GIM Int'l Interviews Professor Klaas Jan Beek, ISPRS 2000 Congress Director

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Ambition of ISPRS to Integrate RS and GIS

By Jan H. Loedeman, Editor of GIM International

Willem Schermerhorn, elected President of the International Society for Photogrammetry in 1938 and first Prime Minister of The Netherlands after WW-II, organised the IXth Congress of the Society in The Hague in 1948. One of the resolutions passed by this congress concerned the establishment of an international training centre for aerial survey, one specifically orientated towards developing countries. The Netherlands' government subsequently decided, in 1950, to establish the ITC. Schermerhorn became its first rector. Next year ITC will celebrate its 50th anniversary simultaneously with the ISPRS's XIXth congress, to be organised in Amsterdam. In this interview with GIM International, Professor Klaas Jan Beek, Congress Director and himself a former ITC rector, gives his view on the coming events and on 'the profession'. In next month's issue, we will publish an interview with Professor Martien Molenaar, Chairman of the congress' scientific committee.

It is said that the congress theme for ISPRS 2000 is your own. You are a former rector of ITC, so my first question would be: is there a link between this theme and your ITC background?

Well, first of all, ITC's roots are in photogrammetry. However, though I was its third rector, from 1980 to 1996, after Van der Weele and Schermerhorn, my professional background originates in soil science and land evaluation. My two predecessors at ITC had both been photogrammetrists, so it cost some effort for me to attain the position of rector. Indeed, I am the one who has chosen the theme for this congress and thus, of course, it may reasonably be traced back to ITC and to my background and to my preferences.

When I first joined ITC the institute comprised three departments, of which the most important one was photogrammetry. From the beginning, I tried to raise the level of interest amongst photogrammetrists for GIS, but their major concern with geometry and its accuracy initially made them ignore the data acquired by satellites. There was also little attention for the emerging geo-information systems which in the start had few possibilities to deal with 3D data and were mainly raster oriented. As a result of this most photogrammetrists only later realised the advantages of integrating photogrammetric acquisition techniques in a general geo-information context. The second department dealt with natural resources such as earth resources, soils, agriculture, forestry and the like, but had little co-operation with the powerful photogrammetry department, which historically dominated the show. The third department was engaged in social and urban sciences, which was on the same track as the natural resources department: more appropriate and affordable tools from a user perspective. The urban surveyors started using small format aerial photography, from small and microlight aircraft and developed the first GIS at ITC.

During my ITC period I learned to think about geo-information not in a mono-disciplinary way, but in terms of a chain of knowledge. Such a chain reaches all the way from earth observation in its various aspects, up to the information and knowledge requirements of end-users - and preferably with the links running in the opposite direction. I do not like to go into the semantics of my wording, but in my view earth observation implies remote sensing, but then in a chain of information.

In what sense does this view of yours relate to the ISPRS 2000 congress theme?

Geo-information has reached a point where the end-user market decides what has to be done. This market has to be considered from a global perspective. In this global market the main considerations are, for instance, human rights, along with related topics, such as the position of women, poverty and equity- sustainability and security, such as security of food, water and mitigation of disasters.

Overall, we see a kind of paradigm shift from mere mapping towards sustaining development processes via information provision. Though these development processes are governed top-down, they must be realised from the base upwards. This has led me towards the concept expressed in the congress theme 'Geo-information for All'. The idea was worked out via six criteria which geo-information has to fulfil: to be beneficial, available, accessible, useful, producible and understandable.

How has this theme been expressed in the congress programme, presented a few months ago?

In the first place Martien Molenaar, chairman of the scientific committee, and I looked into the seven commission symposia, organised last year. I visited them all. The meeting of Commission V, concerning non-topographic applications, was an eye-opener to me, because the vast majority of the attendees had never had anything to do with ISPRS before. Amongst them were a lot of representatives from the medical sector, but also archeologists and other people interested in the application of virtual reality for exhibitions in musea. There is a vast and potent business market for non-topographic and close-range photogrammetry, especially related to 3D animation and visualisation. That, in my view, is fantastic.

Does the success of that meeting then imply that developments in photogrammetry occur when specific needs for spatial information emerge in financially strong sectors, like the military, the entertainment industry and in medical care?

Yes, indeed. Entertainment, for instance, is a real and large industry! Such strong industries will boost further developments in photogrammetry, as far as that term is applicable anymore. The future is with 3D GIS: an image tells more than a thousand words, as we all know.

Thus one might easily conclude that a spatial information technology specifically developed for a very weak financial sector, such as sustainable food production for instance, is not very likely to arise? How might this circumstance relate to the congress theme, in your view?

In relation to global issues like food production and food safety or disaster mitigation one has to deal with three aspects: technology, management and policy or decision-

making. The last of these, decision-making, is the most important one. To influence this policy aspect effectively, one has to present information regarding, for instance, a disaster risk, convincingly framed in appealing graphical presentations. And that is greatly furthered by these dynamic 3D visualisation techniques. Explaining is one thing, but getting the message through into the minds of politicians and decision-makers is something else.

The point about organising an event like ISPRS 2000 is that its programme must fit into the culture of the organisation. I have been active in the ISSS, the International Soil Science Society. Congresses initiated by that organisation are centred around a thoroughly chosen theme, in order to get specific issues to the table. Like the ISPRS, the ISSS has a structure based on commissions and working groups, but thus far the ISPRS congresses have also been organised accordingly, resulting in highly fragmented programmes. I preferred, for the ISPRS 2000 congress, to opt for an ISSS approach, which meant that the structure of independent commissions had to be transformed into a kind of matrix: at the one axis the congress theme, at the other the disciplinary input to that theme via those commissions. Of course, this idea could only be realised via a co-ordinated effort on the part of Council, supported by all Commission Presidents.

What is your opinion concerning the frequently heard complaint in photogrammetric circles that this profession is supposedly at the brink of extinction?

Most ISPRS members are non-photogrammetrists. But yes, there is a lot of change everywhere. Photogrammetry is faced with totally new challenges, which do not involve an improvement in precision in topographic surveying, but far more in financially realisable solutions through integration of photogrammetry, GPS and RS for everything that deals with 2D and 3D information in space and time from images. That is why in ISPRS' Commission V, medical applications and VR-like visualisations are developing at such a fast pace. Other interesting subjects are in physical planning, especially town and country planning. That's where GIS comes in. Up to now there is no global organisation for GIS. One might say that the ISPRS has the ambition of integrating photogrammetry, RS and GIS, which is quite plausible, as many of its members apply photogrammetry or RS with GIS as tools in the course of their daily work.

In this rapidly changing world, a global organisation such as ISPRS must be prepared for a broad approach to its field, especially during its Congress, at which central issues are identified and lines to the future are established, both strategically and application-oriented. Strategic topics on a global scale are, for instance: the digital highway, the information society, urbanisation, disaster mitigation, imminent shortage of fresh water and food and the entertainment industry. National mapping agencies and photogrammetry have given the mapping society an image of integrity and reliability. This is a formidable inheritance in the context of paving the road ahead!

What trend do you see in this respect?

Technology that can be used will be used, but it has to be affordable and available. An important issue I like to put forward in this respect, is interoperability. The president of ISPRS is a member of the board of the OGC, the Open GIS Consortium.

Up until recently, information gathered by governmental organisations and services was available almost free of charge. These organisations, however, become privatised and are forced by their new status as entrepreneurs to re-value their databases. They have to calculate a profitable price for their products. I therefore expect that organisations such as the OGC will offer a platform for negotiations between data- and hardware/software producers and data-users.

Both data-producers and data-users are members of ISPRS. What does this imply in respect of the Congress theme?

'Geo-information for All' is based on the idea of 'think globally, act locally'. The discussion about geo-resources is about sustainable use. Goals and rules can be established in a top-down approach, but execution is always at the local level. This requires the availability of appropriate information at that local level. The problem is, however, to get the information there. That is where OGC comes into play. But behind this Open GIS concept there is a clear push from industrial circles: the more data can be provided due to interoperability, the more need will be generated for tools to process this data. So one should be in favour of the 'readily available data for all' concept. In my opinion, the best solutions in such cases are offered by the establishment of PPP's, Private Public Partnerships. With this approach, goals are set by the public sector. Investments needed for realising those goals are, to an increasing extent, going to be supplied by the private sector. Without decentralisation and empowerment at local level this approach is not feasible. Moreover, commercial competition is needed to bring the price of tools and information down. Current developments in ICT, when realisable, will offer developing countries real opportunities for leap-frog technological development, because costs for their future IT infrastructure will be much lower then they are now.

One of the GIS-related issues facing the ISPRS now is that there is world wide a growing need for well-educated and trained specialists, comparable in status to chartered surveyors. The reliability of spatial data remains a key issue; this will not change when the current market for geo-information is drastically restructured and dominated by niche players.

What has been the response to the Congress programme thus far?

It is too early for an evaluation yet; the response will be reflected in the issues addressed by submitted papers and the spread of interested participants. The interest already shown for participation in the exhibition is very encouraging, which proves that our decision to give more focus and to concentrate the entire event in a single week has been the right one. Moreover, from a commercial point of view the issue of integration is not only a matter of different disciplines. Integration affects policy-makers, scientists, manufacturers, suppliers and users alike. The industry welcomed the reduced duration of the Congress, having everyone there at the same time. Inevitably, the reduction in the number of sessions provoked some discussions regarding the programming. Thus far we have not met with any serious problem. Anyhow, all submitted material, including posters, will be published on CD-ROM. One element which still needs some extra attention is the selection of invited speakers for the special sessions programme, which is specifically aimed at policy-makers and is scheduled for each morning after the coffee break.

ITC, Hengelosestraat 99, 7514 AE Enschede, The Netherlands

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