

## “Present, Past and Future of Remote Sensing”

First of all, congratulation to RESTEC for initiating “RESTEC e-news” to keep remote sensing circle informed of the development of the activities of space remote sensing technology applications. As one of the first alumni class of RESTEC training back in the 1977, it is a pleasure to contribute to “RESTEC e-news”. Now we often see the paper entitled “Past, Present and Future of ...” which is a narrative description of some subject. However, we should think out of the box. I would rather suggest to re-arrange as “Present, Past and Future of ...” which means we should examine the present situation or current status of the said subject, may be not as vigorous as in the sense of SWOT analysis in business terms. Then analyze the real objectives of the organization or setup. Having done that, we may look back at the past to see if we can learn something from our experience. All these information and data then form the input into our strategy for the future.

In remote sensing, nowadays we see two distinct movements; one is the ever increasing role of private sector and the other is the government push for security reasons. National remote sensing centers are playing lesser role for providing remote sensing data to governmental organizations as well as analysis of remote sensing and GIS applications. A great deal of such undertaking is being taken up by the private sector. On the other hand, global security concern leads to national agenda for internal security beef-up which drives the governments of several countries to invest in remote sensing data acquisition and analysis for national security rather than for civilian applications. Although GEO and GEOSS seem to strike another cord to champion the notion of space for societal benefit; but this is rather insignificant compared to the above two prongs of development. I had participated in several UN/COPUOS meetings in Vienna, Austria and also served as the First Vice-Chairman of COPUOS. I also joined ESCAP Regional Remote Sensing Program (RRSP) meetings from its inception as well as ESCAP Regional Space Application Program for Sustainable Development (RESAP) in the 1980's and late 1990's respectively. Since the Eastern Japan Great Earthquake/Tsunami and the recent very big flooding in Central Thailand, the focus is on disaster reduction and mitigation. Huge budget is being allocated towards this end. Several middle income countries have invested in and some are planning their own remote sensing satellites, such as THEOS (later renamed Thaichote) of Thailand. The annual national budget for remote sensing, GIS and related topics runs into the range of 10 to several hundred million US dollars. And yet the human resources development and indigenous technology development have not come into par with the investment for data and hardware/software procurement. As a result, the dependence on foreign technology and data acquisition is becoming more acute.

Having gone through the present situation, can we ask if our past experience may provide some clues to rectify some of the current deficiency? To begin with, we should go back and recall what the purpose of satellite remote sensing was. Most will probably say: space for mankind and remote sensing is a wonderful tool to help alleviate poverty through better agricultural farming: land use planning, irrigation and water management. This will reduce global warming through better monitoring of deforestation and reforestation, and so on and so forth. But some results are just the opposite, such as, increasing global warming and famine in some parts of the world, more frequent flooding, etc. It seems that national and world bodies alike are eloquent in talking than in action. Of courses, to act is not easy since there are many obstacles some even intrinsic. From my analysis, this is the result of lack of determination. Strong will and commitment is lacking. Maybe because we now live in an affluent society, everybody is quite happy and does not want to risk themselves, However, this is analogous to silkworm weaving thread surrounding itself. Leaders of remote sensing organizations, national agencies and higher bodies should rethink the benefits of space technology for mankind. Business profits are understandable but sufficient consideration should also be given to the social and human benefits. In Buddhism, it is called the Middle Path.

Looking into the future, we should devise practical means to make space technology and remote sensing/GIS application beneficial to sustainable development as declared in the First Ministerial Meeting on RESAP of ESCAP held in Beijing, China in 1997 and subsequent GEOSS Meeting in Tokyo, Japan in 2004. Government should set aside some budget for human resource development. Private sectors should play an increasing role in CSR especially in people participation of remote sensing application in their locality to realize the slogan of “think globally, act locally”. In some countries, big MNC’s spent a lot of money on reforestation with the slogan, such as, one million acres of reforestation in three years, but very few money and effort was put into monitoring of the project sites. Space faring nations should help in the indigenous development of space technology in the new comer countries so that they can stand on their feet in the long run. UN bodies should spend their budget on human resources development as in the 1970’s and 1980’s and less on meetings and paperwork. Countries themselves should strive for self – dependent and work harder on their own. They should plan carefully, taking their national priorities into serious consideration. They should also avoid political influence in the operation of remote sensing undertakings or related application based organizations. Otherwise, they may be led astray and will not accomplish their goal. In this context, I would suggest those interested to read the book “India 2020: A Vision for the New Millennium” by APJ Abdul Kalam with Y S Rajan. In Chapter 9: Strategic Industries, the Indian space programme was elaborated quite extensively. India has been very successful in the space programme and remote sensing has turned a vast area of waste land into productive agricultural land making India self sufficient in food and in recent years become one of the top rice exporters of the world.

In closing, we are proud that RESTEC, through its new management team, is endeavouring some bold changes and is striving to become one of the best remote sensing organizations to benefit humankind. As member of the alumni, I wish RESTEC every success and I stay ready to provide anything positive in the future.

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