and engineers from countries of Asia and the Pacific region. The training was conducted in three terms each year, and each term was attended by about 20-25 students (trainees). In May Term of 1984, the ARRSTC had a great privilege and was honored to accept Her Royal Highness Princess Maha Chakri Sirindhorn in its training program. The interest of HRH Princess Maha Chakri Sirindhorn in modern, high technology of remote sensing stirred up wide spread interest, not only within Thailand but also throughout the Asia and Pacific region as well.

How GIS got started in Thailand? Dr Kaew recalls, "It was basically through my pursuance of Ph.D. program which I did along with Dr Sathit Wacharakitti who also shared the same advisor, Professor Dr Lee

D. Miller. In our remote sensing data analysis we always ran into some limitations pertaining to quantitative analysis, consideration of data layers to be input for effective analysis which led to database creation and database management system which is one of the basic components of GIS. During the training sessions at AIT we gradually introduced GIS concepts into the program. In 1985-86 AIT/ARRSTC staged a big GIS promotion programme by bringing well known GIS resource persons to AIT in a highly publicized International GIS Workshop using Microcomputers in which Professor Lee D. Miller also took an active role." Dr Kaew recalls further that AIT/ARRSTC was once again honored by the gracious attendance of HRH Princess Maha Chakri Sirindhorn in this International GIS Workshop at AIT among some 30-40 participants who came from Asia and the Pacific region. This was practically the formal launching of GIS in Thailand and the Asia and Pacific region.

Starting RS/GIS courses from scratch was not an easy task, especially in a place where all necessary components were not initially available. It had to be planned step by step to take into consideration institutional infrastructure, including human resources, hardware/software, data and space to conduct the technology transfer. Thanks are due to the USAID for providing financial support to cover necessary manpower to conduct the training as well as necessary scholarships for participants to attend the courses at AIT/ARRSTC, the IBM Corporation for providing some initial hardware/software to start the training program, the NRCT and UN/ESCAP for collaborative efforts in facilitating necessary protocols related to the conduct of the training program. Later, some countries provided some contributions to the AIT/ ARRSTC efforts for the transfer of RS/GIS technology to Asia and Pacific region. To mention a few, they included France for secondment of faculty to conduct training, providing equipment (hardware/software) and scholarships to enable trainees to come to AIT/ ARRSTC and similar contributions are being made by Japan.

The six technical personnel recruited from the US under USAID assistance made positive impact on the advancement of RS/GIS in Thailand, as well as in the Asia and the Pacific region. Two of them are especially worth mentioning, especially for facilitating a firm footing of GIS in the region. They are a couple: Dr Sally Goldin and Mr. Kurt Rudahl whose background are in computer related technology and system analysis. They helped develop a small GIS package for easy comprehension by inexperienced people. This software was later expanded into DRAGON software.

Since his moving away from teaching of remote sensing to GIS, Dr Kaew always finds time to increase his knowledge and understanding of GIS technology. He spent about 7-8 months in France on his sabbatical leave to pursue the latest development in GIS in order to contribute more. Aside from serving as a full time AIT faculty, Dr Kaew has always been permitted by AIT to serve in committee work in the Royal Thai Government which has set up committees in the Ministry of Science, Technology and Environment, Ministry of Agriculture and Cooperatives, for example. During the mid 90's upto the year 2000, Dr Kaew served as Advisor to the Ministry of Science, Technology and Environment in the National GIS Development Program. He was instrumental in getting Thailand on road to geographic information standardization. He was also instrumental in getting Thailand accepted as a Participating Member (P-Member) of the ISO/TC211, dealing with geographic information standardization. He is Chairman of the Technical Committee 904 (TC904) of the Thailand Industrial Standard Institute (TISI) of the Ministry of Industry to act as counterpart of the ISO/TC211 for standardization of geographic information.

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Dr Kaew retired from AIT in 1999. Since then, he has been continuing to advise doctoral students at AIT through his appointment as an Adjunct Professor at AIT. He continues to be the Chairman of the TISI's TC904 for geographic information standardization. He is now a member of the Executive Board of Geo-Informatics and GISTDA of the Ministry of Science and Technology (MOST).

**Bal Krishna**