

## Interview

### Geomatics Education in India

*GIM International Interviews Dr P.S. Roy, Dean, IIRS*

*By Dr Bharat Lohani, Regional Correspondent, GIM International, India*

Dr P.S. Roy has wide experience in the field of geomatics education and has been with the Indian Institute of Remote Sensing (IIRS) since 1984. He is actively involved in the field of research, education and training in remote sensing and GIS and has made substantial contributions to operational projects and research in geo-informatics for ecosystem studies. Since 1998 he has been Dean of the IIRS, remarkably enhancing capacity building here in remote sensing and GIS technology and applications; Dr Roy currently holds the added responsibility of Deputy Director, Centre for Space Science and Technology Education on Asia and the Pacific (CSSTEAP). He is a Fellow of the National Academy of Sciences, India, and of the National Academy of Agricultural Sciences.

#### *What are the main activities and the main strengths of IIRS?*

The primary objectives of the Indian Institute of Remote Sensing (IIRS) are: capacity building among the user community, education at post-graduate level in the application of remote sensing and geo-informatics for natural resource management, promotion of research in remote sensing and geo-informatics and value addition and services. To achieve these objectives IIRS emphasises mid-career intervention and technology transfer among user communities. Primarily, we are driven by applications for social development. In our training and educational programmes we lay emphasis on practical training. Our strongest point is the student's project, or dissertation, in developing independent aptitude. Since our primary role is in technology transfer to user departments, IIRS has a strong linkage with various central and state Government departments. There are about four thousand alumni of IIRS employed in government sectors.

#### *What is the market size in India for geomatics education and what share does IIRS have in this?*

The greatest manpower needed in this field by central and state government agencies is approximately five hundred per annum. We want these agencies to assimilate the technology into their programmes and initiatives. Industry uses mainly technically raw hands and provides on-the-job training. Industries involved in services absorb some one hun-

dred professionals per year, whilst IIRS caters for a small segment of two hundred per year. So far, IIRS has trained 585 overseas students in various programmes. IIRS has since 1960 been engaged in imparting training to foreign students through programmes like COLOMBO PLAN, GDTA Exchange, and fellowship, Commonwealth Scholarships and other programmes.

#### *What is the role of the IIRS in geomatics education in India and the subcontinent?*

We have strengthened the infrastructure and faculty capacity in the area of geo-informatics education and we have also focused on curriculum development, modular structure of the programme and development of case-studies. Our link with ITC in The Netherlands has helped to bring international experience. We foresee playing an important role in disseminating knowledge and building professional excellence in the field of geo-informatics. In addition to ITC, we co-operate with the International Institute for Environmental, Infrastructure Engineering (IHE, The Netherlands, see web-site), Wageningen Agricultural University, The Netherlands, UNESCO (see web-



*Dr P.S. Roy, Dean, IIRS, Dehradun, India.*

site), GDTA (France, see web-site), the International Tropical Timber Organisation (ITTO, see web-site) and the World Meteorological Organisation (WMO).

Within India we have for our educational and research programmes linkages with Andhra University, Pune University, HNB Garhwal University and the Forest Research Institute (Deemed University). We also have research collaboration with the Wildlife Institute of India and the Central Soil and Water Conservation Institute, both in Dehradun, and the National Botanical Research Institute in Lucknow. For the future, we would like to collaborate in areas like coastal and oceanographic research, human settlement analysis, climate research, and advanced image processing applications and spatial modelling.

*What strategy does IIRS employ to keep its syllabus up to date?*

IIRS has tried to keep pace with technological advancements through course curriculum revision alongside the changing scenario within geo-information science. We adopt the following procedure in this:

- IIRS Task Group formulates the first level of curriculum
- A National Advisory Committee (NAC) consisting of academia, specialists, user and industries advises on course curriculum and programme implementation
- We then organise a curriculum workshop at which national and international experts and users' departments deliberate to 'fine tune' the syllabus

*IIRS has just recently begun offering master degrees in arrangement with other universities. May we expect an increase in these?*

The M.Tech in RS and GIS is accredited with Andhra University for the award of a degree. We also run a MSc in Geo-informations and Environmental Assessment and Disaster Management (EADM). ITC, The Netherlands, awards the degree but IIRS does the fifteen months major teaching. Our initiative in the Masters degree programme has indeed been recent and we would like to consolidate this initiative. We also propose to focus more on research in coming years.

*Until recently the IIRS enjoyed a complete monopoly in India in short-term geomatics education at diploma and certificate level. Recently, several private and international organisations have begun offering these courses. How is IIRS coping with these challenges?*



*Graduation ceremony.*

We see enormous opportunities in short-term training programmes in the field of geo-informatics. The number of people to be trained is so large that IIRS alone cannot meet the demand. IIRS has the domain of natural resource management, infrastructure development and environmental management. The courses offered by many institutes like the Indian Institutes of Technology (IITs) and Anna University in Chennai, Tamil Nadu, are really good and comprehensive. Many private industries also have good training programmes for the specific needs of the industry. There is a demand for sharing experience regarding curricula and evolving a strategy in quality education. On the other hand, as yet I do not see any international university playing a prominent role in India in the promotion of geomatics education. If good foreign universities tie up with Indian Institutes it will definitely benefit the students in this field. Furthermore, the IIRS fee structure is non-commercial. Many educational institutes are sponsoring meritorious students to IIRS. In such cases we do not charge any fee. As a special case, we waive the course fee to the leading non-governmental organisations. IIRS will continue to focus primarily on mid-career professionals. However, 20 per cent of seats have been kept open for self-sponsored candidates. We do not foresee increasing this number. Although geomatics education has been limited mainly to postgraduate and diploma certificate level in India, we feel that undergraduate and school level education in remote sensing and GIS is essential. We are ready to support such initiatives by providing educational material and case-studies. We have supported such efforts in Pune University by providing faculty, education material and project guidance.

*What is the future of geomatics education in India, also in relation to the current debate concerning education being controlled by government or left to private organisations and society?*



Signal receiving station.

Geomatics education in India is just taking root. The need for professionals will grow. Establishment of the National Spatial Data Infrastructure (NSDI) will also necessitate the strengthening of the infrastructure in geo-informatics. Geomatics education has to mature further by standardisation of curricula. The development of educational infrastructure and case-studies will strengthen these initiatives. I see a big-

ger role for distance education for the fundamental subjects. Institutions involved in geomatics education will find opportunities to meet together to share experiences. With respect to government versus private initiatives, a single model will not work. There is a need to blend the educational opportunities offered by government and private sector in a country like ours. IIRS has a very special niche for the mid-career professional. For the present, I see a limited role for the private universities and institutions in this effort.

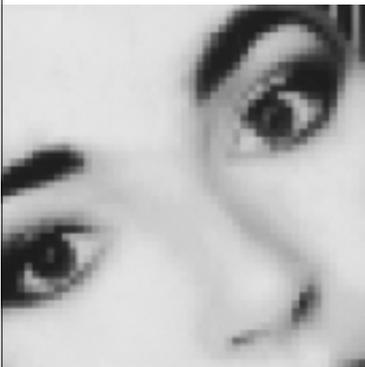
**Web-sites**

- [www.isro.org/iirs-training.htm](http://www.isro.org/iirs-training.htm)
- [www.ihe.nl/vmp/contentsHomePage.html](http://www.ihe.nl/vmp/contentsHomePage.html)
- <http://portal.unesco.org/en/>
- [www.gdta.fr/indexen.html](http://www.gdta.fr/indexen.html)
- [www.itto.or.jp](http://www.itto.or.jp)

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