ARUN KUMAR

INTERVIEW

AGENDRA KUMAR, PRESIDENT, ESRI INDIA

"Achche din for GIS are here"

Established in 1996 as a joint venture between Esri Inc of USA and NIIT Technologies of India, Esri India is the country's leading GIS software and solutions provider. In an interview with ***Ridhima Kumar****, Esri India's president gives a brief overview of the GIS industry in India, its challenges and the future prospects.*

GIS plays a major role in government. In which sectors is it used extensively?

In government departments the usage of GIS is quite wide. The early adopters were organisations like Survey of India and Forest Survey of India. Since they are mapping agencies of the country they started using GIS technology. Over the years many organisations have started using GIS and some examples are state forest departments, people who manage road networks, airline companies, utilities, telecom companies and research organisations. Even organisations like IMD and National Centre for Medium Range Weather Forecasting are also using it.

Today, within an organisation usage is not confined to a few people. This is where Enterprise GIS comes into picture. For example, the National Dairy Development Board has a very interesting application. Their objective was to collect milk, which was otherwise not being collected. There are a lot of villages in

Gujarat where milk is produced but for some reason not collected by the cooperative society for processing and distribution. So, the board identified the villages where there is a minimum quantity of milk available, say 1,000 litres of milk per day, and the distance from the main road is 1 km and it would be possible to bring the milk to a central collection store within four hours. So they had some parameters and developed a GIS application and collected data of all the villages so that they could measure the distance from the highway and on the basis of travel speed, etc. they calculated the time [taken to reach the common centre]. After collecting this data the board had a GIS-based application ready which was shared across the organisation among people from marketing, processing, collection departments so that through that data the inter-department coordination is improved.

What role do GIS and related technologies play in improving governance? Are there any global best practices that India can adopt?

There are many examples. One very basic application of GIS has been land management. Land is the most precious commodity. A lot of lawsuits happen because of the disputes on land ownership. So many countries including India have been using GIS to manage the land resources and land records and ownership details better. The land ownership, taxation, transfer of property, etc., are all being handled using GIS in India as well as in other countries. If you look at other areas related to the common man there are many applications. Even if you look at the Digital India programme, there are many areas where GIS will be used. The government is talking about providing broadband connectivity to everyone. So GIS can be used to know how the fibre is being laid, how many people are using internet, depending upon the population what should be the bandwidth of a particular area and later to manage the fibre network. The government is also talking about delivering e-governance services through Digital India. So when a message goes from the government to a state where a particular language is spoken, it is better to send the message in that language, which can be easily managed through a GIS dashboard.

How can GIS be a key enabler of Digital India and smart cities project?

They [government] can map the towns and villages where internet connectivity is needed. They can monitor the population and the infrastructure requirement. They can also monitor the utilisation of delivering applications on mobile phones. They talk about giving financial power to people through bank accounts. Using GIS a very quick analysis can be done on how many people opened bank accounts in which area and how many accounts are operative. The benefit will come only when it is used by the people. So monitoring and decision-making is an area where GIS is very effective.

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When we talk about building a smart city it means there will be collaboration between all the departments and everything will come together on one platform. So when you build a smart city you try to improve the quality of life of the citizens and make it sustainable and economically viable. When you are trying to build a smart city in a country like India, the basic requirement would be providing 24X7 electricity, clean water and a hygienic environment, which means providing facilities like waste management, security, traffic management and healthcare facilities. GIS plays a major role in all these areas. Take for example, traffic management. We talk about putting sensors to capture the traffic information in real-time mode and then display it on a GIS platform so that traffic management can improve. This is one thing. When we talk about utility networks we say smart meters. Through them it will be possible to manage electricity consumption by the time of the day and even the pricing of the electricity can be done by the time of the day. So an electric utility might say that between 5 pm and 9 pm my rate will be high. This will discourage people from consuming more [during this time]. It [GIS] can also be used to measure which device in a home is using more electricity and how much. Such information can be collected and put on a GIS system. It can be analysed and feedback can be given to the consumers. Similarly, waste collection – how should the waste trucks move, how and where should it be disposed – can be managed on a GIS system.

Also, when we talk about building new smart residential areas, one can get an approximate number of people who are going to live in it. Now depending upon those people you design your road networks. Suppose I have 10,000 apartments in a complex and around 50,000 people are going to live in them. Now when about 10,000 people leave for their offices what is the approximate number of vehicles that will come on roads? So in order to prevent excess traffic you try to build the roads in such a way that they can handle the traffic. When these people go to the office complex what is the approximate distance, how should the road be, and what is the most effective mode of transportation, whether individual cars or you want to build metro rail or any other public transport system? All these things can be developed on GIS system. So you get the information, and analyse it and take a decision.

We have worked with Masdar City in Abu Dhabi, Singapore, and some cities in the US. In India, we are engaged with Lavasa city and GIFT. Both cities are under development and are using

GIS in several parts of town planning, city planning, landscape planning, planning recreation areas, where residential areas should be, road design, etc. For the 100 smart cities' project, we are engaged with some of the cities which are planning to start early.

In which states has Esri India provided GIS solutions/products?

We have worked with several states for land record management and forest departments. There are projects like India-WRIS (water resource information system) WebGIS and watershed management project. We also work with the central ground water board and the defence sector. We are also working with an airline which uses GIS for designing the flight path between two countries. In this way the information is available to pilots, flight controllers, people who do flight planning, which can be shared across.

Which are the states that have effectively used GIS?

Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Delhi are the prominent ones. Each state is unique with its own priorities and complexities and is at a different level of GIS technology maturity. As areas may be different, for somebody one area is more important so they start with that area. The effectiveness of GIS efforts would really be a factor of how this technology helps meet them these priorities.

What factors are limiting the proliferation of GIS in India?

Data has been an issue but then there are a lot of agencies which have base map data and other kind of data. Even a lot of demographic data is also available now. Of course, the government still has a policy which restricts the usage of high-resolution satellite imagery and if someone wants to use it they have to go to the department of space to procure it. If that is made more open it will really help in the proliferation of GIS in the country.

Programmes like National GIS would provide a common platform that will help promote data sharing and collaboration amongst various departments and agencies thus driving GIS proliferation further.

Is capacity building a challenge?

It is definitely a challenge. Capacity building for various aspects is an integral part of the Digital India programme. GIS will also need some focus here. As more and more people start using GIS they will need knowledgeable GIS skilled resources. We, at Esri India, try to run training and awareness programmes to encourage people to learn to build applications on our platform, which is ArcGIS platform. But I think requirement will be far greater in the country.

ASHISH ASTHANA

With high penetration of mobile devices in India how can GIS help in improving citizen service delivery?

Esri is a company that promotes platform. We do not differentiate whether someone wants to use GIS in a desktop machine or a server or a mobile device. We believe that people should be able to use GIS from whichever device they want and at anytime of the day and from anywhere. You do not have to come to office to use GIS. And at Esri India we try to build an application in such a way that people interact with GIS in whatever device they have. It will definitely help in citizen service delivery in small as well as in large organisations. When an organisation wants to roll out a GIS application for 30,000-40,000 people they can easily use mobile devices to get people to use those applications. There are many organisations which are developing applications which can be used in mobile devices. The early adopters were water utilities. They have a mobile device which their technicians can take to the field. Suppose there is a leakage in water pipe and somebody is going to fix that so those people can access GIS from wherever the repair work they are doing and can take a picture and upload it in the database. Similarly, electric utilities were also early adopters but it doesn't mean that a telecom company cannot use it.

Programmes like R-APDRP and NLRMP used GIS but have fallen short somewhere. Where do we lack?

Ours is a very big country, there are many states, so when we try to roll out a programme of this size obviously there will be some people who will do better than the others. While you mention some states have not done well, there are other states that have done very well. Every state has its own challenge, it also depends on the quality of their paper records. But overall there has been some progress. It is better than what it used to be.

As for R-APDRP, which was for bringing improvement in electric utility distribution system, many states have implemented it, some states have done better, some states have done a lot of progress and their projects have gone live and they have derived many benefits out of it. Some states are lagging behind but I think they are working hard to catch up.

What prospects do you see for GIS/geospatial technologies in India?

People say 'GIS ke achche din aa gaye hain' (Good days are here for GIS). The government is laying a lot of emphasis in using GIS and with so many people reading about GIS every day in newspapers and other places even a lot of private organisations are looking at its use. So today we find a lot of interest from banks, insurance companies, manufacturing organisations and retailers to know how to use GIS for their own decision-making and improving their performances. The momentum is picking up, it has picked up already and it is going to pick up a lot more. And in the next few years this industry should do well. ■

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