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**2005** number 4

## introduction

In 2005 ITC celebrated her 55th anniversary - 55 years in which ITC has become renowned for its leading role in capacity building, with some 17,000 alumni from 165 countries trained originally in the field of aerial mapping. This field has now developed into geo-information science and earth observation. Obviously our playing field has changed considerably over these years, and so we thought it an opportune moment to remap our own position. Consequently, several events were organised in the context of this celebration. The opening of the academic year on September 29 signalled the beginning. The Schermerhorn Lecture entitled *Key Issues for the Future: Pro-Poor Land Management* was presented on that occasion by Dr Clarissa Augustinus from UN-Habitat. The symposium Earth Observation Strategies: A Systems Approach to Studying System Earth was held on 3 November to mark the appointment of five new professors, George Vosselman, Eric Smaling, Rien Bos, Freek van der Meer and Bob Su, and was attended by many international speakers of high repute. On 4 November the whole ITC community celebrated the anniversary in a relaxed setting, with buffets, entertainment and dancing. The main event, which brought the celebration to a close, ran from 12 to 16 December. A meeting of the partners in our worldwide network of joint educational programmes (GI-Net) claimed the first two days, to be followed by the ITC conference:

### Spatial information for civil society

Capacity building for the international geo-information society

Some 300 participants met to discuss the rapid developments in our scientific/professional field and the internationalisation of higher education. Professor Hans van Ginkel, rector of the United Nations University, delivered the keynote address, and its title, "Geo-information benefiting society: the contribution of ITC with UNU", set the tone for the following sessions. The Hon. Minister of Environment of Burkina Faso, Dr Laurent Sedogo, an ITC alumnus, brought the conference and the anniversary celebration to a close with a presentation entitled "The contribution of geo-information to sustainable development in Burkina Faso: the role of ITC". This was based on his experience as a high-ranking politician in one of the many focal countries of ITC. He gave a convincing explanation of the importance of spatial information in modern governance. These events have made important contributions to the continuing strategic development of our Institute over the next 55 years, and you will find more detailed reports in this issue of *ITC News*.

*Martien Molenaar*

Rector ITC

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# ITC Lustrum Conference: Spatial Information for Civil Society

Janneke Kalf

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*In 2005 ITC celebrated its 55th anniversary.*

*To mark this occasion a conference under the title*

*“Spatial Information for Civil Society - Capacity building for the international geo-information society” was organised at ITC Enschede on 14, 15 and 16 December 2005.*

The aim of this conference was to analyse and explain the role of geo-information science and earth observation within the context of issues dominating major international agendas, such as the Millennium Goals, good governance and the information society.

The lustrum conference covered the following themes:

- Governance and information provision
- International organisations and networks for higher education
- Global monitoring for environment and security (GMES): natural disasters
- Alumni networks
- Water, biodiversity and sustainable land use
- E-learning
- Land management and administration
- International cooperation: partnerships and funding.

In this article you will find detailed reports of most sessions dealing with the above topics.

In his opening speech Rector Martien Molenaar welcomed the 277 registered participants (from 45 countries), ITC staff and students. He especially welcomed the speakers, who came from all over the world to contribute to the conference. Professor Molenaar was followed by Drs Jan Hoekema, from the Dutch Ministry of Foreign Affairs, and Professor Gu Hailiang, chair Wuhan University Council, China. Both congratulated the Institute on its lustrum. Before Professor Hans van Ginkel, rector of United Nations Universities UNU, Tokyo, delivered his keynote address “Geo-information benefiting society: the contribution of ITC with UNU”, he kindly gave an interview to ITC News (see p.33).

The well attended opening reception was hosted by the Municipality of Enschede and it was the pleasant duty of Dr Eric Helder, on behalf of the mayor of Enschede, to welcome the guests in the main reception room of Enschede's City Hall.

Dr Eric Helder, on behalf of the mayor of Enschede, welcomed the guests in the main reception room of Enschede's City Hall



## Speech by Drs Jan Hoekema, director of the Cultural Cooperation, Education and Research Department (DCO) - Dutch Ministry of Foreign Affairs

*Ladies and gentlemen,*

*On the occasion of the 55th anniversary of the International Institute for Geo-Information Science and Earth Observation, I'm very pleased to be able to open a conference entitled "Spatial Information for Civil Society".*



Drs Jan Hoekema

As soon as I'd read the conference title, my curiosity was aroused. And I became even more curious when, leafing through one of the Institute's brochures, I saw the former prime minister Willem Schermerhorn named as ITC's founding father.

I pulled out my old Winkler Prins encyclopaedia and read that in 1931 Professor Willem Schermerhorn was made chief scientist at the Survey Department of the Directorate-General for Public Works and Water Management. In that capacity, he introduced the Netherlands to aerial surveying, an area where he gained international fame.

After leaving Parliament 55 years ago, Willem Schermerhorn founded ITC. This achievement isn't mentioned in the Winkler Prins but it should have been, because ITC is now - 55 years later - the biggest institute for international higher education in the Netherlands.

I'd like to congratulate ITC on its 55th anniversary!

Ladies and gentlemen,  
Since ITC was founded in 1950, it has played an important part in educating professionals from developing countries in the recording of spatial information. In Professor Schermerhorn's time, spatial information was recorded with aerial photographs. These days, it's done with satellite-based geo-information systems.

Since Schermerhorn's time, ITC has undergone many changes. Technologically, it has made great progress. But as the context of international higher education has changed, ITC has also adapted its strategy to new realities. As an international institute, it has a great interest in the development of international higher education in the Netherlands and the rest of the world. These changes used to be gradual, and ITC had enough time to adapt its knowledge, products, and services accordingly. However, in recent years the changes have been happening faster.

To begin with, ITC - like other international institutes - is having to work more closely with universities. It has become too small a player in the international knowledge arena. Since 2001, for instance, it has had formal ties with the University of Twente, which now accounts for the Institute's finances to the Ministry of Education, Culture and Science. I understand that the two institutions are working together productively - a key factor in the current discussions on the future of basic funding for international educational institutes. ITC is playing an active and constructive role in these discussions.

In addition, we have seen the abolition of fixed budget allocations for grants and projects at international educational institutes. This change has had a major impact on ITC. All institutions of higher education may now offer courses to ITC's target group. Grants from the Netherlands Fellowship Programme (NFP) no longer go only to the international educational institutes. The change has meant more flexibility: a larger supply of courses is needed to meet the demand from developing countries. But in 2003 it led to a sharp fall in NFP grants, so ITC had to cut its coat according to its cloth: it diversified its study grant programmes and adapted its products and services.

ITC is now canvassing other funding sources for grants and developing its own small grant programme. And after the sharp fall in grants from the NFP in 2003, ITC is pleased to announce that in 2005 it received significantly more grants from the NFP.

The ending of the Sail Projects Programme, in which ITC carried out most of the long-term institutional strengthening projects, put great pressure on ITC's ability to fulfil its ambitions, and it highlighted the need to diversify funding sources. The Sail Projects Programme has been replaced by a new capacity strengthening programme: the Netherlands Programme for the Institutional Strengthening of Post-Secondary Education and Training Capacity (NPT). ITC is now the main contractor in two NPT projects, one in Rwanda and the other in Guatemala. And it is a subcontractor in various other NPT projects.

ITC has also developed a policy for long-term partnerships with qualified educational institutions in the Institute's target countries. And it has recognised the importance of a good network of alumni. It provides a newsletter, refresher courses, a lifelong e-mail account with ITC, and support to alumni associations. Many new students are entering ITC via alumni.

These, ladies and gentlemen, are all examples of ITC's resilience: a resilience that has enabled the Institute to respond well and in good time to changes in society and policy. But resilience cannot serve as an organisation's only source of energy. Vision and the capacity to innovate are also important.

I was privileged to experience ITC's vision and innovative capacity in May this year at the NUFFIC conference on the future of higher education. On that occasion, ITC contributed a paper entitled "From building capacity to building on capacity". The paper set out ITC's vision of how capacity in developing countries can continue developing and the role that the geo-information industry can play in this. ITC's spearheads are human resource development and organisational and institutional strengthening.

The paper showed clearly how in recent years ITC has been shifting its educational emphasis to local activities with partners in

developing countries. These bilateral partnerships now seem to be growing into regional, and even global, networks, in which ITC is developing a new role, transforming itself from a traditional educational institution into a node in educational networks. At the same time, ITC maintains important co-operative ties with four Dutch universities: Twente, Utrecht, Wageningen and Delft.

As well as supporting ITC's own strategy and activities, the Ministry of Foreign Affairs envisions other aspects to the future role of ITC and other international educational institutes. Strengthen your knowledge function. Target the international context. Invest in widening and strengthening your network. Concentrate on the needs of the South, and identify the individual features of developing countries. Make knowledge relevant to individual countries (by "knowledge", I mean applied knowledge). And finally, don't expect instant support from the Ministry of Foreign Affairs, but do expect a willingness to engage in dialogue about the national and international context of international education and the way in which educational institutions steer their policy and strategies to accommodate development cooperation policy.

Ladies and gentlemen,  
I started this speech by referring to my old well-thumbed Winkler Prins encyclopaedia. Let me finish on a more up-to-date note. On the Internet, I searched on "Willem Schermerhorn" and found the following sentence: "After his parliamentary career ended, he became director of the International Training Center for Aerial Survey."

In 55 years the encyclopaedia has been largely replaced by the Internet, and aerial photographs from aircraft by those from satellites. With its eyes open to new developments, technological and strategic, ITC has established a substantial place for itself in international higher education. That is worthy of congratulations. And with these congratulations, I am pleased to open this conference on spatial information for civil society. I wish you all a very interesting and productive day.

Thank you.

## Speech by Professor Gu Hailiang, Chair Wuhan University Council, China

*Respected Rector Molenaar,  
distinguished guests, ladies and gentlemen,  
Good morning. Speaking here today is a tremendous honour  
for me, especially before the lustrum conference marking the  
55th anniversary of ITC's founding.*



Professor Gu Hailiang

Please allow me to extend to you, on behalf of the 48,000 students and 10,000 staff of Wuhan University of China, the warmest congratulations on the 55th anniversary of ITC's founding, and the highest respect for ITC's great accomplishments over the past 55 years.

Wuhan University is located in the city of Wuhan, which is in the centre of China and on the Yangtze River. Founded in 1893, it is one of the oldest institutions of higher learning in China. The university is renowned for its excellent academic tradition and rich cultural heritage. Boasting idyllic views of hills and a lake, it is also regarded as one of the most beautiful campuses in the world. The university is quite strong when it comes to the research in the field of geo-information sciences, with several relevant schools, such as the School of Mapping and Surveying, the School of Remote Sensing Information Engineering, the School of Resources and Environmental Sciences, and the School of Urban Studies.

Wuhan University has always attached great importance to international exchange and cooperation. Up to now, it has established links with over 200 universities and institutions in 60 countries and regions, while the cooperation with ITC remains one of the most successful models. The history of cooperation between ITC and Wuhan dates back to the late 1970s. The 27 years of cooperation between the two institutions has fostered nearly 1,000 Chinese government leaders and senior professionals, and has greatly promoted the development of academic disciplines such as urban planning at

Wuhan University. There are three ITC graduates right here among the Wuhan University delegation. And today the two sides have reached a new agreement on joint research, which we believe will greatly promote the bilateral personnel exchange and scientific co-operation.

I would also like to take this opportunity to express our sincere thanks to all those who have made contributions to the ITC-Wuhan partnership, including the incumbent rector Professor Molenaar; former rectors Professor Klaas Jan Beek and Professor Karl Harmsen; the late dean of urban planning Professor Morris Juppenlatz; former director of BPC Professor John van Genderen; director of China programmes Mr Paul Schoonackers; former ITC China representative Ms Marjan Kreijns; and many others. Please forgive me; I can't name them all.

As an important research institute in the field of geo-information science, ITC has had a glorious past. We sincerely wish that ITC will embrace an even more splendid tomorrow. And we are strongly confident that the cooperation between ITC and Wuhan will move towards new heights.

Thank you.





**Speech by Professor Hans van Ginkel,  
Rector of United Nations University, Tokyo,  
Under-Secretary-General of United Nations**

***Geo-information benefiting society:  
the contribution of ITC with UNU***

***We are living in a time of profound change in a world that is an increasingly interlinked world.***



Professor Hans van Ginkel

The rapid development of improved systems of communication and transport has changed our world from a complex and sometimes chaotic blanket of territories and borders to a hierarchical system of nodes and channels. The frequency and volume of the exchange of goods and the mobility of people, money and ideas have created a situation in which no one can allow himself or herself to live in isolation any longer. We are becoming more and more dependent on each other every day.

These changes are for better and for worse. The positives can also be negatives and the negatives positives. International terrorism can strike from a great distance, but good too can be done over a great distance. Together we can make the choice to contribute to a better life and a safer world for all - now, and for our grandchildren and great-grandchildren. While we ourselves may live in an affluent society, we cannot ignore poverty, either in our own society or in poverty-stricken countries. In whatever way possible, we must empower those in need to help themselves. This is where capacity development comes in. And this is where international education comes in. Not in a narrow-minded, short-sighted knowledge-export fashion, but in a more reliable and generous knowledge-sharing mode. This is the way in which Schermerhorn and other pioneers in international (higher) education in the Netherlands intended to contribute to a brighter future for all.

This is all the more urgent now that our world is more and more wired and inter-

linked and our society is increasingly knowledge-intensive. Average levels of education are rising and, as a consequence, the whole concept of education is shifting. This will have a fundamental influence on higher education in particular. Multiple careers and learning throughout the course of one's working life will play an ever more important role. As a consequence, the profile of the student population, as well as the learning styles and study programmes of institutions of higher education (IHEs), must fundamentally change. The internal organisation and external presentation will have to follow suit. No longer can all IHEs be more or less the same - if that were ever the case. One of the major trends identified in the World Conference on Higher Education (UNESCO, Paris 1998) is the diversification of higher education, with regard to the level and substance of the programmes, as well as their orientation and proximity to practice and the job market.

The United Nations University (UNU) is a very clear example of this trend towards diversification in higher education and research. Its unique niche is indicated by the two parts of its name, which qualify each other. Being a university provides UNU with the autonomy and independence that guarantee its objectivity and integrity. Being United Nations focuses the work of UNU on the UN agenda: peace, security, governance, development, environment and the related science and technology. The IAU World List of Universities at present gives details of more than 16,500 universities. It is clear that, as there is only one United Nations university, UNU cannot be a "regular" university; it must be more focused and must aim higher. ITC, as part of the international education system of the Netherlands, also has a unique niche, which has recently been clearly defined and adapted to our present state of development in an increasingly globalised and knowledge-intensive world. It may be clear that ITC and

UNU are sort of "natural" partners, and we in UNU are very happy that ITC is now an associated institution of UNU, contributing its vast reservoir of expertise and experience in geo-information science and earth observation to our common efforts.

At the end of the day, all development is place-based. This gives earth observation and geo-information a strategic position in all development processes. This explains the importance of geo-information to policy and decision makers, as well as to those responsible for the management and sound use of natural resources and living space. Relevant and adequate geo-information is crucial for good governance and for the sustainable use of natural resources and the environment in which we live. The aim of recently initiated international programmes such as GMES and GEOSS is to contribute to the necessary geo-information. However, there are also very direct, practical contributions to be made. The active involvement of ITC in developing computer simulations for improvement scenarios for slums, jointly with UN-HABITAT, is a good example of a direct contribution to achieving one of the Millennium Development Goals - the least ambitious one, I would say.

Another consequence of the increasing knowledge-intensiveness of our world and society is that all players in the international field must continuously reconsider their position and cooperation relations. In recent years it has become clear that the focus of activity must shift from education programmes in Enschede to decentralised and more flexible education activities in constructive cooperation with partners in developing countries. If this is the case, there is no good argument for sticking to bilateral cooperation. Rather it is desirable to develop networks in which ITC can contribute its top-notch knowledge and expertise. For ITC, it is not enough to be a partner in such networks. It must - noblesse oblige - be a leading partner, adding value to the network. In this way ITC can continuously and consistently contribute to the improvement and renewal of all academic and professional aspects of the programmes. It can also be the catalyst for effective, direct cooperation between the other partners in the networks.

Part of this high-level, leading role of ITC in networks of partners lies in its capability to contribute to a positive research environment for post-docs and other researchers of partner institutions - institutions that alone do not have the resources to maintain a good research environment. In this way it can contribute to the continued use and development of regional capacities abroad to serve civil society. It is a concrete means of alleviating the isolation of high-level experts returning to their home countries and institutions.

There is a third aspect that must be emphasised in the future strategy of ITC. That is the application of its core competencies to specific subjects of high practical interest. In the cooperation between ITC and UNU, we have identified two such subjects: disaster reduction and land administration. Knowing risk contributes more to reducing the negative impacts of natural hazards than a false belief in the possibility of achieving a "no risk" situation. Knowing risk will also effectively help to reduce the vulnerability of individuals and societies. Geo-information can effectively support the awareness of possible disasters, as well as efficient relief operations.

Our activities in disaster risk management will focus on the systematic management of administration decisions, organisation, operational skills and the abilities to implement policies, strategies and coping capacities of the society or individuals to lessen the impacts of natural and related environmental and technological hazards (UNDP, 2005). This means that we will focus on the process by which assessed risks are mitigated, minimised or controlled through engineering, through the management of land use practices, and through other means. Our overall objective of activities in this area is to support capacity building of organisations in developing countries through training individuals in the collection, management, analysis and dissemination of spatial information before, during and after disaster events, in order to reduce the impacts of natural and related environmental and technological hazards and facilitate speedy reconstruction.

The issues of land and land administration are of growing interest in the international community. In particular in Southern Africa -

and not only in Zimbabwe - the present situation with regard to landownership is heavily contested. Some kind of legal solution must be developed. The basis of any solution, however, is clarity over who has rights to what. Specific interest is focused, therefore, on establishing appropriate land administration systems. Land administration is an activity with both scientific (concepts, models and methodologies) and professional (operations, management, governance) aspects. For land administration organisations that need to change in order to meet increased demands of societies, both aspects are of vital importance. Specific capacity development activities would be focused on policy issues such as the role of land tenure in poverty reduction, economic growth, sustainable agriculture, sustainable housing, strengthening the role of vulnerable groups (women, children, poor, indigenous), public administration and good governance. There

is also a distinct need to address the issue of land policy, the implementation of land policy, the organisation of public administration, as well as operational aspects such as the design and maintenance of work processes (adjudication, registration, surveying), and data acquisition, processing and distribution.

Both disaster risk management and land administration are good examples of high-quality geo-information benefiting society in a clear and direct way. We at UNU are looking forward to the implementation of ITC's proposals. To bring together all the expertise needed, in particular with regard to land policy, the inclusion of ISS in our cooperation might be beneficial to all parties concerned.

Thank you all for your attention. Let me conclude by congratulating the rector and the whole ITC community on the 11th Lustrum!

## Sessions on Geo-information and Governance

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For many of us geo-information professionals who work with spatial data and the production of geo-information on a daily basis, the relevance and importance of these sources for society at large is an essentially unchallenged, axiomatic belief. But if challenged, could we really demonstrate and prove the case?

It is a question that is regularly addressed at our lunch table. Similar questions then also arise: Do we adequately understand the beneficial and disruptive implications of informatisation of public administration? Is any real governance demand pull in place and, if so, are the demands sufficiently well known to us? Are we approaching the issues too much from a technology push perspective? If good governance, which in itself is a cornerstone of Dutch foreign policy, means well-informed governance, then in what ways do our "ITC fields" contribute to this, especially in LDCs, where societal problems abound?

Consequently, we readily accepted the ITC Directorate's request to organise a pair of sessions on these topics for the ITC lustrum conference, based on two design principles. First, we set out to achieve a meeting of the "techies" with the "socies", a meeting of the waters where potentially opposing views in the technology/society debate in geo-information provisioning would be on display. Second, we brought together practitioners from the South and North, not only those of ITC vintage but also people somewhat foreign to the ITC tradition.

### Presentations

We were extremely lucky to see that most of our invitees accepted the invitation to speak at the conference. These were Professor Michael Blakemore (Department of Geography, University of Durham, UK), Dr André Bassolé (CERPINEDD, Burkina Faso), Huib Broekman, MA (Teleprotect, Lelystad), Dr Laurindo Campos dos Santos (INPA, Brazil)





Dr Laurindo Campos dos Santos

and Dr Ronald Leenes (Department of Law, University of Tilburg).

We asked the speakers to reflect on the issue of using information and communication technologies in governance and what it entails: implications for the internal workings of government (so-called e-administration), implications for the relation with citizens (so-called e-citizens) and implications for the relation of government with other sectors (public or private) of society (so-called e-society). They were asked to do so from the perspective of their own daily professional or academic activities.



Dr André Bassolé

From the technology perspective, Laurindo Campos kicked off with his presentation on his institute's activities in building up an SDI for scientific data exchange within the Amazon basin. This incredibly huge territory, well known for its environmental fragility, is still a virgin area in terms of information infrastructure, and the challenges are simply overwhelming. The Brazilian government has initiated a number of national programmes, such as GEOMA, PPBio, LBA, BCDAM, aiming to meet the most urgent needs by requesting federal institutions such as the National Institute for Amazon Research (INPA) and the Emilio Goeldi Paraense Museum (MPEG) to harmonise their data policies and computer infrastructure to manage data, synthesise data, and offer mechanisms for disseminating the information on a global scale. These programmes propitiate the standardisation of metadata and geospatial data descriptions (providing a thematic framework) and tool development for data and information management.



Huib Broekman, MA

In the second presentation, André Bassolé took us to Africa and illustrated the tremendous progress being made in his part of the world under even far less favourable conditions for SDI development. He emphasised strongly that SDI development should never be an isolated, introverted venture and that the only way forward is to team up with, and piggy-back on, more forceful initiatives of general information society build-up.

Huib Broekman continued the discussion by taking us back to the Netherlands and telling us about the latest positioning technology

for security measures, particularly for fleet security. He actually demonstrated in real time how two trucks could be traced, in this case, one to northern Italy and another in Austria. He also shed light on the developments that we will be seeing in the years to come, and on the way these developments may actually change even the life of the common citizen.

The ensuing coffee break was well deserved but did not provide sufficient fortification for the shrill contrast to come with Ronald Leenes's presentation. Whereas Huib's presentation was one of hope, Ronald's, to say the least, was one of grave concern. He first devoted substantial time to the history of governmental use of the Internet, especially as a medium to disseminate information on citizens and the rights and obligations of businesses. Then this developed into a single agency/single service mode with more interaction from both sides, though it was soon found out that for many forms of communication with government bodies multimodal techniques are required. This requires digitisation of relevant information, interoperability and the creation of networks, ultimately resulting in integrated service delivery. In short, not only was a great potential highlighted for highly successful use cases such as dynamic traffic information systems, but also concern for potential abuse, certainly when personal positional data are involved. Ronald gave some horrifying examples of how novel technology is eating away at the fringes of our personal privacy and organisational autonomy, and the lagging behind of law-making bodies with respect to these developments.

Nearing the end of this part of the conference, Mike Blakemore carried it home in his very personal style, filled with critical questions and puzzles. Or as he put it "a self-critical evaluation and reflection about why we are at the current state (it is important to accept that while we may have our own strategic plans there are externalities that have had, and will have, significant impacts on us), combined with an appreciation of other contexts such as research theory and methodology, technological futures, and the complex and fluid processes of globalisation". Continuing from that statement, Mike raised



Dr Ronald Leenes



Professor Michael Blakemore

the question of whether geo-information technology, being such an expert domain, can realistically be compared with such a high-impact technology as that of cell phones, which is so easy to use, even for the non-initiated. That question very naturally led to his second question to the audience, namely, whether a focus shift isn't necessary in the GIS domain, from questions of geo-information production to issues of geo-information consumption by society at large. In the final leg of his thought-provoking talk, Mike turned to the relationship between

geo-information and society, sharing with us his considerations as to how we should apply geo-information technology, and in what ways it may help to alleviate the real problems, such as those of an ageing society.

### Outcomes

The two sessions were wrapped up in a plenary session, which gave the audience and us the opportunity to clarify the plethora of questions thrown at us, especially after the coffee break. We would not do justice to the two sessions in trying to summarise them with a short list of findings in this overview, and it was obvious that the audience eventually left the room with a few major questions in their minds. How great is the need to develop geo-information technology a lot further? Shouldn't we reorient the field and bring it more into line with societal needs? What are the societal risks of law makers lagging behind developments? Are LDCs in a position that will allow them to avoid identical mistakes? Can they leapfrog over them?

In all, these highly interesting sessions definitely didn't eliminate the need for our regular lunch breaks-cum-discussions. Luckily we did not keep any statistics, but we do know that these breaks have only become longer...



The two sessions were wrapped up in a plenary session, which gave the audience and us the opportunity to clarify the plethora of questions thrown at us

## Session on Geo-information for Disaster Management

Cees van Westen

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The first session on Thursday, 15 December, during the ITC lustrum conference was dedicated to the application of geo-information to disaster management. This was also within the framework of the agreement between ITC and the United Nations University (UNU).

The UNU-ITC agreement has an initial duration of five years and is directed at developing and carrying out a joint programme on capacity building in disaster geo-information management and in land administration, and the dissemination of knowledge on these and directly related issues. The overall objective of the UNU-ITC School for Disaster Geo-Information Management will be to support the capacity building of organisations in developing countries through train-

ing individuals in the collection, management, analysis and dissemination of spatial information before, during and after disaster events, in order to reduce the impacts of natural and related environmental and technological hazards. The following three groups of capacity-building activities are planned:

- training, education and curriculum development
- knowledge development and research
- the provision of project services.

During this session there were three presentations by international experts. The first presentation was given by Dr Dusan Sakulski,

academic officer, United Nations University, Institute for Environment and Human Security (UNU-EHS), Germany (website: <http://www.ehs.unu.edu/index.php>). The presentation was entitled "Making disaster management sustainable: the role of UNU-EHS". The UNU-EHS was created by the United Nations University to address risks and vulnerabilities that are the consequence of complex - both acute and latent - environmental hazards. It aims to improve the in-depth understanding of the cause-effect relationships in order to find possible ways of reducing risks and vulnerabilities. The institute was conceived to support policy and decision makers with authoritative research and information. The UNU-EHS research and training activities in its initial 2004-2005 biennium focus on flood plains, deltas and coastal zones, with emphasis on urban agglomerations. Drought and its impact on rural communities will be an added priority from 2006 onwards.



Dr Dusan Sakulski

In his presentation Dr Sakulski indicated the role and importance of four parallel disaster management "roads":

- legislation
- inter-institutional (horizontal and vertical) coordination
- sensible and sustainable technology
- DM education (professionals and public awareness) and research.

This was illustrated by the setting up of the disaster management organisation in South Africa. One of the main achievements was the establishment of the so-called "hazard atlas", which is an Internet-based system for disaster preparedness, monitoring and response, in which digital map and image data from different organisations are linked in a spatial data infrastructure.



Dr Lal Samarakoon

The second presentation was given by Dr Lal Samarakoon, director Geoinformatics Center, Asian Institute of Technology, Thailand (website: <http://www.gac.ait.ac.th/>).

Dr Samarakoon's presentation focused mainly on a project funded by the Japanese Aerospace Exploration Agency (JAXA) that deals with a data/information distribution network for disaster management in Asia. This project aims to establish a spatial data infrastructure for disaster management called the "Digital Asia Platform", led by



Cornelia Schmidt-Kundert

Keio University in Japan and with the involvement of AIT, GLCF/Maryland University, CSIRO, ADRC and others. The objectives of this project are to:

- establish a number of web servers in different countries and organise a system for the distribution of satellite imagery and other spatial data (in particular Landsat TM, MODIS, NOAA, SRTM, ENVISAT, JERS, ALOS, Terra-SAR). These nodes are to be established mostly with survey departments or space organisations in the various Asian countries, probably also including China and India.
- establish an Asian version of the "Charter for disasters", where all available satellite resources will be used after a disaster to obtain imagery of disaster-affected areas.
- incorporate a capacity-building component, in the form of mini-projects, where staff from mapping organisations together with staff from hazard-related organisations receive training, and work on an application project for a period of four months.

The third presentation was given by Mrs Cornelia Schmidt-Kundert, head GeoServices, SwissRe, Switzerland (website: <http://www.swissre.com/>). SwissRe is one of the world's leading reinsurance companies, employing some 8,000 employees, and supporting clients (insurance companies) from over 70 offices in more than 30 countries. Within the organisation, the GeoServices department is responsible for the company's centralised geo-server, data preparation and maintenance for natural catastrophe modelling, updating and maintenance of the electronic natural catastrophe atlas, and group-wide geo-services. Mrs Schmidt explained the SwissRe procedure for risk modelling, which involves four components: hazard footprint assessment, vulnerability assessment, value distribution and insurance conditions.

Mrs Schmidt also presented *CatNet*, the interactive natural hazard atlas developed by the GeoServices department. *CatNet* has specific insurance information for selected countries and event loss and fatalities lists, supported by the annual catastrophe survey issue of SwissRe's sigma magazine. This interactive atlas enables the mapping of his-



Mrs Schmidt also presented *CatNet*

torical events and hazard intensities for earthquakes and tropical cyclones worldwide, floods in selected countries, windstorms in Europe and tornadoes in the USA.

## Session on Alumni Network in the International Geo-Information Society

Jeroen Verplanke

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To emphasise the importance of the alumni network for ITC, two special sessions of the 55th anniversary conference were dedicated to this subject. Five alumni were invited to Enschede to give presentations in these sessions.



Professor Mahavir

### Operating a Professional Alumni Network in the Modern Geo-information Society

In this first session, the practical issues and problems of the network were highlighted. The session was chaired by Professor Mahavir, professor of planning and head of the Centre for Remote Sensing in India. Professor Mahavir is an ITC PhD graduate (1994) and also the alumni coordinator for India. The first speaker was Jeroen Verplanke, the ITC alumni coordinator, who gave a presentation entitled "The ITC alumni network; its status and policy". In his presentation he gave an overview of the extent of the ITC alumni network and discussed the ITC support policy for establishing alumni associations worldwide.



Jeroen Verplanke

The next presentation was given by Anggoro Santoso Widayat (NRM.2, 2005), who works for the World Agroforestry Centre in Indonesia and is a board member of the Indonesian alumni association. Anggoro's presentation, entitled "Using the Internet as a catalyst in the alumni network", discussed the usefulness and functionality of the World Wide Web in communicating with and among alumni. He showed the audience

what the architecture of an alumni website created with open-source software could be like ([www.itc-alumni.or.id](http://www.itc-alumni.or.id)). His approach would enable many associations to create similar websites that could be centrally hosted.

The last presentation of the morning session was given by Zowinde Koudougou (RLE.2, 1993) from the Ministère des Ressources Animales and the alumni association in Burkina Faso. His presentation "What strategy for the alumni associations for regional cooperation development?" focused on the common interests that alumni associations in a region might share. He argued that terms of regional cooperation can be based on the priorities that these associations intend to achieve. Good definitions of objectives in accordance with good organisation were the starting point of success. The ITC alumni associations could contribute in many ways to promoting geo-information sciences, and he said that the ITC alumni association network needed a well-defined strategy for implementing actions in order to make GIS promotion successful in the regions. According to Zowinde, regional cooperation would also benefit local efforts.

The session closed with a panel discussion on practical issues regarding the existence and establishment of alumni associations.



Anggoro Santoso Widayat



Zowinde Koudougoué



Roshanak Darvishzadeh



Stella Clara Massawe

### The Scientific and Professional Challenges and Opportunities of the Alumni Network: from "Capacity Building" to "Building on Capacity"

This second session, held in the afternoon, was more oriented towards the future and the role, according to the presenters, that alumni should play in the geo-information society. The session was chaired by Chudamani Joshi (NRM.2, 2001) from Nepal, a current ITC PhD candidate. He guided the presentations, starting with Ms Roshanak Darvishzadeh (GIU.2, 1997) from Iran, alumni commissioner for the ITC PhD community. She talked about the role of ITC PhD alumni in capacity building for the international geo-information society. Her main argument was the need for ITC to involve PhD graduates in the joint educational programmes of the Institute and to acknowledge the role these graduates could play as auditors of research and education. According to Roshanak, the PhD graduates have a unique perspective and knowledge, being schooled at ITC and thus knowing its ins and outs, and holding higher academic positions in their home countries. They are a currently underutilised ITC resource that could prove useful in future.

Ms Stella Clara Massawe (NRM.2, 2002) from Tanzania gave the second presentation: "A question of demand: alumni evaluating ITC supply". Stella works for the International Livestock Research Institute (ILRI) in Kenya and her presentation focused on her working experience since leaving ITC and how her acquired skills are linked to her everyday job. In her opinion, the soft skills she learned at ITC are just as important as the geo-information tools she learned to apply. It is those soft skills that enable her to apply her geo-information knowledge in new territories outside her particular training field. In her view, there needs to be a good balance in education at ITC between demand and supply. Some knowledge that is in demand in her line of work is not covered at the Institute. Her argument is that ITC should regularly check with its alumni to determine what knowledge is in demand.

After chairing the morning session, Professor Mahavir took the stand to give the day's final presentation: "Why an alumni network

is invaluable in a geo-information society". He gave the audience the following message: "After land, information has been the most sought after commodity among the communities the world over. A new wave of technological innovation is allowing these communities to capture, store, process and display an unprecedented amount of geospatial information. The quest for information about land (and related features) is giving rise to 'geo-info savvy' communities. These communities have access to spatial information, bringing transparency in governance and insurance against discrimination and exploitation."

"The geospatial information is not only used by a large variety of users, the information itself originates from, and is collected by, a host of application fields and agencies. Efforts are being made to enable the establishment of national repositories as digital 'warehouses' of national map data holdings, in order to facilitate the sharing of and access to digital spatial information. The development of NSDIs in particular is a step towards a geo-information society - with synergy of information, technology and access; expanding information interdependence; and the emergence of community-based governance."

"However, there are practical hurdles on the way and solutions have to be found to clear these. Emphasis has to be on information transparency and sharing, with the recognition that spatial information is a(n) (inter)national resource and that citizens, society, private enterprise and government have a right to access it appropriately. Only through common conventions and technical agreements, standards, metadata definitions, and network and access protocols will it be possible to put this information to its optimal use."

"A typical geo-information society will draw from the diverse fields and subfields of agriculture, soils, hydrology, forestry, mining, geology, urban and regional planning, and so on, leaving apart the science and technology of gathering the information. The spatial information is supported by an equally large number of agencies dealing with non-spatial information. Moreover, numerous municipal bodies and development authorities develop



similar geo-information for the areas under their jurisdiction."

"The data coverage of the cumulative geo-information is, no doubt, extremely rich but with the large number of agencies involved comes the difficult task of coordination to ensure a meaningful sharing of information, thoughts and ideas. Commonly acceptable standards, quality and policy are also required. This gives rise to the need for platforms where the 'sharing' can take place, both formally and informally. While some formal arrangements exist, these are often rendered ineffective by excessive bureaucratic hierarchy, constraining briefs and inter-ministry conflicts."

"Informal and semi-formal arrangements of coordination can prove to be more effective, which is where the alumni network can work wonders. With a common bond as ITC alumni and a common thread of knowledge in the science and technology of remote sensing and GIS, it provides an excellent platform for interaction and the exchange of ideas and concerns among experts from different application fields. It has the power to bring together a forester and an urban and regional planner to discuss the issues related to expanding cities at the cost of forest. It can also bring together a soil scientist and an agricultural scientist to find ways of conserving the soil while increasing the yield. The network of ITC alumni has the potential to identify fellow alumni in the various agencies listed above, which in turn become the lead source for information sharing."

"When extended to a regional scale, the network can effectively provide solutions to common problems (e.g. urban poverty, rehabilitation of tsunami-affected people, sharing of river waters). At an international scale, the network can provide a platform for learning

from each other's experiences. In economic and business terms, the network can also help to identify potential consultants, as well as clients, for the available combined expertise. The ITC alumni network does not end with the alumni themselves. Continuous interaction and support from ITC can help in terms of professional guidance and case-specific input from the alma mater."

"The ITC alumni network can also be considered under the umbrella of the Netherlands Alumni Associations in the respective countries. This will open up access to other institutes in the Netherlands (e.g. ISS, IHS, IHE) and to their respective alumni networks. Such networking, with the financial and conceptual support from NUFFIC, is already working wonders."

"Let us come together and activate the respective alumni and ITC networks and the Netherlands Alumni Association networks at the national, regional and global levels, and provide invaluable service to the geo-information society."

### Closing Discussion

To bring the day to a close, there was an open discussion where the audience could react to the three presentations. Chudamani Joshi moderated the discussion, which was very lively at certain points, and ITC's director of external affairs, Sjaak Beerens, frequently took the microphone to react to the different topics raised. He was very pleased with the concern shown by alumni for ITC and the role they envision playing in the geo-information society. With so many ITC alumni participating in the anniversary conference, this special session on the alumni network was highly appropriate. The topics raised triggered many discussions among the alumni in between the sessions, when people met old classmates and friends. The conference also offered a number of active alumni associations the opportunity to interact with ITC staff on a face-to-face basis and express their ideas. It was this direct contact that was valued most. The alumni network operates mainly in cyberspace, which enables easy communication, particularly over large distances. However, to regularly meet face to face was considered invaluable if real action and progress were to be achieved.

Chudamani Joshi moderated the discussion, which was very lively at certain points, and ITC's director of external affairs, Sjaak Beerens, frequently took the microphone to react to the different topics raised



## Session on Partnerships for International Cooperation and Development

Sjaak Beerens

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Partnerships feature prominently in ITC's current strategy as the essential key vehicles for the development (through research) and transfer (through education, training and advisory services) of knowledge in geo-information science and earth observation. Such partnerships comprise both scientific institutions and professional organisations, the former to jointly develop and provide services, the latter to assess specific requirements in terms of products and services in ITC's knowledge field. During the symposium five representatives from ITC's target countries, including four from partner organisations, presented their perspective on partnerships as vehicles for international cooperation and development.

The subject "Partnerships" was covered in two separate sessions during the ITC lustrum symposium.

In the session "Partnerships for Development", three representatives of partner organisations from Kenya, Indonesia and Tanzania presented their views on the collaboration with ITC.



Dr Wilbur Ottichilo

Dr Wilbur Ottichilo, Director General of the Regional Centre for Mapping of Resources for Development (RCMRD) in Nairobi, Kenya, presented the role of a regional centre operating under the auspices of the United Nations Economic Commission for Africa in providing geo-information services for the sustainable development of its member countries.

Established in 1975, RCMRD is an intergovernmental organisation with 15 contracted and 10 affiliated member countries in Eastern and Southern Africa. Under its mission to promote the development and use of geo-information in sustainable development, it provides training and advisory services to the member states, with the ultimate aim of becoming a centre of excellence in geo-information in Africa.

In his presentation entitled "Promotion of the use of geo-information in sustainable development through partnerships", Wilbur Ottichilo elaborated on the activities carried out by RCMRD. For RCMRD, partnerships play an essential role in fulfilling its mission.



Dr Hartono

For that reason a well-defined strategy of partnerships with national, regional and international organisations has resulted in a long list of partners, comprising scientific, professional and institutional organisations from across the world, of which ITC is one.

Dr Hartono, Dean of the Faculty of Geography of the University of Gadjah Mada (UGM) in Yogyakarta, Indonesia, elaborated on the circumstances in which the four large national universities in Indonesia have to operate.

Established in 1949, the University of Gadjah Mada, with its 55,000 students, is among the four top universities in Indonesia. Drastic economic and political changes caused the government of Indonesia to initiate a policy of university autonomy in 2001 and this is to culminate in total academic and financial autonomy by 2010. This challenges UGM to ensure for itself a position and a capability to address the conditions of autonomy.

Under the heading "Development of joint ITC-UGM programme curricula: an UGM perspective", Dr Hartono made reference to the long-standing cooperation with ITC that dates back to the 1980s. According to Dr Hartono, this cooperative background has created a solid basis for mutually beneficial collaboration that will allow UGM to face the challenges of academic and financial autonomy. Although initially with considerable input and support from ITC, such educational programmes that lead to an academic degree should eventually be based on the equal sharing of responsibilities.

He emphasised the need to complement joint education with research collaboration in order to allow UGM, as well as ITC, to gain a strong position in the international academic field of geo-information science. Dr Hartono considered UGM, with its ample facilities and resources, to be a strong partner for ITC.



Dr Elifuraha Mtalo



André Bassolé

Dr Elifuraha Mtalo, Head of the Geomatics Department of the University College for Lands and Architectural Studies (UCLAS) Dar es Salaam, Tanzania, made special mention of the contribution that the UCLAS-ITC partnerships had brought to Tanzania in general and the financial position of the Survey of Tanzania in particular.

UCLAS originates from the Survey Training School established during the colonial era in 1956. In 1972, by official decree and using his own consolidated funds, the president of Tanzania, Mwl. Julius K. Nyerere, upgraded the Survey Training School into the ARDHI Institute, with the special objective of annually "producing" a total of 24 professionals in the key disciplines of land surveying, town and country planning, and land management and valuation.

Elifuraha Mtalo paid special attention to land administration under the title: "Geo-information for land administration: overview of the impact of training activities at UCLAS and ITC on the land development sector in Tanzania".

He characterised the type and level of education and its orientation in relation to prevailing tools and methods in Tanzanian land management and administration, which were mainly devoid of ICT strategy till the mid-1990s. Joint and individual attempts by UCLAS and ITC to change the vision on geo-information in land management were faced with such obstacles as:

- the lack of awareness of tools and methods, as well as training and education opportunities
- limited willingness to release staff for training for long periods
- limited funds for capacity building, combined with limited willingness to pay for education and training.

Over the last five years or so this situation has drastically changed, with increasing numbers of staff of professional and ministerial organisations participating in UCLAS, ITC and joint UCLAS-ITC capacity-building activities. This has resulted in attaining a critical mass of technical staff well grounded in geo-information technology and in the increased

awareness of policy makers of the role of geo-information technology. This has led to such developments as:

- the intensification of the transformation of spatial data capture and processing into fully digital procedures, including the acquisition of new equipment, ICT facilities and software to support digital data capture, processing, management and analysis of spatial data at the ministry as well as at designated regional nodes
- the establishment of spatial databases, the consolidation of the digital urban land cadastre (in progress), and the digital land registry
- the computerisation of some ministry-level operations such as the registration of surveys and survey plans and the assessment of land and property tax
- the use of the established databases by the assistant commissioner of lands to foil fraud and corruption in land acquisition and land delivery
- the establishment of a new ministry-level division charged with designing and implementing ministry-level management information systems and land information systems.

In the plenary session "Partnerships in International Cooperation" **André Bassolé, Director General of the Centre for Studies, Research and Production of Environmental and Sustainable Development Information (CERPINEDD) based in Ouagadougou, Burkina Faso**, presented the importance of partnerships for building capacity in Africa.

André Bassolé placed human action in relation to good governance and sustainable development in the centre of his presentation. By comparing the decision-making process of a developing nation with that of a developed nation, he made clear that awareness and knowledge do not guarantee, but can only contribute to, good governance. For this reason Africa is in need of the human resources, the use of appropriate science and technology, as well as foreign support, in realising the challenge of sustainable development. Apart from training and education, he sees raising awareness among politicians and decision makers as essential in capacity-building efforts.

He used NEPAD (the New Partnership for Africa's Development) as a framework for partnerships for building capacity. NEPAD promotes subregional and regional integration, favouring partnerships with regional organisations in Africa. He cited the partnerships of ITC with the Regional Training Centre for Aerospace Survey (RECTAS) in Ile-Ife, Nigeria, and the Regional Centre for Mapping of Resources for Development (RCMRD) in Nairobi, Kenya, both operating under the auspices of the United Nations Economic Commission for Africa, as good examples of the type of partnership in capacity building that NEPAD pursues.

Equality and the demand-driven nature of partnerships are other essential elements of NEPAD, avoiding the former "assistance mentality". In this respect André Bassolé emphasised the need to adapt educational curricula to the type of expertise needed with respect to development priority areas in Africa. This, he claimed, would also contribute to limiting the brain drain currently prevailing in Africa. Furthermore, he referred to the attention paid by NEPAD to the private sector, recommending the opening up of partnerships to the private sector in Africa, both as beneficiary of capacity building and as partner in the dissemination of knowledge.



Dr José Luis Palacio

Finally, Dr José Luis Palacio, Director-General Graduate Studies of the National Autonomous University of Mexico (UNAM), elaborated on the role of a university in a newly emerging economy, under the heading "Partnerships in international cooperation for development: UNAM-ITC collaboration agreement on education and research".

Established in 1551, UNAM is one of the largest universities in Latin America, with over 270,000 students, of whom 20,000 at graduate level, and over 30,000 staff members. With its headquarters in Mexico City and 18 faculties and 30 research institutes, many of which are distributed throughout the country, UNAM caters for the needs of both Mexico and many other Latin American countries.

José Luis Palacio elaborated in length on the history and character of the collaboration of

the UNAM Institute of Geography with ITC. The current collaboration centres around a joint educational programme resulting in an academic degree. This programme has been fully designed to meet the needs of the Mexican market. For this reason it deviates from the regular programme at ITC, although meeting the accreditation requirements that both UNAM and ITC have to comply with. The programme is targeted at both professional organisations (including municipalities and public administration) for management purposes and academic institutions for research purposes.

As a well-established top university devoted to research (with 3,600 researchers) and education, UNAM has expressed a clear interest in collaboration at research level as well. In this context, UNAM has ample resources, in terms of both personnel and finances.

While stating that flexibility in content and delivery would comprise a key characteristic of the collaboration, José Luis Palacio emphasised in his concluding remarks the complementary positions and interests of UNAM and ITC, with the former expected to become a reference point for Latin America.

### Conclusions

The importance of geo-information and earth observation for sustainable development was referred to by each of the five presenters. The role that capacity building has to play to achieve full incorporation of the knowledge field geo-information was shared by all. Of particular relevance in that respect is the contribution that capacity building in geo-information science has made to the land management sector in Tanzania, where the Government Land Development Sector now realises considerable revenue from land and property tax, allowing the Ministry of Lands to run its budget entirely from the revenue collection from its land resource management activities.

Moreover, proper application of geo-information tools and methods may improve governance. Tanzania again presents a very good example as, with the increased integration of ICT and geo-information technology in land administration, operational problems such as corruption, fraud, and



accidental and deliberate double allocation of land have been markedly reduced.

The emerging roles that regional and national institutions nowadays play in building national and regional capacity were very well documented in the presentations, indicating the fact that they are increasingly taking over the role that ITC has played for many decades. Partnerships contribute to the realisation of global ambitions such as laid down in the Millennium Development Goals (MDGs), as well as regional aspirations such as the new Partnership for Africa's Development (NEPAD). The presentations also confirmed the wisdom of ITC's new strategy to "build on capacity", as laid down in its current strategic plan, whereby local in-

stitutions are considered as partners in the joint development and transfer of knowledge.

In this respect it is worth mentioning that the opinion of the three ITC alumni among the presenters, Wilbur Ottichilo, André Bassolé and José Luis Palacio, was shared by the two who are not part of the - in popular parlance - ITC Mafia. From the former, one may expect a positive attitude towards their alma mater. Elifuraha Mtalo, a member of the New Brunswick family, and Hartono, with "French connections", equally applauded the changing role that ITC is playing in terms of capacity building for sustainable development.

## Session on GIScience Body of Knowledge

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Many global problems of today, such as environmental, mobility and safety problems, the spread of avian influenza, and the greenhouse effect, are related to spatial issues. To manage these spatially related problems, large amounts of geo-information are needed. In many cases the main goal of this geo-information is to help governments and non-governmental organisations to deal with land, (natural) disasters and natural resources.

However, simply acquiring computers and software is not enough. Organisations need a critical mass of well-educated professionals that can oversee the whole path of geo-information provision - from acquiring, modelling, storing, analysing, exchanging, disseminating and visualising to serving society and sustainable development. The education of geo-information professionals within this new context was the topic of the session "GIScience Body of Knowledge" during the ITC lustrum conference.

The first presentation in this session came from Ann Johnson, manager of Higher Education Industry Solutions at ESRI. She presented the initiative of the University Consortium for Geographic Information Science (UCGIS) to develop a geographic information science & technology body of

knowledge (GI S&T BoK) (see also [www.ucgis.org](http://www.ucgis.org)). The aim of the UCGIS, an organisation in the United States that is composed of universities and professional associations, is to define the direction in which GIScience should go and motivate the geo-information science research community to move towards that direction. The GI S&T BoK is a collection of model GIS curricula. Since 1998 many scholars, academics and business people have contributed to describing the GI S&T BoK. It is currently being fine-tuned.

The model curricula describe how higher education should prepare students to successfully use geo-information in the variety of professions that rely on geo-technologies. They specify what aspiring geo-professionals need to know and be able to do. The main objectives of the GI S&T BoK are (a) to align curricula and courses to capacity-building requirements, (b) to provide a guide for human resource professionals in employee recruitment, selection and professional development, and (c) to solve the current problem of an inadequate supply of geo-professionals. The BoK could be used as a resource



Ann Johnson



for course and curriculum planning for academic and professional programmes. If it obtains official status, it could be used for professional certification and programme accreditation. The GI S&T BoK includes 10 knowledge areas:

- conceptual foundations
- cartography and visualisation
- data analysis
- design aspects
- data modelling
- data manipulation
- geocomputation
- geospatial data
- GI S&T and society
- organisational and institutional aspects.

These knowledge areas are divided into units, as well as hundreds of topics, each defined as a formal educational objective. Specific curriculum paths can be outlined using a selection of these topics.



Dr Jantien Stoter

In the second presentation of the session, the author of this report (Jantien Stoter, ITC's department of Geo-information Processing) presented the ITC Geo-Information Management (GIM) curriculum. In the last decades we have seen a vast number of technological advances, particularly in geo-ICT. Technological advances have great potential with regard to the use, sharing and dissemination of geo-information. However, a number of strategic questions arise when one wants to successfully implement these technologies in organisations, for example: What are the customer's needs? How can I introduce technical innovations in my organisation most successfully? How do I set up a maintenance plan? What are the legal implications?

Geo-information managers are needed who are capable of (a) assessing the current technology opportunities, (b) communicating between policy makers and technicians, and (c) designing and guiding the development of geo-ICT solutions. The ITC GIM curriculum, which has been running since 1999, not only covers basic geo-ICT knowledge but also teaches appropriate management skills to make geodata and information available, affordable and accessible to different application fields. The students are trained to become change agents in a changing geo-information world. To ensure that the quality

of this programme remains in line with technical developments and user requirements in today's market, the curriculum is now under redevelopment in alignment with current geo-information (business) markets. This includes the management of geo-information within the context of geo-information infrastructures (GIs). The GIM curriculum addresses the question of why the anticipated and advertised benefits of GIs still remain largely unrealised despite their potential, and suggests how this challenge may be met. In the curriculum, although significant emphasis is put on management skills, the students are also educated in socio-technical, organisational and institutional aspects of GIM, since in the past it has been proven that information systems and technologies may fail if these aspects are not considered.

These two presentations raised the question of whether the GIM curriculum can be described as a path through the units and topics that are defined within the GI S&T model curricula. And indeed the two knowledge areas of organisational and institutional aspects (OI) and GI S&T and society (GS) cover the basics of the GIM curriculum. The OI knowledge area addresses those organisational and institutional aspects of GIScience activities that go beyond systems design and implementation, including the overall management of those tasks within an organisational context. Many of these aspects are non-specific GIScience tasks. The knowledge area on societal issues covers problems related to the fact that technical benefits are often constrained by other factors, such as legal regimes (e.g. exclusive rights), limited access to data because of economic and institutional factors, and the difficulty of precisely evaluating the costs and benefits of applying geo-ICT.

The GIM programme, with its experience in educating GIM professionals, can contribute to fine-tuning the GI S&T BoK. In addition, ITC experience in lesser developed countries can make the description of the knowledge areas more generic. It is necessary that modules on organisational and institutional issues and on societal issues discuss the different contextual conditions of geo-information management in lesser developed countries and in countries in the Western world, for

example, issues relating to spatial data security, the sharing of data, and the predominance of top-down approaches to design. Another important question is whether governmental organisations such as national mapping agencies are really suited to be the ideal custodians of GIs, or whether curricula should come with suggestions for alternative models that may be more effective.

The complete programme, including the speeches by the individual speakers, can be found at [http://www.itc.nl/news\\_events/55year/default.aspx](http://www.itc.nl/news_events/55year/default.aspx)

The pictures published on this website will give you an impression of the ambiance of the conference.

What can be concluded from this session is that educating geo-professionals has drastically changed over the past 20 years. Geo-ICT developments are moving fast. At the same time many more users and geo-information providers have entered the geo-information market, and geo-information is used in a wide variety of applications to solve spatially related problems. If we look at the role that geo-information could and should play in solving global problems related to our living environment, geo-information applications are needed that truly fulfil the information demand. This requires educational programmes to educate professionals who oversee the whole process, from data acquisition to dissemination and serving, including market developments as well as all the technical, institutional, organisational, financial and juridical constraints and possibilities.





# ITC's 55th Dies Natalis

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*The celebration of the Institute's 55th Dies Natalis on 16 December brought the lustrum activities to a conclusion. Rector Martien Molenaar opened the proceedings and, delivering his address, he accepted appointment as rector of ITC for a second four-year term of office.*



Professor Martien Molenaar

## Spatial Information for Civil Society: Capacity Building for the International Geo-information Society

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How short is history?

When Willem Schermerhorn founded the *International Training Centre for Aerial Survey* (ITC), he had a vision that aerial photography provided an important tool for mapping, especially for countries that had just broken away from their colonial ties. The breakthrough of this new technology just before, and also during, the second world war showed its potentiality for topographic mapping and for resource mapping. Maps were important tools for spatial development and the management of resources, and therefore they were considered to be instrumental in the economic development of the new states. It was the vision of Willem Schermerhorn that ITC should train professionals in the new techniques so that they could modernise the mapping programmes of their home countries.

The mapping disciplines have come a long way since then. Maps and three-dimensional topographic data can be accessed through Google-Earth and, where accurate positioning used to be the professional pride of highly trained geodesists, we now see that such services can be provided using GPS-

based consumer products. Over the 55 years of its existence, ITC has continuously adjusted to these scientific and technological developments and it has always managed to stay in the forefront of its field - now called "geo-information science and earth observation". Throughout these years, ITC has also maintained its leading position in capacity building for developing countries.

The conditions under which ITC has been performing its tasks have continually changed, and so has the delivery of its educational services. Earlier this week we discussed GI-NET, the network of partnerships that ITC has developed over the last five years with universities and institutes on four different continents. Through this network we deliver joint educational programmes - in addition to the educational activities conducted here in Enschede. In this setting we can provide our educational services in the countries or regions where many of our course participants come from. Such an international education network will improve the effectiveness, flexibility and productivity of the ITC educational system (ITC, 2005a). The nodes of the network can also give re-



gional support to the course participants and alumni by arranging regional seminars and workshops. Furthermore, e-learning tools will provide facilities for mutual support of the lecturers at the different nodes.

The rapid developments in technology, as well as in the demand for information, imply the need for continuous upgrading of professionals through lifelong learning. This challenges the education and training institutes themselves to keep up to date with scientific and technological developments. And this requires strong interaction between education and research - an item high on the agenda for the next stage in the development of the network. Many of our partners in less developed countries, however, do not have sufficient resources to develop their own research activities. Therefore, we are presently in the process of developing partnerships for research purposes, in order to create opportunities for our colleagues abroad to be involved in research by participating in ITC's research programme.

#### From map production to information provision

During the last 55 years the objective of spatial data collection has shifted from map production to spatial information provision. The final output of a mapping process used to be a map that had a fixed content defined by theme, scale and symbolisation - a static and two-dimensional representation of a terrain situation.

The information components of the geodata infrastructures (GDIs) are still based largely on the traditional map paradigm. But within this paradigm we see the development of new products and services. The old concept of maps evolved into digital maps and from there into seamless databases, and presently we see scaleless databases emerging. The line map is being replaced by object-structured representations. The dimensionality is evolving from 2D to 2.5D and users have access to data and services that allow them to create rectified or draped high-resolution images according to their own needs. Spatial data are also provided through new delivery mechanisms that support the present rapid development of location-based services and mobile GIS.

But developments are presently entering a new stage. Object-structured approaches enable other spatial representations that go beyond the old map paradigm. The development of the dimensionality of spatial databases from 2D to 2.5D and to 3D will facilitate new types of representation of spatial complexes where we can travel through space and through objects. Based on the integration of images with these three-dimensional database models, virtual reality and augmented reality representations have been developed in the form, for example, of city models, street models and buildings. Initial developments in combining GIS and CAD techniques have produced city models where it is possible to zoom in on individual buildings and enter them to inspect their interiors.

Modern laptops are powerful enough to handle dynamic representations that simulate flight tracks across three-dimensional terrains or cities, or to handle terrain representations that change through time. We are moving away from the static map that could handle only the spatial component of a terrain situation. With these new media we can handle the temporal aspect too. In fact, modern technology allows us to generate any type of terrain representation, be it two-dimensional, three-dimensional, static, dynamic or spatio-temporal (Vosselman, 2005). With respect to spatio-temporal representations, there are still many problems to be solved, but we can be confident that the solutions will be available in due course. With

these developments, we have gone far beyond the stage of map production and have entered the stage of spatial information provision. This implies that scientific interest is shifting from the development of more advanced representational models to the information content.

#### Geo-information for civil society

Spatio-temporal information or geo-information refers to real-world phenomena, or rather to real-world processes. Our course participants and our PhD candidates come to ITC because their home organisations are involved in managing our living environment and resources. They are monitoring and managing natural or man-induced processes that have geospatial aspects. These might relate to urban development, sustainable land use, biodiversity, water resources management (Bos, 2005), disasters, land management, land tenure (Augustinus, 2005a, b) and the like. Governments, but also civil society at large, are involved in monitoring, analysing, understanding and managing these processes. Earth observation and geo-information are essential for providing professionals in the field, and decision and policy makers, with relevant information in this context. This is clearly illustrated by the fact that an Erasmus Mundus programme entitled Geo-information Science for Environmental Modelling and Management has been assigned to a consortium composed of the universities of Lund, Southampton and Warsaw and led by ITC. This programme attracts many students.



The two buzzwords "sustainability" and "security" play a dominant role in the international agendas. We find them in the UN Millennium Development Goals, in the Kyoto Agreements, and in the Johannesburg Summit on Sustainable Development of three years ago. The connection between earth observation, geo-information, sustainability and security is also manifest in the European programme Global Monitoring for Environment and Security (GMES, 2005). This is the European contribution to developing the Global Earth Observation System of Systems (GEOSS), with respect to which a 10-year implementation plan was accepted by the participating countries earlier this year (GEO, 2005).

These initiatives clearly show that geo-information and earth observation will be of great importance when it comes to monitoring the progress made with respect to these international agendas. An important prerequisite is the specification of indicators; this is in line with the statistical legacy of the United Nations (Ward, 2005; Wold, 2005). Such specifications require a profound knowledge of not only the technology of earth observation and geo-information processing but also the processes affecting issues such as poverty reduction, biodiversity, and land use development. No information can be extracted from data that do not stem from a conceptual model founded on a profound theoretical basis (Ward, 2005). An example is the project that ITC is presently working on for UN-HABITAT. This project aims at developing scenarios and simulations of slum development. The scenarios will visualise attractively and interactively how conditions in slums may change if certain investments are made. The results of the scenario development will be presented during the World Urban Forum in Vancouver in June 2006 (ITC, 2005b).

It is evident that geospatial information is indispensable for modern governance. Indeed, when discussing issues of governance or, if you like, *good governance*, then the focus is generally on institutional aspects, on the transparency of legislative processes, on poverty reduction and on access to resources, etc. These issues are also high on the agenda in the policy documents on de-



velopment cooperation of the Netherlands Ministry of Foreign Affairs (BuZa, 2003). It is true that priority should be given to these issues, but we should be aware that good governance requires good information and, because almost all human activities have a spatial footprint, this implies geospatial information to a large extent (see, for example, Augustinus, 2005b). We would like to see a greater awareness of these aspects in those policy documents.

We realise that these considerations imply new needs for training and education. The University of Twente and ITC are presently developing a new specialisation on governance and spatial information management within our MSc programme. The agreement signed between the United Nations University and ITC earlier this year signals the start of other initiatives in this context. We will jointly develop two capacity-building programmes focusing on spatial information provision: one for disaster management and one for land administration. With regard to the latter, we are presently working out ideas for a school of land administration, together with the Netherlands Cadastre.

The previous considerations show that the provision and use of geo-information are no longer the monopoly of specialised experts. Of course, they are still indispensable for the acquisition and production of spatial information and for the delivery of information

products and services. But at this present stage of the technology, with modern representational techniques and delivery tools, this information can be made accessible to non-professionals and to policy and decision makers managing our living environment and resources.

### Some topics for the geo-information community

When talking about governance, we should keep in mind that this implies decision making at different (i.e. local, regional, national, supranational and even global) levels. This is because the dynamics of our living environment are generally the resultant interacting geospatial processes at different spatio-temporal aggregation levels:

- Flood risks in the Lower Rhine basin are due mainly to changing land use in the Upper Rhine basin, which to a large extent is the effect of European land development policies of the last 50 years.
- The reduction or elimination of agricultural subsidies in the North should give better chances for southern producers to participate in the global market and that is good. But we should be aware of the possible growing pressure on marginal production systems which might have affects contrary to our ambitions with respect to sustainability.
- Urban change in Europe is to a large extent caused by intercontinental migration due to an uneven global distribution of wealth and economic opportunities.
- Mineral deposits occur in regional or continental geological formations whose origin can often only be understood properly in the context of the processes that formed the present continents.

These are some examples that demonstrate the complexity of the problem areas in which geo-information should play a role in monitoring, understanding and management. The provision of geo-information in this context requires a profound knowledge of the technology, sensor systems, information technology, and procedures and methods for data acquisition, information extraction and management. But a good understanding of the spatial processes is equally important in order to specify the relevant information needs. These problems

First row from left to right:  
Dr Laurent Sedogo, Minister of Environment and Tourism, Burkina Faso;  
Andre Le Loux, Municipality Enschede; Ir Ton Heddemma, chairman ITC's Supervisory Board; Prof. mr Jaap Besemer, member of the Supervisory Board



imply some interesting areas for the further development of geo-information science:

- *Spatio-temporal issues*: Modern technology can deal with dynamic presentations, but the conceptual developments in geo-data handling have to date dealt mainly with the thematic and spatial aspects. Concepts for modelling time-related issues require much more attention before we can model and represent the dynamics of our living environment.
- *The third dimension*: Most of the representations today are still two-dimensional. However, our living environment is three-dimensional, so we need three-dimensional representations.
- *Multi-scale issues*: The fact that we are dealing with interacting processes at different aggregation levels implies that methods should be further developed to manage data at multi-scale levels. Semantic definitions at all levels should be mutually consistent and harmonised. Information transfer between these levels should be possible, and consistency rules should be developed.
- *Multi-theme data integration*: The monitoring and management of such complex processes require interdisciplinary cooperation. Experts from different disciplines have to combine their expertise and information, which implies multi-theme data integration.
- *Cross-jurisdiction problems*: Managing our living environment and geo-processes requires actions at a supranational level. This means that cross-jurisdiction solutions have to be found for disparate institutional arrangements, with respect not only to mandates and decision power but also to the disparity in the available information and information concepts and services.

The integration of different strands of geo-information requires a common reference. This might be through geodetic reference systems, but more often use is made of topographic core data. These are traditionally provided in the form of topographic maps, which have their conceptual roots in the early 19th century. These concepts are now insufficient; new concepts for (large-scale) topographic core data provision must be developed, together with new delivery mechanisms. These new concepts should

certainly be based on the opportunities provided by new sensors for three-dimensional data acquisition, in combination with concepts developed for spatio-temporal object-structured representations that are scaleless in seamless databases and virtual reality technology.

The ITC educational programme undergoes frequent adjustments and upgrades in order to incorporate these issues. A review of our research programme is planned for spring 2006. The results of this review will form an important input in the discussion on the outlines of the new research programme for the next four or five years. This new programme should certainly pay attention to the topics discussed here.

#### **Institutional aspects of geo-information provision and the need for capacity building**

Organisations involved in spatial data management should anticipate the technical issues they have to face now and in the near future. I have discussed several developments in the technology for collecting, representing, managing and disseminating data. National mapping agencies and other organisations involved in the processes of producing, disseminating and using spatial information will have to redefine their position and role in this field in the coming 10 years (Dale, 2001; Lawrence, 2001). The new opportunities offered by modern technology, the new concepts of the role of government, and the evolving new (global) economy will have an impact on the development of (national) geodata infrastructures.

Governments certainly have a regulatory role with respect to information provision, but should they also be producers and providers? Or should they only arrange the infrastructure through which geo-information is provided? The previous considerations have made it clear that geo-information is indispensable for many government duties, not only in respect to the management of our living environment and resources, but also in respect to responsibilities within the context of the international agendas and treaties on the sustainable development of our planet. Geo-information is a prerequisite for good governance at all aggregation levels.

The importance of earth observation and geo-information and of GDIs for governance has implications for the national (public) organisations responsible for establishing and operating these GDIs. Hence, besides the education of individuals, capacity building of entire organisations is required (Georgiadou and Groot, 2002). The goal of education is to prepare (young) professionals for their tasks ahead, while the goal of capacity building is to simultaneously shake up the organisation that will employ them. The aim is to strengthen an organisation so that it can assume responsibility for designing, managing and sustaining development. For this, not only are thematic professionals required but also staff that can formulate, design, manage and negotiate with other organisations and central government in order to address organisational and institutional issues in support of the acceptance of technological solutions. Hence capacity building comprises human resources development, organisational strengthening and institutional strengthening. The recent developments in Tanzania, where capacity building has been treated as a necessary investment to increase revenues through an improved land registration, are interesting. So it is no longer a matter of costs but rather an investment with calculable returns. The need for capacity building, especially in developing countries, has also been recognised clearly in the 10-year implementation plan for GEOSS mentioned earlier (GEO, 2005)

#### Internationalisation of higher education

Presently we also see the rapid internationalisation of higher education. Top-level institutes for higher education, especially universities, have to operate increasingly in the international arena. They have to compete internationally for talented students and researchers. Their academic staff members have to join international networks to compete for research grants. This requires a high academic profile, and we see a proliferation of quality indicators and ranking lists that these universities use to prove that they belong to the very top. The internationalisation of higher education therefore has a strong focus on Europe and North America, and there is much less interest in this context in less developed countries. Two main drivers can be recognised here, and we see them

also expressed in the policy brief of the Netherlands Ministry of Education, Culture and Science (OCW, 2004):

- With the advent of the information and knowledge society, there is international competition for intellectual capacity. The different economic blocks of this world develop policies for brain gain to strengthen their own knowledge society. The effect is a brain migration from weaker economies (read "developing countries") to stronger economies.
- There is increasing pressure on educational institutes to generate income in the international market for educational services. The educational programmes and courses offered within this context generally focus on domains where students are willing to invest in their education because they expect to develop a professional career with a high income. These programmes are generally offered to countries with strong or fast-growing economies.

These two drivers do not provide for the needs of most developing countries. And the educational services offered in this context certainly do not cover all their needs for developing strong public and private sectors. These countries even experience a brain drain because of the first driver, and for economic reasons they often have limited access to the educational services mentioned in relation to the second driver. They need education and training in knowledge domains that may be less attractive for commercial education activities.

Therefore a third reason for offering international educational services is the fact that countries with a weak economy encounter great problems in the face of the present process of globalisation. They often lack the governmental, economic and educational strength to keep pace with these developments and defend their own interests. The primary objective for offering education is, then, capacity building in those countries rather than the economic benefits or profits for the organisation offering the services (Boeren and Holtland, 2005). This is the traditional domain where the Dutch institutes for international education (IE institutes) have been active for 50 years - and with great success!



### The changing context of ITC

The internationalisation of higher education is of course a worldwide development, with a clear impact on Dutch higher education policies that goes beyond the issues dealt with in the policy brief of the Ministry of Education, Culture and Science mentioned earlier. This ministry is presently preparing a new law on higher education and research (WHOO), which will regulate the Dutch academic degrees and the licences of institutes to issue these degrees in compliance with the European arrangements under the Bologna declaration. This implies a definite arrangement for the recognition of ITC degrees; under the present law, provision is only temporary. This recognition is of course subject to official accreditation of our degrees, and in this respect a review panel will be visiting us in January 2006.

With this new law, the ministry is also developing a new system of financing Dutch higher education. The funding of the IE institutes should be part of this new system from 2008 onwards; then these institutes will no longer be funded under the present special subsidy arrangement. SAIL, the umbrella organisation of the Dutch IE institutes, is now negotiating new funding arrangements with the ministry. This discussion concerns mainly the new funding constraints; presently there is no indication of drastic changes in available budgets.

The general trends of internationalisation of higher education, and more specifically the policy development of the Ministry of

Education, imply that the IE institutes should further integrate into the Dutch system of higher (or rather university) education. Of course, such developments are not new. The signs have been there for quite some time, and we are not unprepared. For a long time now, ITC has been developing close cooperation with the universities of Twente, Wageningen, Utrecht and Delft in particular, and our professors have cross assignments at these universities. We have a joint MSc programme (the GIMA programme) with Delft, Utrecht and Wageningen. With the University of Twente we are developing the joint MSc programme Governance and Spatial Information Management, as well as joint educational activities concerning water resource management. Consequently, our administrative relationship is increasingly complemented by academic cooperation.

Research cooperation with universities has been based primarily on the cross assignments of ITC's professors. Under this arrangement, the participants of ITC's PhD programme have received their degrees from these four universities. Although this has been very important for the development of our PhD programme, it carries the risk of fragmenting our research network. We are now developing more structural forms of cooperation, for example:

- The initiative coordinated by the Netherlands National Commission for UNESCO entitled "Water, Ecosystems and Humanity Facing Global Change: A Framework for Research and Capacity Building". The aim is to train MSc and PhD students from developing countries and Europe, thereby strengthening the scientific capacities of collaborating research institutes. The Dutch participants are UNESCO-IHE, ITC, ISS, the University of Twente, Wageningen University and Research Centre, and the University of Amsterdam.
- The initiative to create a joint research institute in geo-information science and earth observation. This initiative will be an important feature in the development of the ITC research programme (mentioned above) over the next four or five years because in such a setting ITC and the four universities can harmonise and coordinate their research activities and develop a joint PhD programme.



These initiatives will of course also be of great importance to the research partnerships that we are developing with our GI-NET partners.

#### But still ...

Despite the closer cooperation with universities in research and education, we should not forget the mission of ITC. Our charter relates to capacity building and organisational strengthening of organisations in less developed countries. The ODA mission will remain our main objective even under the new funding arrangements, and I agree with my colleague, Louk de la Rive Box from the ISS in The Hague, that it would be desirable for the Ministry of Education, Culture and Science to state explicitly its commitment to the ODA mission in the relevant policy documents (Box, 2005).

We are still exploring how strict the ODA constraints will be. In the policy development of the Ministry of Foreign Affairs, we can observe that international cooperation is being increasingly placed in the context of international security and stability. Furthermore, the geographical scope is also widening to include countries in transition and those in peri-European regions. But even if the new funding arrangements were in due course to broaden the geographical orientation of ITC, the focus would still be on capacity building. And this would imply that we would continue to provide educa-

tional services ranging from professional training to academic education and research as we do now. It is this combination of educational levels and orientation that makes our Institute so special. Where universities and polytechnics provide educational programmes in a wide range of disciplines at a particular level, ITC provides training and education at different levels in a coherent field. It is this particular aspect of ITC, in combination with the educational partnerships in GI-NET mentioned earlier, that puts ITC in such a unique position in the field of higher education. We will emphasise this to the Ministry of Education, Culture and Science when we discuss the new funding arrangements. Our Institute can serve as a test bed for new concepts in education with respect to both multilevel settings and different styles of educational partnerships, possibly leading to joint degrees.

#### Ladies and gentlemen

With this address, I accept my appointment for a second term of four years as rector of ITC - and I do so with great pleasure. In exploring various considerations, I have tried to sketch the turbulence of the world in which ITC operates. This turbulence concerns our professional and academic domain; it concerns the international setting and the rapidly developing views on international cooperation; it concerns the whole field of higher education and particularly the uncertainties regarding the new constraints on our future funding. In this respect, the next four years might turn out to be the most exciting period in the existence of our Institute.

But I also hope that I have been able to show that we have a stimulating and interesting future before us. The process of globalisation is accelerating and, with our international setting, we are in the thick of it. The development of our scientific domain is also accelerating, and we are in the front line. The final outcome of the discussions with the Ministry of Education is not yet clear, but these discussions are being conducted in a positive atmosphere and all parties involved are jointly looking for the best options to guarantee the future position of the IE institutes. And with our colleagues of the University of Twente too, I can recognise a positive intention to see how best we can

Rector Martien Molenaar (left). His wife Julia (right): "it is only with her consent and full support that I can do this." Martien's secretary, Marja Verburg (centre): they have become a team operating in an atmosphere of collegiality and friendship





develop our mutual relationship. The next four years will be a great challenge for us all. I thank the Supervisory Board of ITC and the Board of the University of Twente for the confidence that they expressed through my reappointment. I hope that you realise that I would never have accepted my first appointment or this second appointment without the full support of my wife Julia. It is only with her consent and full support that I can do this.

I am happy that Sjaak Beerens has accepted reappointment for a second term. Sjaak, this term will see the two of us forming the Directorate of ITC, and I have full confidence in our partnership. And I would like to mention Marja Verburg. Marja, over the years we

have become a team in which we both have our tasks and responsibilities. I am looking forward to another term in this atmosphere of collegiality and friendship.

But I would also like to thank the whole ITC community - the students, but most of all the staff - because it was only with your support that we could implement the new policy lines and orient our Institute towards the future. The next four years will not be easy, but I am confident that together we can prove that there is a relevant role for our Institute in this rapidly developing world.

Ladies and gentlemen, I thank you for your attention.

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A well attended reception brought the Lustrum conference to an end



## Musical Interlude



A musical interlude featured the Indonesian community of ITC, Saxion and the University of Twente performing *Tari Saman* (Dance of a thousand hands).

## Address by Laurent Sedogo

Dr Laurent Sedogo, minister of environment and tourism for Burkina Faso and ITC alumnus, delivered an address entitled "The contribution of spatial information to sustainable development in Burkina Faso: the role of ITC". In this address Dr Sedogo said that, as in many developing countries, sustainable development that aims alleviating poverty and increasing the quality of life was one of the major goals in Burkina Faso.

Consequently, planning for better social standards, economic growth and sound environmental management was important for decision and policy makers. He explained that the use of spatial information was a prerequisite for supporting planning processes at different levels and that, despite many difficulties owing to low investment capacities, insufficient skilled manpower and poor infrastructures, geographical information systems were being increasingly introduced in various institutions. Since the nineties, many nationwide efforts had been made to create and implement spatial planning models in fields concerned with land degradation and desertification assessment and monitoring; food security early warning and agricultural monitoring systems; and even building education, water, sanitation, and health infrastructure.

According to Dr Sedogo, ITC had played an important role in this process by training staff responsible for managing and maintaining

spatial data platforms in both governmental and non-governmental institutions. A number of pilot and operational GIS projects had been designed and implemented by both ITC and national staff in different sectors.

In his address Dr Sedogo presented the contribution of geo-information to the development of various aspects of socio-economic life in Burkina Faso, and he emphasised the role of ITC in the development of the geo-information community. The challenges faced by the country in terms of geo-information needs for achieving the development goals were also examined, and possible future trends of cooperation with ITC that aimed to support appropriate capacity building in geo-information were explored.

Dr Laurent Sedogo



## Education Award



Klaus Tempfli, students consider him helpful, critical, stimulating and supportive, 'with his heart in the right place'

The ITC Education Award, which is presented every two years, was established in 1997 by the Stichting ITC Fonds at the request of the Directorate. The aim was to stimulate the quality of education and recognise creativity and innovation in this field. This year three names were submitted to the committee (composed of student members Fernando Ledezma and Dimo Todorovski and previous winners Chris Paresi, Sherif Amer, Rolf de By and Joan Looijen). Needless to say, the committee was faced with a very difficult choice as all three candidates were of high quality. A difficult choice but a decision had to be made, and with great pleasure Rector Martien Molenaar announced the winner on the occasion of ITC's 55th Dies Natalis:

"The winner is an excellent and dedicated lecturer, who, over the years, has considerably and consistently contributed to the quality of education at ITC in Enschede and abroad. He is conscious of quality and is a perfectionist. He has been involved at all levels of education at ITC, in both the research-oriented MSc courses and the more professionally oriented Master and diploma courses. And he has played an important and stimulating role in the transformation of our education from an analogue to a digital environment."

"He is innovative and creative, as shown in the redesign of the Master course, and, for a number of years now he has been a frontrunner in the development and implementation of distant education courses. At the moment he is conducting the distant education course in remote sensing, thereby implementing one of ITC's education spearheads."

"Students consider him helpful, critical, stimulating and supportive, 'with his heart in the right place'. Colleagues praise him as a stimulating and friendly colleague, as a member of the EOS management team responsible for education, and for his role in teaching remote sensing in the core curriculum. But his contacts extend beyond his own scientific department through his efforts to involve colleagues from the other departments in the teaching of the modules he is responsible for."

"Students praise the quality of his lectures. To quote one student: 'the knowledge he pumped into me is working wonders in my job'. And other students have rated him highly because 'he can explain theory in an easy way'. Taking all this into consideration, the committee has reached the conclusion that Klaus Tempfli is the deserving recipient of the 2005 ITC Education Award."

With this, Professor Molenaar presented Klaus Tempfli, the worthy winner of the 2005 ITC Education Award, with a diploma and a cheque for €1,000.



Klaus Tempfli and his wife Gertie

## Henk Scholten Award

### Bettine Geerdink is the winner of the Henk Scholten Award 2005

Corné van Elzaker

elzaker@itc.nl

Named after the person who was a good example of a team-builder, the Henk Scholten Award is presented at ITC every year to remind us all of the importance of doing our work in teams of staff and students alike. Most of our work at ITC is teamwork and we all know that good teams are more productive than just a group of individuals. For good teams you do not only need people who are just good in, for example, learning, teaching or research. You also need good team players who take care of the lines of communication and people who promote and stimulate the "we"-feeling in the Institute.

**Bettine Geerdink** (Educational Affairs, Student Support and Assistance), is such a person.



The Certificate presented to Bettine Geerdink



Professor Martien Molenaar addresses the winner of the Henk Scholten Award 2005

Here is an anthology of the various motivations expressed:

- takes care of a good communication between departments
- is the perfect intermediary between staff and students
- "beyond the call of duty"
- no one else can make people more enthusiastic
- support for students in trouble
- very much personal sympathy for the persons involved
- sweet, careful, sympathetic, busy

For these very reasons the Henk Scholten Award 2005 was presented to Bettine Geerdink by the Rector during the ITC End-of-the-Year party on 22 December.

Bettine certainly is a very deserving winner and she has been nominated by staff and students alike. Nevertheless, the Henk Scholten Award Committee is very disappointed again about the small number of current or former ITC students or PhD students nominated for this Award. Therefore, if you read this report and you recall a current or former ITC student or PhD student, who meets the criteria for the Henk Scholten Award, you are very welcome to already nominate such a person (with a motivation) for the Henk Scholten Award 2006! Please use the email address above, or send your nomination to Ellen Steur (steuer@itc.nl).



# Interview

## Interview with Professor Hans van Ginkel

### Rector of United Nations University, Tokyo, Under-Secretary-General of United Nations

Janice Collins

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It cannot have escaped the notice of faithful readers of *ITC News* that 2005 is a milestone year in the Institute's history. It is the year when ITC is celebrating its 55th anniversary, and a number of events have studded the calendar to mark this lustrum, culminating in the conference entitled "Spatial Information for Civil Society - Capacity building for the international geo-information society".

This conference was held in Enschede from 14 to 16 December and the signature building was a veritable hub of activity and light, in stark contrast to the quiet wintry darkness outside its walls.



Professor Hans van Ginkel

On this special occasion ITC was happy to welcome a very distinguished guest: Professor J.A. (Hans) van Ginkel, rector of the United Nations University, Tokyo, and under-secretary-general of the United Nations, who delivered the keynote address "Geo-information benefiting society: the contribution of ITC with UNU". Despite a tight schedule, Professor van Ginkel managed to make time to speak to *ITC News*.

"The best picture we get of the Earth is by night, when the intensity of light reveals where the people are living and their activities. Societal changes mean that borders have become less important. This is no longer a world of territories, but a world of nodes and channels. The larger cities are the core nodes in the hierarchy and, with more and more people needing higher education, universities play a major role in these key locations." And so, with his opening words, Professor van Ginkel graphically set the scene.

In the case of higher education, Professor van Ginkel said that a sense of history was often lacking. "People do forget. The teaching university as we now know it is of very recent origin. It took the organisation of the modern state in the 19th century to bring

about a formularised university system in various countries, complete with elaborate degree programmes and the like. When I embarked on my studies at Utrecht University in 1960, there were less than 6,000 students. Now there are four times that number. An increasing number of universities, increasing participation in the education process and, as a consequence, increasing diversification - that's the picture nowadays. Moreover, in this knowledge society people must study longer. The study period between the ages of 18 and 23 tends to be an introduction to a specialised research field or to a practically oriented programme, perhaps at the PhD level."

And where does the United Nations University (UNU) fit into this global network of nodes and universities? What special role does it play? The mission of UNU is *"to contribute, through research and capacity building to efforts to resolve the pressing global problems that are the concern of the United Nations, its Peoples and Member States"*. It is an international community of scholars and serves both as a bridge between the United Nations and the international academic community, and as a builder of capacities, particularly in developing countries. But as Professor van Ginkel was quick to point out, "First and foremost it serves as a think-tank. The focus is on problem-oriented practice related to all the topics featured on the UN agenda. An example would be the challenge to rebuild confidence and peaceful societies after conflict situations. During the last summit, held in September in New York, country leaders decided on an outcome document focusing, among other things, on the responsibility to protect. While acknowledging the principle of state sovereignty, there must come a time when the world commu-

nity can intervene in a legal manner to protect citizens in countries where the government is powerless, as is the case in the so-called 'failed states', or where it even turns against its own population, as for instance in Rwanda or Kosovo."

Turning to a different subject for purposes of illustration, Professor van Ginkel said that he had been quoted on the importance of water issues, on the front page of the *Financial Times* no less, way back in 1999 - "well before the first World Water Forum. UNU looks at the longer-term perspective, but research takes time and it is infinitely preferable to identify and address a situation before it becomes an actual problem."

UNU is unique and will remain so. "UNU was established by a resolution of the UN General Assembly in 1973 to be an international community of scholars engaged in research, advanced training, and the dissemination of knowledge related to the pressing global problems of human survival, development and welfare. It is a university without degree programmes and basically participants, who already hold a Master's degree, attend short courses of two to six weeks' duration. Beyond this we have gone into some PhD programmes related to core topics, and these are conducted in partnership with regular universities, thus avoiding any problems of accreditation."

UNU has only a small core staff but, as and when needed, it can draw on good people with established relations - an effective

method of creating a pool of extensive field knowledge and hands-on experience to meet the specialised needs of increasingly diversified international education. "Our research staff is limited," explained Professor van Ginkel, "but an attractive number of academic researchers exploring relevant issues are capable of linking up with the best experts around the world for different projects. In our case, and in the continual battle to be early, it is very important to be able to shift rapidly to new topics as they arise."

A key element in any undertaking of this nature is of course finance. "UNU is not financed by the United Nations. This is a crucial point that enables us to maintain our autonomy, integrity and objectivity. We cannot be penalised for saying something a country doesn't like. At present voluntary financial contributions are received from more than 60 countries, and such donor countries are keen to have a department in their own country. Currently some 12 research and training programmes are running in different countries. We wanted to establish a second layer of cooperation in order to make it easier for institutions in developing countries to link up with UNU, and so the system of associated institutions was revitalised some two years ago. It is a structured and very selective process. There are 10 such associated institutions at this stage, but in 10 years from now that number is more likely to read 50. The dual advantage is that we don't have to invest in bricks and mortar or administrative infrastructure - these are already present at the associated institution concerned - and we can jointly conduct specific programmes that are compatible with the work, objectives and expertise of both parties."

On 4 April 2005 UNU and ITC entered into an agreement whereby ITC was appointed an associated institution



On 4 April 2005 UNU and ITC entered into an agreement whereby ITC was appointed an associated institution. The agreement is directed at developing and carrying out joint programmes on capacity building in disaster management and in land administration - two highly relevant topics in this day and age. Professor van Ginkel elaborated further: "Our overall objective of activities in disaster risk management is to support capacity building of organisations in developing countries through training individuals in collecting, managing, analysing and disseminat-

Prof. Dr Hans J.A. van Ginkel was born in Kota-Radjah (Bandar Aceh), Indonesia, on 22 June 1940. He completed his MSc studies in 1966 and PhD studies in 1979, both cum laude, at Utrecht University.

From 1965 to 1968, he taught geography and history at the Thomas Kempis College, Arnhem, the Netherlands, and from 1968 to 1985, he worked in the faculty of Geographical Sciences at Utrecht University. In 1980, he was appointed professor of human geography and planning, and in 1986 he became Rector Magnificus. He has also chaired many committees, including the Coordinating Committee of Advisory Councils on Science Policy. From 1989 to 1998 he was board member and vice-president of the European Universities Association. Furthermore, he was vice-president from 1995 to 2000 and president from 2000 to 2004 of the International Association of Universities, Paris. Since 1998 he has been vice-chairman of the Board of Trustees of the Asian Institute of Technology, Bangkok.

Professor van Ginkel has participated in numerous international groups, and indeed he chaired the Governing Board of ITC and the Netherlands Interdisciplinary Demographic Institute (1988-1998). He extended the cooperative links of Utrecht towards Southeast Asia, Latin America and Africa, and in 1997 became under-secretary-general of the United Nations and rector of the United Nations University in Tokyo. He is an active author in his special fields of interest, which include urban and regional development, population and housing studies, public administration, and the application of geographical knowledge in society.

In 1992, Professor van Ginkel was appointed to the Social Sciences Council of the Royal Netherlands Academy of Arts and Sciences (KNAW) and in 2002 he became a member of the Academia Europaea. In 1994, he received a knighthood in the Order of the Netherlands Lion from Queen Beatrix of the Netherlands. He holds three honorary doctorates: Cluj, Romania, 1997; Sacramento, USA, 2003; and Accra, Ghana, 2005.

ing spatial information before, during and after disaster events, in order to reduce the impacts of natural and related environmental and technological hazards and to facilitate speedy reconstruction. And geo-information can play an effective role in all these stages. Knowing risk contributes more to reducing the negative impacts of natural hazards than a false belief in the possibility of achieving a 'no risk' situation. Knowing risk will also effectively help to reduce the vulnerability of individuals and societies."

As regards the second component, the issue of land and land administration, which is increasingly claiming the attention of the international community, Professor van Ginkel said: "We have to start work and find solutions that are fair and humane to all parties involved. Zimbabwe has attracted the attention of the international media, but in many countries there is a problem as to who owns the land and how it is registered.

Redistribution is a touchy subject." During a recent visit to Namibia, he had been struck by the fences and barbed wire where seemingly no one lived and he had broached the subject with Mr Hifikepunye Pohamba (elected president in November 2004).

Namibia, it seems, is at pains to learn lessons from the experience of Zimbabwe. "It is in the collective interest to reassign functions to land in both urban and rural areas - but with adequate government compensation. And this is a major issue in Europe too. For example once land is known to be eligible for urban expansion, the price rises. It should be possible to set a price on such plots early on and so reduce the element of speculation. This is a problem shared by developed and developing countries."

As he prepared to leave for his next engagement, Professor van Ginkel commented that he was happy to be back in the Netherlands and at ITC after an absence of eight years. A glance at the brief summary of his career will reveal a particular reason for this. He was chairman of ITC's Governing Board until 1998 and, furthermore, he was involved during his term of office in the decision concerning the new ITC building. The outcome of that decision is the splendid venue where the Institute could celebrate its 55th anniversary in truly international style - simultaneously contributing its own speck of light to the node that is Enschede.

**"Letter to the editor"**

5 January 2006

Dear Editor,

Re: ITC Lustrum Conference

What a conference! I learned a lot during my one-week visit to ITC after 31 years. The conference was very well organised and attended. The presentations were very informative - although some of the sessions found it difficult to start on time. The presenters were a good mix of ITC staff, ITC alumni and external experts.

I was delighted to see two ITC staff members who were there when I was studying from 1972 to 1974: Dr Tempfli and Mr Howard.

After the conference, I enjoyed my time at the open market on Saturday. I was disappointed, however, when I couldn't find my favourite dish of fried chicken liver with onions that I used to eat when I was a student. More on disappointments: I didn't get accommodation at the ITC Hotel so I didn't have the chance to see the interior of any room. I just wanted to rekindle my fond memories of staying at the ITC Hotel when I was a student. Another disappointment was the disappearance of the old ITC building.

The best time I had was when I attended the service of the ITC Christian Fellowship. On Sunday I went to the ITC Hotel looking for Filipino students. Saskia, the receptionist, was very helpful in putting me in touch with them. She seemed to know all the Filipinos at ITC and also those at the University of Twente. All of them attended the service of the ITC Christian Fellowship. Hence, I had no choice but to join them. It was a lengthy service but every moment was well worthwhile. At the end of the service, the leader asked for first-timers. I stood up and was asked to speak in front of the congregation. Well, I told them my story: how I had left ITC and landed up in Canada. Everyone was beaming as I related my story. After my speech, everyone shook hands with me. I was overwhelmed by the warm reception they gave me. I felt like staying at ITC forever. However, I told them honestly that I was leaving for Canada the following day.

When the leader asked those who were leaving during the week to come forward, I joined them at the front. Everyone introduced themselves and told the congregation where they were going. Then we were all given a gift as a souvenir. It was a globe with "ITC Christian Fellowship" engraved on it. The service was followed by refreshments. This was my chance to chat with my fellow Filipinos.

That was the highlight of my visit to ITC after 31 years. I would encourage any of my fellow alumni who have never been back to ITC to visit ITC when they can. And don't miss the service of the ITC Christian Fellowship. It was a very heart-warming experience and one I will never forget. I don't think I'll wait another 31 years before visiting ITC again!

Sincerely yours,

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