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2003number 4

introduction

"Looking back, looking forward", the title chosen by ITC's rector, Professor Martien Molenaar, for his opening address at the Institute's 53rd Dies Natalis (pages 2-5), sets the tone to some extent for *ITC News 2003-4*.

Anniversaries and awards (pages 29-30) by their very nature reflect on past achievements, but these achievements, whether by example or in more concrete form, lay the foundations for the future. And we too seem to have a foot in both camps, with articles streaming in through December and production and dispatch spilling over into the New Year. Certainly January is most aptly named after Janus, the Roman god of gateways, with his two faces gazing in opposite directions.

One of life's simple pleasures is the new diary that lands on your desk at the end of the year. Clean and in pristine condition - what will the future bring? Still, the diaries of those who participated in the workshop "Joint Education Partnership Network" are already filling up at an alarming rate. During the workshop it was decided to establish a network of international partners called the "Geo-information Network for Education and Training" (see pages 6-8), an exciting initiative that throws up many challenges. This may well be the first time you read about GI-NET, but it definitely won't be the last!

Refresher courses enjoy great popularity on many levels with our alumni around the world, as three reports will duly testify (see pages 32-36). So while diaries and dates are uppermost in our minds, it might be a good idea to turn to pages 14-18 to see what courses are on the ITC agenda for 2004. They make interesting reading, and you may find just what you're looking for.

ITC's scientific expertise has long enjoyed international recognition, but perhaps the artistic gifts of its staff members will come as something of a revelation. Painting (page 30) and music (pages 9-11) are among their accomplishments, with the singing of the "ITC Tall Men Choir" bringing "tears to the eyes of many" - a somewhat ambiguous remark, don't you think? Be that as it may, we have no cause for complaint over the writing abilities or enthusiasm of our contributors. The last issue of *ITC News* ran to 41 pages, and such is your support that *2003-4* is repeating this feat. Not art for art's sake in this instance, but art for the sake of keeping our readers posted!

Janneke Kalf, Acting Managing Editor

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ITC Celebrates 53rd Dies Natalis

ITC News

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*On Wednesday,
17 December, staff,
students and guests
congregated in the
ITC auditorium to
celebrate the
Institute's 53rd Dies
Natalis.*

Rector Professor Martien Molenaar opened the proceedings, welcoming colleagues and close friends alike who had come from near and far to attend the ceremony. The past year had not been without its sadness and a few moments of silence were held in memory of those colleagues who had passed away during 2003.

"Looking back, looking forward"

In his address entitled "Looking back, looking forward", Professor Molenaar said that the past year had been one of continuous change and development, and this had had far-reaching effects on ITC's organisation. The new scientific departments had been installed and efforts had been made to implement the new professor plan. So far four new professors had been appointed: Professor Douglas Webster for urban and regional planning (also with an assignment at Utrecht University), Professor Zorica Nedovic for geo-information management (also with an assignment at Twente University), Professor Freek van der Meer for earth subsurface systems analysis (also with an assignment at Delft University) and visiting Professor Rien Bos for irrigation management (also with an assignment at Wageningen University). Two had already

taken up their positions; two would be coming next year. In addition, procedures were underway regarding the appointment of three professors in the fields of water resource management, geo-information extraction with sensor systems, and geodata management and engineering.

Professor Molenaar went on to say that the Supervisory Board was now at full strength. Dr. J-P.R.A. Sweets, the most recent member, hailed from the banking world and would make a valuable contribution to the work of the Board, while simultaneously promoting the "green face" of Rabo Bank. Mr Fred Paats had been confirmed as head of educational affairs and Professor Martin Hale as head of research. The revised research programme had been running two to three years now and had attracted a large number of project proposals. Currently some 15 projects were up and running, which had substantially increased ITC's research output. Not only that, the output was better focused on areas in which the Institute was seeking to profile itself. The balance between output criteria and staff input, however, required some further attention. Moreover, the contributions of the different departments were as yet uneven, but efforts would be made to stimulate those lagging behind.

In his address entitled "Looking back, looking forward", Professor Molenaar said that the past year had been one of continuous change and development, and this had had far-reaching effects on ITC's organisation



Turning to the subject of the Dutch higher education system, which was being reformed to accommodate the BaMa structure, Professor Molenaar said there had been a delay in the proceedings owing to legal aspects. Deadlines had been extended from 1 January 2006 to 1 January 2008. In effect, this extension would be beneficial, as it would allow more time for preparation within the context of offering programmes for accreditation. ITC would be working

closely with its SAIL partners, and the establishment of a joint coordinated workgroup would afford the opportunity to learn from each other.

The new fellowship programme would apply in 2004 and this would mean a drop in NFP fellowships. Consequently, it was important to find the right market approach in order to stimulate applications and guide the applicants themselves through the complete process. On a positive note, short courses had met with a keen response, and a growing interest in the flexible modular structure was also evident. In fact, there had been a noticeable shift in market demand - from long-term to short-term options.

Professor Molenaar said that ITC's strategic plan would expire in 2004 and, although total success could not be claimed quantitatively speaking, significant achievements had been booked on the policy level. Very likely, a Boekelo meeting would be called in the coming year, bringing senior staff together to review the situation. Within the rapidly developing landscape of national higher education, it was particularly important to aim for synergism and avoid the risk of isolation. Greater communication and structural cooperation with Dutch partners such as universities and professional organisations opened the way for ITC students to access additional knowledge resources. Good-quality research, theme programmes, curricula development, transfer of knowledge - a lot had been done, a lot remained to be done.

In conclusion, Professor Molenaar thanked all staff members for their extremely hard work over the last twelve months, but added that the present high pressure was set to continue. Stability was a thing of the past; the future promised permanent change. However, ITC was well received in other countries and encountered great willingness to cooperate. "We must harvest this; we are welcome and we should nourish this."

Workshop "Joint Education Partnership Network"

By the afternoon of 17 December it could hardly have escaped the notice of anyone with business at ITC over the past few days that a workshop had been in progress. It fell to Dr Wilbur Ottichillo of RCMRD, Nairobi, and himself a participant, to explain the purpose behind this workshop, and the outcome. The central aim was the development of an international network of partners offering university-level courses on geo-information science and earth observation, a network in which all partners would contribute from their own position of strength.

Such a network would promote knowledge management and new cultural and technological values. It would also promote the marketing of partner institution programmes, and simultaneously enhance staff and student exchange. On the practical level it would not only facilitate access to funding, but also afford partner institutions the opportunity to benefit from ITC's long experience in the geo-information market.

It will come as no surprise that this central theme gave the workshop participants plenty of food for thought and discussion. What were the strengths and weaknesses of each of the partners? How could these strengths contribute to the partnership and how could other partners compensate for the weaknesses? How did the various partners view the network and their own roles



Dr Wilbur Ottichillo of RCMRD, Nairobi, explaining the purpose behind the workshop "Joint Education Partnership Network", and the outcome





within it? An exciting initiative had been proposed and it had met with a positive and energetic response. At the same time, however, it had raised many thorny issues. Dr Ottichillo said that the exertions of the past few days had borne fruit: working groups had been established that would report back in June with solid proposals. Moreover, responsibilities had been designed, as well as a timeframe. ITC was entering a new phase in its collaboration with partners - moving towards a relationship where the partners were willing to co-finance activities and the focus was on research and resource sharing. He added that most staff in the relevant institutes had been trained in various scientific fields, but now it was necessary to build up managing and budgeting skills.

He concluded by saying that it was highly important that the impetus generated by this workshop should be maintained over the coming months. Indeed, the workgroup proposals would be on the agenda at the next meeting, which was scheduled for July 2004 to coincide with the ISPRS conference in Istanbul. (See also pages 6-8.)

Official Presentation of the Mace

ITC was very happy to welcome back Dr Jide Kufoniye, director of the Regional Center for Training in Aerospace Surveys (RECTAS), Nigeria. Dr Kufoniye said that, as he had left the Institute with three degrees, it was nice to be here today to give something back. RECTAS had commissioned the carving of a special ITC mace - the bedel's staff of office, which is a sight always welcomed by any PhD candidate in the throes a thesis defence. Dr Kufoniye said he well remembered



Dr Jide Kufoniye, director of the Regional Center for Training in Aerospace Surveys (RECTAS), Nigeria officially presents the mace to ITC's rector, Professor Martien Molenaar

talking more slowly as he waited expectantly for the raps of the mace that would signal the end of the inquisition. He was sure this was an experience recognised by others!

A slide presentation traced the creation of the mace and introduced the carvers, Mr Hassan and his son-cum-apprentice. Both were descendants of Oduduwa and this partnership combined the indigenous knowledge of the father with the scientific knowledge of the son. (Legends concerning the origin and ancestry of Oduduwa abound in Yoruba and Benin mythology. Yorubas believe he is the father of the Yoruba and progenitor of all Yoruba Oba's and the Oba of Benin.) Fortunately the carver had ebony of suitable width and height already in stock - an auspicious beginning - but then of course previous carvings had to be checked, costs negotiated, and the specifications and model approved.

But now it only remained for Dr Kufoniye to officially present the mace to ITC's rector, Professor Martien Molenaar (although in fact it had already enjoyed the occasional outing). Thanking Dr Kufoniye for "this expression of our academic status", Professor Molenaar formally handed it over to ITC bedel Loes Colenbrander, duly attired in her ceremonial cap and gown, who would be regularly using it in the performance of her duties.

ITC Education Award 2003

The ITC Education Award, which is presented once 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 seven names were submitted to the committee composed of Grace Nangenbo and John Ballesteros representing the student body, and the previous winners Chris Paresi, Sherif Amer and Rolf de By. A difficult choice but a decision had to be made, and the pleasant task of announcing the winner went to Committee Chairman Fred Paats:

"The winner is an excellent and dedicated teacher, as can be derived from student evaluations. She is well liked by staff and stu-

Ms Joan Looijen said that the motivation and inspiration came from the ITC participants themselves and she was greatly looking forward to the future exchange of staff, students and knowledge



dents alike. She is not only a lecturer, but also a very good coach for students working on assignments. The response of the participants of the recent special course for Uganda is a case in point. She has developed modules and courses in the field of environmental studies both for courses at ITC, as well as abroad. Teaching is not a routine job for her. She is always busy updating her teaching and teaching skills and preparing new teaching materials. She is innovative in finding new forms of education and materials.

But most important are comments by a group of students who supported her nomination. They stated: 'Many of us have been fortunate to have her as a teacher and supervisor during fieldwork. Additional touches made by her make her lectures just that much better to listen to and participate in. She knows how to impart knowledge with dedication and sincerity. She makes the classroom a comfortable place.'

With this Mr Paats presented Joan Looijen, the deserving recipient of the 2003 ITC Education Award, with a diploma and a cheque for euro 1,000. Nor was she allowed to leave the platform without a beautiful bouquet of flowers. Accepting the award, which she considered a great honour, Ms Looijen said that the motivation and inspiration came from the ITC participants themselves and she was greatly looking forward to the future exchange of staff, students and knowledge.

Henk Scholten Award 2003

Every year the presentation of the Henk Scholten Award reminds us of the importance of doing our work in teams - teams composed of staff and students alike. As any good football manager knows, teams need their midfielders and sweepers as well as their strikers. Although both staff and students can be nominated for the award, no student was among the 15 nominations submitted this year - a situation the SAB and the committee will seek to avoid in the future. However, the winner of the 2003 award was fully supported by both staff and students and, as Professor Molenaar pointed out, had already been compared to Santa Claus. No prizes for guessing, then, that the winner was Sjef van der Steen. The announcement was greeted with enthusiastic applause, although the actual presentation had to be postponed until the end-of-year party that was to be held the following day, as family matters had prevented Sjef from attending the Dies that afternoon.

This final award brought the official ceremony to a close and the assembly began to file out of the auditorium en route for the restaurant - the rector's invitation to those present to join him at the reception had not fallen on deaf ears!



Professor Molenaar formally handed over the Mace to ITC bedel Loes Colenbrander

Building a geo-information community for sustainable development: from bilateral to multilateral partnerships

ITC News

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ITC is aiming to develop an international network of university-level courses on geo-information science and earth observation in which all partners contribute from their own position of strength.

In this context a workshop was held from 13 to 17 December 2003, attracting participants from many countries around the world. The objective of the workshop was to strengthen the relationships within the partnership, not only between ITC and the organisations involved, but also among the partners themselves. This article covers the closing session.

Closing Session

As the participants filtered into the ITC auditorium for the closing session of the workshop "Joint Education Partnership Network", they were in buoyant mood. The general opinion was that the hard work of the past few days, although demanding and often draining, had been thoroughly worthwhile. The working groups had spent a great deal of time thrashing out the different viewpoints, and this had proved a highly profitable and beneficial exercise. Now it was to be hoped that concrete results would be swift in coming - if this were the case, the workshop would have achieved great things. Opening this final session, Professor Martien Molenaar, ITC's rector, thanked the participants for being prepared to take time out from their busy schedules to meet together. The warm response signalled a good start to

the project. He went on to say that the Institute had operated initially within a spider structure, with ITC in the centre and linkages abroad. Although great importance was attached to this network, it was now time to move on and develop a clear education network where all partners would share both ownership and responsibility. This meant, in fact, a shift from a bilateral to a multilateral network, where hopefully ITC would be a significant node.

Presentation of Workshop Results

It was then the turn of Dr E.G. Mtalo from the University College of Lands and Architectural Studies, Dar es Salaam, to summarise the outcome of the past few days. No easy task as there was much ground to cover. He began by tracing the transitions in partnership format:

- from dependent partnerships, where ITC acted as provider and as the engine for techno-scientific development, with the aim of building capacity in developing countries
- to bilateral equi-partnerships, where knowledge and experience were transferred from ITC to partners in developing countries, and joint training, research and consulting were undertaken
- and finally to multilateral equi-partnerships - a geo-information network of international partners.

With an eye fixed firmly on sustainability, the key building blocks in creating this new network of partners could be summed up as follows:

- *respect and trust* (for example, to foster cultural enrichment; to build confidence, goodwill and friendship; to promote



The participants of the workshop "Joint Education Partnership Network" and ITC staff



The workshop participants during the social excursion to Utrecht and Amelisweerd

knowledge and technology sharing and exchange)

- *quality assurance standards*
- *capacity building* (including such components as facilities, infrastructure, curriculum development, human resources, geo-information policy and implementation strategies)
- *resource sharing* (a significant key to survival in a highly competitive world).

Having given a short description of the building blocks needed, Dr Mtalo then explained not only why they were needed but also how to acquire or create them. While embracing the principle of the network, Dr Mtalo said there was no doubt that it posed far-reaching challenges. Could ITC accommodate changing demands from the partnership by changing its education programmes and philosophy? Would ITC be willing to act as the fulcrum of the new initiative? Would the

partners be willing and able to co-finance the new initiative? The workshop had indicated an affirmative response on all counts.

Working groups had been established to deal with specific areas identified in relation to the network, such as education, research, consulting, and cross-cutting issues. The momentum and enthusiasm generated in the course of the workshop must definitely not be lost!

Discussion

The session was then thrown open for reactions and general discussion under the guidance of Ms Eveline Bolt (who had shared the duties of facilitator with Ms Cornélie van Waegeningh during the workshop). This gave the participants the right of reply before the final presentation during the ceremony celebrating ITC's 53rd Dies Natalis to be held that afternoon. (see also pages 2-5)

The first questions from the floor were "Who are the partners?" and "What are the criteria to be a partner?" - showing that the workshop had aroused considerable outside interest and attracted many "independent observers" to the closing session. By way of reply, the participants introduced themselves. Key criteria for becoming a partner include longstanding cooperative links, sustainability, market opportunities, and the proven quality of both staff and the programmes provided. The initiative is still at an early stage and there is room for new criteria to be set along the way, all the while bearing in mind that maintaining quality across the board is of the essence. Setting criteria - not only between ITC and partner, and between partner and ITC, but also between partner and partner - requires great care. Although partners will come with different strengths, a quality system will have to be built that is equal not only on paper but also in substance.

Country	Representative	Organisation
China	Drs D. Ningrui	School of Urban Studies, Wuhan
China	Dr Liu Yaolin	School of Resources & Environmental Studies, Wuhan
Ghana	Dr B.E. Kwesi Prah	Kumasi University of Science & Technology
Ghana	Dr W. Oduro	Kumasi University of Science & Technology
Guatemala	Dr E. Franco	San Carlos University, Facultad Agronomia
Guatemala	Dr A.A. Ortiz Lopez	San Carlos University, Facultad Agronomia
Hungary	Dr B. Markus	University of West Hungary
India	Mr P.L.N. Raju	Indian Institute of Remote Sensing, Dehra Dun
India	Dr P.S. Roy	Indian Institute of Remote Sensing, Dehra Dun
Indonesia	Dr H.A. Sudibyakto	Faculty of Geography, UGM, Yogyakarta
Indonesia	Prof. H. Sutikno	Disaster Research Centre, UGM, Yogyakarta
Iran	Dr Ali-Akbar Abkar	KN Toosi University, Teheran
Iran	Dr M.R. Mobasheri	KN Toosi University, Teheran
Kenya	Dr W. Ottichillo	RCMRD, Nairobi
Mexico	Dr N. Barrera-Bassols	Universidad Nacional Autónoma de México
Namibia	Dr W. Jankowitz	Polytechnic of Namibia, Windhoek
Namibia	Ms C. Steenkamp	Polytechnic of Namibia, Windhoek
Nepal	Mr B. Birendra	Menris, ICIMOD, Kathmandu
Nepal	Mr S. Pradhan	Menris, ICIMOD, Kathmandu
Nigeria	Dr Jide Kufoniyi	RECTAS, Ile-Ife
Nigeria	Mr R.O. Oyinloye	RECTAS, Ile-Ife
Philippines	Dr C. Alfiler	University of Philippines (NCPAG), Manila
Philippines	Dr R.B. Ocampo	University of Philippines (NCPAG), Manila
South Africa	Dr P. Dirks	University of Witwatersrand
South Africa	Dr D. Rugege	University of Natal/CEAS
Tanzania	Dr C.K. Msemakweli	University College of Lands, Dar es Salaam
Tanzania	Dr E.G. Mtalo	University College of Lands, Dar es Salaam

The objective of the workshop was to strengthen the relationships within the partnership, not only between ITC and the organisations involved, but also among the partners themselves



The partnership is not yet closed, and will also be open to other European and American partners. After all, ITC cannot be isolated from Europe and, moreover, such a network will be crucial to developed countries as well as to developing countries. It is important to tap into geo-information resources and expertise in other centres, and also to harness local capacity.

Education is a commodity and in selling this commodity quality assurance plays a critical role. Consequently, this aspect figured prominently in the debate. The possibility to continue modules with different partners, sharing facilities and tapping into indigenous capability, means control issues must be rigorously examined and, of necessity, partners will require the flexibility to accept criticism. Funding and funding routes also came under scrutiny and it was considered that a central working group would be needed to handle this key area. So far the provisional figures regarding decentralisation look highly promising, and more detailed calculations are keenly awaited.

And the date and venue of the next GI-NET meeting? Yes, the network has acquired a working title: Geo-Information Network for Education and Training. With the reports from the working groups scheduled for June, the ISPRS conference in Istanbul in July 2004 seems to be an opportune occasion. Many of the workshop participants will be attending so perhaps some extra time can be made available for this particular purpose during their visit.

Conclusion

The lively debate revealed that the working groups certainly have their work cut out and will have plenty to consider and report back on. Moreover, participants were urged to use Blackboard as a forum for discussion and reach out to a wider audience. Be that as it may, the months of June and July are already highlighted on the 2004 calendar and readers of *ITC News* will no doubt await the outcome with interest.

GI-NET: Geo-information Network for Education and Training

To address the increasing demand for flexibility in academic degree programmes, and to respond to the need for more demand-driven and tailor-made training, ITC has adopted a policy that is internally known as "decentralisation". As part of this policy, educational programmes will be developed and implemented jointly with partner institutions abroad.

For many years, the individual partner institutes have been engaged in bilateral relations with ITC. During the workshop that was held at ITC in December, it was

decided to establish a network of international partners called the "Geo-Information Network for Education and Training", GI-NET for short.

The main aim of the network is to promote the use of spatial information and earth observation through capacity building and institutional development. The network will be active in research and development, as well as in education, training and advisory services. In order to further develop the network, a number of working groups have been established that will each deal with certain aspects of the network (i.e. the set-up and functioning of the network itself, but also issues such as capacity building, education, accreditation, research and consulting).

Now that all workshop participants have returned home, much of the real work is still ahead of us. It was agreed that the individual working groups would develop discussion papers for their subjects to keep the discussions alive.

The next meeting is scheduled to take place during the coming ISPRS Conference in Istanbul, Turkey, where many of the partner institutes will be represented.

An address for the website of the network has already been secured, and in the very near future information on GI-NET and its activities will be published on this website (<http://www.gi-net.org>).

25 Years of Cooperation between ITC and China

Marjan Kreijns

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The end of the year is traditionally a time for reflection, as well as for merrymaking. What better way to get in the mood for both than by festively commemorating the fact that ITC began cooperating with China 25 years ago?

A big celebration took place in Beijing on 25 November 2003. More than 200 participants and a large ITC delegation attended the ceremony, which opened with a series of speeches and closed with a splendid banquet. The participants were alumni, and representatives from the Chinese government, research institutes, universities, the private sector, scholarship organisations and the Royal Netherlands Embassy. The ITC delegation consisted of our present rector Professor Martien Molenaar, our former rector Professor Klaas Jan Beek, Head Education Affairs Fred Paats, Head Project Services Mark Noort, Professor John van Genderen and Paul Schoonackers. The event was organised by Marjan Kreijns, our representative in China.

Ms Shou Jiahua, the vice-minister of the Ministry of Land and Resources, did us the honour of giving the opening speech, in which she praised ITC for the work it does in China. There were also speeches by Mr Chen Bangzhu, the director-general of the State Bureau of Surveying and Mapping, and by Mr Karel van Oosterom, the chargé d'affaires at the Royal Netherlands Embassy in Beijing. Professor John van Genderen then

gave a presentation entitled "25 years of ITC activities in China: looking back, looking forward". This gave an interesting overview of how our activities in China have steadily grown over the years - from humble beginnings to the current substantial and very diversified programme.

There were also presentations by Professor Hu Dekun, the vice-president of Wuhan University, and Professor Liu Chuang of the Institute of Geographical Sciences and Natural Resources Research. These were respectively entitled "International exchange without the boundary of countries" and "Enhancing capacity building for understanding the living earth". A speech by Professor Molenaar, outlining his strategy for future partnerships, concluded the afternoon session.

The event generated considerable publicity, and articles appeared in several newspapers and magazines. It was highly appreciated by everyone and created a great deal of goodwill. It was an excellent opportunity for the large group of ITC alumni to meet old friends and make new interesting contacts. The reactions of some alumni accompany this article.

The ITC delegation then continued on to Wuhan to participate in the celebration of the 110th anniversary of Wuhan University. This was a two-day event of typical Chinese proportions. More than 30,000 people attended the official celebration ceremony! In the margin of this celebration, we organised our own party - a reprise of the Beijing celebration, albeit on a smaller scale. We did this because we have so many alumni in Wuhan and because Wuhan University is our main education partner. Again, this was hugely appreciated. But perhaps what made the



More than 30,000 people attended the official ceremony in celebration of the 110th anniversary of Wuhan University



Xuehua Liu, Tsinghua University

I am Dr Xuehua Liu. I obtained my MSc degree in environmental system analysis and modelling in 1997 at ITC, and my PhD in conservation ecology in 2001, also at ITC.

Since graduating from ITC, I have worked for the Department of Environmental Science and Engineering at Tsinghua University, one of the most famous universities in China. My task is to transfer my knowledge on ecological principles to students, and apply ecological knowledge in research projects. I still maintain my interest in the giant panda habitat and have several projects in this context. Here, I teach undergraduate students and do research, as well as supervise MSc students. The great thing is that I still meet many ITC staff members because ITC is working together with our department.

I am so glad to be attending the 25th anniversary of the start of ITC's cooperation with China. There were two reasons for me to come to this great anniversary. First, as an ITC graduate I wanted to congratulate ITC, my fourth home (after Xinyu, Nanjing and Beijing), on its 25th anniversary. Second, I wished to meet the friends I had made during my studies at ITC.

When my friends and I were shaking hands or hugging each other - well to be honest, words can hardly describe my feelings. Let's hope that ITC will remain forever a cradle of friendship, uniting people who come from different places and different cultures on Earth.

Best regards,
Xuehua



Dr Xuehua Liu
and ITC's former rector
Prof. dr.ir. Klaas Jan Beek

deepest and most lasting impression on our hosts was a heartfelt rendition of "Happy Birthday", performed during the reception dinner by the "ITC Tall Men Choir", consisting of Mark Noort, Fred Paats, Richard Sliuzas and Paul Schoonackers. It brought tears to the eyes of many!

Wu Chaojun

My name is Wu Chaojun and I was a professor at the Chinese University of Geosciences (Wuhan). I studied geophysical exploration at ITC in Delft from September 1985 to August 1986 and from October 1988 to November 1989, first as a postgraduate diploma course student and then as an MSc student.

ILWIS was the software that introduced me to GIS and some practical applications in geophysical data interpretation. It is owing to the GIS concepts and knowledge acquired during my MSc studies that I am a GIS consultant specialist today. I have been involved as a technical assistant in several urban environment projects and river flood control projects in China. These projects were supported by loans from the World Bank or the Asia Development Bank.

I always expected to have opportunities to meet ITC alumni in the spirit of friendship and cooperation. The party celebrating 25 years of ITC in China, which was held on 25 November 2003 in Beijing, was just such an occasion. I was so surprised by the number of ITC alumni attending. Many came from various other cities to Beijing - and China is a large country - especially for the celebration party. At this well-organised party I heard more about the achievements of ITC alumni and the current situation at ITC. These are the results of the hard work and great efforts made by ITC alumni and the Institute. I hope that the solid cooperation between China and ITC will be further strengthened in future, and more contributions can be made by ITC and ITC alumni.

Ch Liangcai, Academy of Surveying and Mapping

I am the first student from China that went to study at ITC. I entered ITC at the beginning of 1979 as the first student from mainland China, together with Mr Hu. After two and a half years of study, we went back to our country with MSc degrees. Now I am a professor at the Chinese Academy of Surveying and Mapping.

Looking back on those days at ITC, I would say that I refreshed my knowledge in certain new fields, such as GIS and remote

sensing, and I became acquainted with the wider photogrammetry and remote sensing community, which has helped me a lot in research and teaching activities. I would also say: "Keep up long-term contacts with alumni - it's a good tradition that benefits both ITC and the alumni."

It was a pleasure to be at the celebration of ITC's 25 years in China and to meet many old friends. I wish ITC a bright and fruitful future.



Mr Chen Bangzhu, the director-general of the State Bureau of Surveying and Mapping giving his speech during the opening ceremony



Mr. Chu Lancai ITC alumnus 1979/1980 and his wife attended the celebrations



(From left to right) Mr Karel van Oosterom, the chargé d'affaires at the Royal Netherlands Embassy in Beijing, Ms Shou Jiahua, the vice-minister of the Ministry of Land and Resources and ITC's rector Prof. dr. ir. Martien Molenaar

announcements

A Collaborative Implementation Guide for Spatial Data Infrastructure (SDI) in Africa

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United States Geological Survey

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Government agencies have tended to act separately for the collection, storage and dissemination of data and information. Efforts and attitudes have been agency-focused, and the provision of integrated data products and services to the geospatial data and decision-making community typically has been inefficient in terms of timeliness and cost. Countless workshops over the past decade have resulted in recommendations for adopting data standards, improving data policies and access mechanisms, and better communication to avoid duplication. The need is well recognised. However, what appears to be lacking is practical information on "how to proceed" ... "how to change the way of doing business". Talk is easy.

SDI Africa: An Implementation Guide aims to provide a blue print for SDI implementation. The authors released a first CD version of the guide in November 2003 at AFRICAGIS '03 in Dakar, Senegal. An interactive web-site is currently being prepared as well. This publication is compiled as an ongoing collaborative effort of geographical information management specialists from African countries, the Economic Commission for Africa (ECA), the Global Spatial Data Infrastructure Association (GSDI), EIS-Africa and ITC. An expert group of African and international reviewers also provided constructive input to draft chapters during an Ad Hoc Meeting convened at ECA in February 2003 (see *Chapter 1 – Introduction: The Guide Approach* for a list of contributors).



Ad Hoc Experts Meeting, February 2003, UNECA

Real experiences, examples and documents were presented from African countries and other countries around the world (e.g. policy statements, relevant legislation, protocols, MoUs between data providers and users/data sharing agreements between institutions, freedom to information legislation, copyright law, standards developed, training materials produced, workshop proceedings, equipment procurement procedures and policies, geospatial projects inventory, charters and constitutions of coordinating bodies or structures, and ideas for funding SDI development). The guide also includes links to other guides that, while not necessarily focusing on SDI development, provide insights into organisational change, policy development, e-readiness, financing, etc. (see *Existing Related Guides*).

SDI Africa: An Implementation Guide is meant as a "virtual reference kiosk" for information managers, data technicians and technology innovators who are interested in build-

ing information infrastructure in their country. It is important to note, though, that SDI development is not formulaic - at least not the institutional, policy and financial aspects. It is more like chess, where one has options as to which piece to move, and during the course of the game, certain moves are more strategic than others.

The technical aspects of SDI components are much more straightforward and lend themselves to a model for implementation, as the SDI Cookbook lays out. It's more difficult from an institutional standpoint to say, "Step 1, step 2, step 3, do this ... and, thus, you'll have SDI." Forming an inter-institutional committee or organisation, developing a work plan, identifying working groups and tasks, holding workshops to raise awareness and build support, developing data policy, drafting a decree or law in support of the inter-institutional committee or organisation, etc. - all of these are important steps. But they aren't necessarily sequential. One can



source:
<http://www.ahajokes.com/crt213.html>

start on one aspect and get stymied. So, one tries another tactic. The institutional elements in part depend on the status of the technical steps, since the technical steps are the more tangible (show-able) products.

SDI champions have often advocated getting a clearinghouse up and running as a means to demonstrate the benefits of SDI, and thus "breed" support for the institutional aspects. However, this does not mean that clearinghouse development must be initiated before the establishment of a national committee or the drafting of a framework document. These can be parallel activities. In fact, it's a juggling

act of parallel activities in a phased approach (see *Chapter 6 – Getting Started*). Moreover, one must be opportunistic, taking into account what projects, and hence funding, one can leverage for SDI development. SDI development, in effect, is a tactical challenge.

The different conditions and personalities in one's country form unique dynamics, and these influence the SDI approach that emerges. A first step in SDI implementation is assessing the current conditions (see *Chapter 3 – Assessment of the Current Status and Environment of the Geospatial Sector*). Some countries spend longer on the planning stage, developing a coherent conceptual model of the SDI and its components before starting implementation. Others are more pragmatic and start with whatever is already available and develop as they go along. Some institutions have an easier time obtaining funding from the central government for activities, or some countries have large external projects that support environmental management (see *Chapter 7 – Funding*

Mechanisms for Implementation). One SDI model does not fit all. Data managers are encouraged to read through *SDI Africa: An Implementation Guide*, review the different suggestions, documents and links, and then assemble them in a way that makes sense to their own situation and course of action. And all are welcome to contribute to the next version. Ideally, the guide will enable data managers to "leapfrog" through the SDI development process.

References

- GSDI, 2001. Developing Spatial Data Infrastructures: The SDI Cookbook. Version 1.1. Editor, D. Nebert. <http://www.gsd.org/pubs/cookbook/cookbook0515.pdf>
- To obtain *SDI Africa: An Implementation Guide* on CD, contact Dozie Ezigbalike (UNECA), cezigbal@uneca.org. The online version is still in development, but the chapters can be accessed for the time being from the following link: <http://www.uneca.org/disd/geoinfo/SDIAfrica>

Bob Moses Fellowship Fund

Sjaak Beerens

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Since 1999, ILWIS software has been commercially distributed by PCI Geomatics (Toronto, Canada) under an agreement with ITC. As ILWIS has evolved from commercial into scientific software over the years, ITC and PCI have reached an amicable decision to terminate this agreement with effect from 31 December 2003.

During the term of the agreement, royalties have been accumulated and deposited in a fund for fellowships to study at ITC. This fund has been

called the "Bob Moses Fellowship Fund" after Dr Robert Moses, the president and CEO of PCI Geomatics. These fellowships will be used to allow a number of suitable candidates identified by PCI to participate in ITC's short courses in the coming three years.



Dr Robert Moses, the president and CEO of PCI Geomatics

Refresher Courses 2004

ITC News

itcnews@itc.nl

In 2004 no less than 14(!) refresher courses will be organised. They form one of the more important types of services to our alumni.

Refresher courses are short courses (mostly two weeks long) that are organised for alumni in their home countries or in their region and are intended to increase the impact and prolong the effects of earlier training. These refresher courses are funded mainly by the Netherlands Fellowship Programme (NFP). In principle, the target group of such courses consists of alumni who have completed any NFP-funded training or education at least two years before the planned starting date of the refresher course.

Colleagues and supervisors of alumni are also allowed to participate in (part of) a refresher course, as are alumni of former DGIS and SAIL projects.

In 2004, the following refresher courses will be organised:

Guatemala

Geospatial Data Infrastructure for Central America (GDICA)

In most countries the mapping authorities/surveys are the main custodians when it comes to developing the national spatial data infrastructure. Managing this process, however, requires the involvement of other organisations that develop or produce maps or other spatial data.

Objectives

- To transfer knowledge of GDI concepts, critical success factors and available technology
- Regional networking among ITC alumni
- Capacity building.

Location

Guatemala City, Faculty of Agronomy of University of San Carlos (FAUSAC)

Course period

18 October – 1 November 2004

ITC contact person

Ir W.T. de Vries (e-mail: devries@itc.nl)

Mozambique

The Potential of Geoinformatics to Combat Drought, Desertification and Food Insecurity in Southeast Africa

Objectives

- To familiarise and update the course participants regarding the various steps involved in the disaster management process
- To strengthen the capacity of representatives of regional and local governmental and non-governmental organisations to apply geo-information in hazard and disaster management related especially to drought, desertification, crop growth monitoring and food security
- To demonstrate the potential of both currently operational and forthcoming earth observation systems and data analysis techniques, as well their effective adaptation and integration into existing activities
- To provide a contribution to implementing the UN Convention to Combat Desertification (UNCCD), ratified by Mozambique in 1996
- To reinforce the positions of CENACARTA and RCMRD in subsequent regional training in disaster management
- To serve as a tangible follow-on activity to the UN-organised workshop "Use of space technology in disaster management" held in Addis Ababa in 2002, where a pressing need for further training in earth observation and geodata processing was identified.

Location

Maputo, Technical Secretariat for Food Security and Nutrition (SETSAN)

Course period

June 2004 (tentative)

ITC contact person

Dr N. Kerle (e-mail: kerle@itc.nl)

Mozambique

Remote Sensing and GIS Applications for Integrated Water Resources Management in Sub-Saharan Africa (Flood Analysis)

The course deals with an integrated assessment of water-related hazards, the application of hydrological models for water quantity and quality assessment, remote sensing techniques for image analysis, and the use of GIS for water security. Participants will learn how to generate hydrological data and information from aerial photographs

and satellite images, and how to handle the data by using GIS and generate input into hydrological models. They will be exposed to hydrological modelling using GIS environments. Local case studies dealing with the generation of spatial and hydrological databases for the vulnerability assessment will be used to demonstrate the relevant techniques. The course includes lectures; field visits; group discussions; extensive hands-on digital exercises using GIS, remote sensing software, hydrological models and environmental assessment techniques.

Objective

- To give an overview of remote sensing and GIS techniques for integrated water resources management. The emphasis will be on methods that can be used to evaluate the vulnerability of water systems to natural and human-induced risks such as extreme rainfall, flooding and contamination.

Location

Maputo, Centro de Cartografia e Teledetectção (CE-NACARTA)

Course period

October – November 2004

ITC contact person

Dr R.O. Strobl (e-mail: strobl@itc.nl)

Mozambique

Geospatial Information Management and Visualisation for Decision Making in Environmental Impact Assessment

Objectives

Ad hoc and uncontrolled developments in many developing countries require effective policies, plans and implementation procedures. Environmental impact assessment (EIA) is a legalised process to improve decision making and ensure that proposed development options are ecologically, socially and economically sound. The demand for (training in) EIA is growing rapidly worldwide, and techniques to visually illustrate the implications of spatial decisions are much in demand. GIS can offer effective information and communication instruments, and can be applied in all EIA stages: from the acquisition, storage and display of thematic information relative to the vulnerability of the affected resources, to impact prediction, qualification and evaluation, and finally to cartographic liable presentation.

The focus of this refresher course is on both improving and critically examining the potential of spatial information technologies (remote sensing and GIS) for the whole EIA process, including credible cartographic visualisation for

decision makers and other stakeholders. Examples from realistic EIA projects will provide a framework for short computer practicals dealing with analysis and presentation.

Location

Maputo, University Eduardo Mondlane (UEM)

Course period

To be determined

ITC contact person

Mr A.M. Mank (e-mail: mank@itc.nl)

Namibia

Control Points Densification Used in Surveying and Cadastral Applications

Objectives

- To strengthen the capacity of staff members of the relevant organisations in point determination techniques
- To familiarise course participants, by means of guided practicals, with the various steps involved in control point densification using either GPS or aerotriangulation
- To examine methods of aerotriangulation with GPS support, automation in aerotriangulation and space triangulation
- To demonstrate the potential of current and forthcoming systems on data analysis techniques, as well as its effective adaptation and integration into existing processes
- To draw product specifications and explain quality parameters.

Location

Windhoek, Directorate of Surveying & Mapping of the Ministry of Lands or The Polytechnic of Namibia

Course period

To be determined

ITC contact person

Dr M. Sharif (e-mail: sharif@itc.nl)

Philippines

Flood Risk Management in the Philippines

Objectives

This course centres on the methods that can be applied to reduce the vulnerability of population, buildings and infrastructure to flooding. It is designed for disaster managers with flood hazard as their sphere of responsibility or concern. The course especially encourages the participation of elected and appointed national and local (city/town) ad-

ministrators, development and planning authorities, water engineers and flood control professionals, national agency officials and staff in urban planning, housing, public works, and water resource development and management. The course is certain to benefit private land and settlement developers, officials and personnel of relief and rehabilitation agencies, UN and similar international bodies, and non-governmental organisations involved in disaster mitigation.

Partners

The course will be given with the following partners:

- Asian Disaster Preparedness Center (ADPC) (<http://www.adpc.net>)
- Asian Institute of Technology (AIT), GIS Application Center (<http://www.ait.ac.th>)
- Naga City Government

Location

Naga, Naga City Government

Course period

August – September 2004

ITC contact person

Dr C.J. van Westen (e-mail: westen@itc.nl)

South Africa

WebGIS and WebMapping

Students will be introduced to general computer networking theories and Internet concepts, as well as several tools with which Internet mapping applications and web databases can be built. They will learn how to discover, use and serve geodata on the Internet in order to integrate this technology in existing and future applications.

Objectives

- Setting the stage: possibilities and pitfalls of websites for spatial data dissemination
- Internet concepts: overview of Internet concepts and features, Internet protocol, domain name system, Internet services, World Wide Web, web servers, web clients
- Website content: information analysis, composing website content for specific user groups
- Website construction and publishing: using HTML authoring tools, optimising graphics and maps, web server access, website maintenance
- Web application development: web page design principles, HTML, data formats, helper applications, Java, CGI, databases and the Web
- Internet GIS: application of Internet services to GIS, Internet GIS

- Website design: design principles applied to the Web (scheme, hierarchy, balance, colours, typography), user interface design
- Doing it: publishing your own website using either your own data or materials provided, or a combination of both.

Location

Pietermaritzburg, Faculty of Geography of the University of Natal

Course period

To be determined

ITC contact person

Drs B.J. Köbben (e-mail: kobben@itc.nl)

Tanzania

Using Remote Sensing and GIS to Combat and Manage Forest Fire Disasters

General objective

- To give participants an overview of the methods that can be implemented to manage fire, monitor forest fires and identify burnt areas.

Short-term objectives

- To train participants in state-of-the-art satellite remote sensing for fire management
- To provide up-to-date insight into the methods of forest fire detection using remotely sensed data
- To provide a platform for the exchange of experiences in field forest fire monitoring
- To provide training in forest fire spread and growth modelling
- To provide training in forest fire hazard modelling and to discuss methods of fire prevention
- To apply GIS in the context of fire prevention
- To familiarise participants with practical fire detection methods
- To use remotely sensed data for the purposes of burnt forest detection and damage assessment
- To strengthen the ties with alumni.

Long-term objectives

- To increase the capacity of Tanzanian governmental organisations responsible for seismic hazard and risk assessment
- To increase the awareness and capacity of municipal authorities in the field of risk management
- To secure new networks and strengthen existing networks, aiming at the successful completion of these longer-term objectives.

Location

Dar es Salaam, University of Dar es Salaam, University College of Lands and Architectural Studies (UCLAS)

Course period

October – November 2004

ITC contact person

Dr Y.A. Hussin (e-mail: hussin@itc.nl)

Tanzania**Active Sensors – Principles and Capabilities***Objectives*

- To foster awareness of new methods of geo-information provision based on sound technical knowledge of the capabilities and operational aspects of modern sensor technology
- To strengthen the capacity of university staff and representatives of national and local governmental organisations to select and utilise the most adequate technology
- To familiarise course participants with the processes of generating core data
- To demonstrate the potential of currently operational systems and data analysis techniques for urban planning and disaster management.

Location

Dar es Salaam, University of Dar es Salaam, University College of Lands and Architectural Studies (UCLAS)

Course period

September 2004

ITC contact person

Dr K. Tempfli (e-mail: tempfli@itc.nl)

Tanzania**Spatial Information for District Planning in the Context of Decentralisation**

There is the need to build capacity in sub-national or district planning with a particular emphasis on developing skills in collecting, analysing, presenting and managing data of a geographical nature. Decentralisation and devolution processes necessitate building competencies for the new district responsibilities, one of which is implementing district spatial planning.

Objectives

- To build capacity in staff involved in district spatial planning (DSP) processes with a focus on the fields of natural resources management and environmental planning

and management

- To provoke systematic analyses of problems facing district planners dealing with DSP and environmental planning when decentralisation policies are being implemented
- To develop an appropriate framework for analysing spatial information issues within DSP
- To enhance knowledge of, and skills in, collecting, analysing and managing geospatial data
- To develop knowledge of, and skills in, effectively visualising and presenting spatial data for district-level planning.

Location

Dar es Salaam, University of Dar es Salaam, University College of Lands and Architectural Studies (UCLAS)

Course period

June/July 2004

ITC contact person

Dr M.K. McCall (e-mail: mccall@itc.nl)

Uganda**Geoinformatics for Watershed Management***Objectives*

- To provide insight into recent and contemporary issues in water and watershed management in the East African region
- To build capacity in using Geo(IT) tools for hydrological data extraction, data preparation and data exchange
- To build capacity in using GIS and remote sensing in the context of water management issues
- To apply a hydrological model.

Location

Kampala, Geography Department of the Makerere University

Course period

Summer 2004

ITC contact person

Dr B.H.P. Maathuis (e-mail: maathuis@itc.nl)

Vietnam**Geo-information for Management and Planning of Coastal Lagoon Systems***Objectives*

- To strengthen the capacity of representatives of regional and local governmental and non-governmental organi-

sations to apply geo-information in managing and planning coastal lagoon systems

- To support the exchange of available expertise on coastal lagoon management in the region between ITC alumni from the entire Southeast Asian region, Dutch teaching staff and Vietnamese professionals
- To improve understanding of the internal dynamics and carrying capacity of the coastal lagoon system and its relationships with river, coastal and marine systems in Vietnam
- To demonstrate the state of the art in (applications of) earth observation and geo-information science for managing and planning coastal lagoon systems
- To operationalise the available geo-information in a policy analysis within the context of integrated coastal zone management, natural resource management and watershed management strategies
- To stimulate cooperation between various research, training and consulting activities in coastal zone management undertaken by Dutch and Vietnamese institutions in TT Hue Province
- To establish a link between the ITC-FSIV joint research project within the Tropenbos Vietnam programme and the VN-ICZM programme.

Location

Hue City

Course period

October 2004

ITC contact person

Dr T.W. Hobma (e-mail: hobma@itc.nl)

Vietnam

GIS for Environmental and Land Use Planning in Southeast Asia

Objectives

- To familiarise participants with the environmental and land use planning practices in various countries in Southeast Asia and of different departments and organisations
- To familiarise participants with the different aspects involved in applying GIS to environmental and land use planning, and train them to deal with these in their own work situation
- To enable participants to determine the requirements to allow them and/or their organisations to apply GIS to environmental and land use planning
- To familiarise participants with the extent to which cooperation and coordination between different departments and organisations is required to solve the

numerous environmental and land use planning problems in their countries.

Location

Hanoi, Vietnam Research Institute of Land Administration (VIRILA)

Course period

October 2004

ITC contact person

Dr D. van der Zee (e-mail: vanderzee@itc.nl)

Vietnam

Geosystem Exploration and Engineering: A System Approach to Integrating Earth Observation and Geoscience Information

The course centres on the state of the art in geological remote sensing, in combination with geo-engineering directed towards sustainable exploration, in an environmentally conscious manner. It combines specialist knowledge in the earth science fields with the latest insights into geo-information management and earth observation methods.

Objectives

- To create an expert body of earth scientists capable of independently finding and using earth observation methodologies to address issues of managing and monitoring earth processes in relation to (mineral and petroleum) geo-exploration
- To communicate the current state of the art in system science approaches in the fields of geo-engineering and earth observation
- To develop a conceptual framework for understanding the potential new sources of information from earth observation techniques and their applicability in earth sciences
- To assist in developing strategies for data acquisition directed towards the specific needs of earth scientists
- To provide insight into where data can be retrieved and how (field-based and earth observation) data can be integrated.

Location

Hanoi, Vietnam National University

Course period

October 2004

ITC contact person

Prof.Dr F.D. van der Meer (e-mail: vdmeer@itc.nl)

IALE African Chapter

Rob Jongman

rob.jongman@alterra.wur.nl

For African students and alumni interested or involved practically in issues that relate to landscape planning and management and thus could be related to landscape ecology, the following information may be of interest.

The IALE African chapter has launched its new website and is announcing its plans for a first conference in Ghana.

At the world IALE congress in Australia, a new African chapter was formed (IALE-Africa). It takes only a few minutes to join via a recently constructed website (<http://calmit.unl.edu/africa-iale>), so why not visit this address and read all about it.

The first IALE-Africa conference will be held in Ghana in 2005, and in the not-too-distance future the organisers of the African chapter are hoping to approach those of you directly involved in African conservation and landscape ecology for thoughts and ideas. Those who wish to react immediately can send an e-mail via the website.

What Is IALE?

IALE stands for the International Association for Landscape Ecology. It encourages landscape ecologists to transcend boundaries and work together in building theory and developing knowledge of landscape pattern and process, in developing integrative tools, and in applying these tools to real landscape situations and using them to solve problems.

Throughout the world, landscapes are being altered more rapidly, more extensively and more profoundly than at any other point in human history.

Comprehensive land use planning and sound land use policy are still the exceptions but should become the rule. IALE members have a critical role to play. Applying landscape ecology stimulates the integration of various disciplines. Therefore, landscape ecology should always look for opportunities to act. Landscape ecologists make assumptions and uncertainties explicit whenever relevant, identify risks for the decision maker, and always strive to improve the applicability and accuracy of their tools.

Landscape Ecology: The Vision

Looking ahead, IALE envisions a future characterised by:

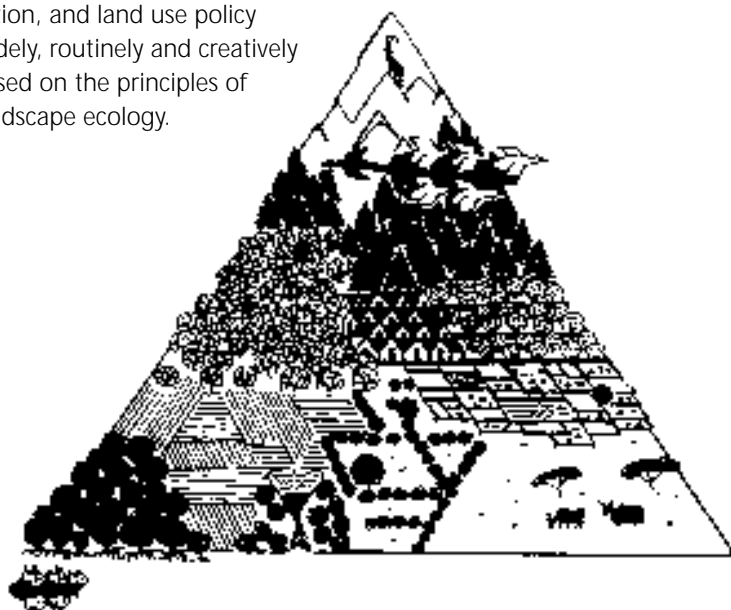
- widespread recognition within the scientific community of the contributions made by landscape ecologists
- rigorous research and scholarship resulting from the active collaboration and interdisciplinary synergism among diverse fields encompassed by biophysical sciences, social sciences, humanities and the landscape professions
- natural resource management, land planning and design, conservation, and land use policy widely, routinely and creatively based on the principles of landscape ecology.

For more information on IALE, please visit its website: <http://www.iale.ws>. IALE also publishes a bulletin, digitally available at: <http://www.wsl.ch/land/iale/bulletin.htm>.

For information regarding membership, please contact treasurer Dr Rob Jongman (rob.jongman@alterra.wur.nl).

How Does IALE Achieve Its Aims?

- As a worldwide organisation of landscape ecologists, IALE provides an infrastructure that serves as a discussion platform and stimulates interaction across the disciplines. IALE will create an infrastructure that makes it easy for landscape ecologists to contact each other and stay abreast of current developments in landscape ecology around the world.
- IALE brings together expertise from different disciplines to solve problems and continue research programming.



ILWIS 3.2 Released!

ILWIS 3.2 was released on 1 January 2004. The new version includes some new functionalities and some bug fixes.

Spatial Multiple Criteria Evaluation (SMCE)

This application assists and guides the user in multicriteria evaluation in a spatial way, using raster maps of a certain area as criteria. The user can build his or her own criterion tree; can standardise and weigh the groups, factors and constraints; and can compare various alternatives.

Hydrological Flow Operations

- New Hydrological Flow operations are implemented: Fill Sinks, DEM Optimisation, Flow Direction and Flow Accumulation.
- The Fill Sinks operation removes local depressions from a digital elevation model.
- The DEM Optimisation operation enables you to "burn" existing drainage features into a digital elevation model.
- The Flow Direction operation determines the neighbouring pixel into

which any water in a central pixel will flow.

- The Flow Accumulation operation determines the number of pixels that naturally drain into outlet pixels; this operation can be used to find the drainage pattern of a terrain.

Find Datum Parameters Wizard

With this wizard, you can find geodetic datum transformation parameters between the coordinate systems of two point maps. The coordinate system of the first point map is supposed to use a local (unknown) geodetic datum, and the coordinate system of the second point map is supposed to use a global geodetic datum (preferably WGS 84).

GARtrip Import

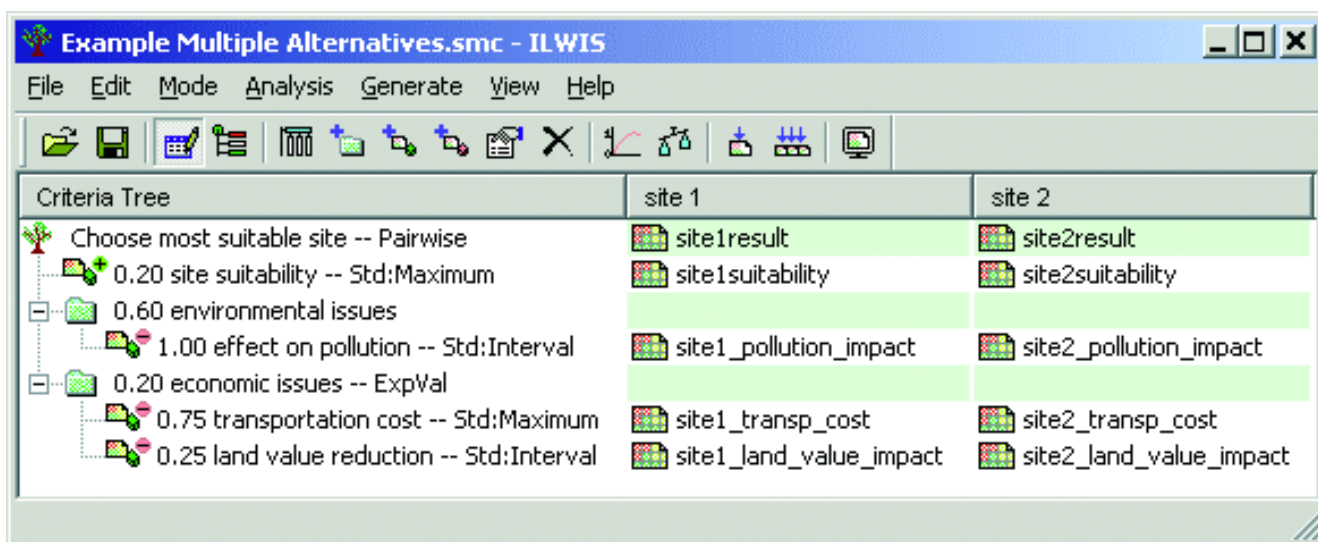
Map Import allows the import of GARtrip text files with GPS data. GARtrip is PC shareware software for Garmin and Magellan GPS receivers.

Distribution Policy as of 1 January 2004

As of 1 January 2004, the ILWIS 3.2 software will be distributed solely by ITC as shareware to all users, irrespective of their relationship with ITC.

- New users, irrespective of their relationship with ITC, are entitled to try out ILWIS software for an evaluation period of one month free of charge. Subsequently, new users can obtain a permanent licence after payment of one hundred euros.
- Existing users of version 3.0/3.1 or later, both ITC and PCI customers, are entitled to upgrade patches to version 3.2 free of charge.
- ILWIS Academic software will be released without guaranteed support services.
- Users with questions can use the ILWIS discussion list, the FAQ and the user documentation available on the ILWIS website.

As from January 2004, ILWIS Academic 3.2 can be obtained only by downloading from ITC's website (<http://www.itc.nl/ilwis/downloads>) or on a CD-ROM from ITC's bookshop. ILWIS will not be distributed by regular mail.



Donation for Lake Naivasha Riparian Association

Robert Becht

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Every year Intergraph sponsors the Open GIS Golf Tournament in the Netherlands. The proceeds are used for charity.

In 2003 the organisers wanted to sponsor a water project in Africa by donating GIS hardware and software. After consultation with ITC's Department of Water Resources, the Lake Naivasha Riparian Association (LNRA) was selected to receive the donation. Since 1997 more than 60 MSc students have carried out their fieldwork around Lake Naivasha and the donation will help the local stakeholder organisation to use the many GIS and earth observation products made by ITC students. ITC played the role of intermediary between the donating and receiving organisations.

In November 2003 ITC was invited to participate in the African Regional Review Workshop for Lake Basin Management in Nairobi, Kenya. This four-day workshop was part of a World Bank-implemented GEF-

funded (Global Environment Facility) Lake Basin Management Initiative that is being executed by the International Lake Environment Committee (ILEC), a non-governmental organisation based in Japan. ILEC is in partnership with a USA-based non-governmental organisation called LakeNet. The Lake Basin Management Initiative is co-financed by USAID, the World Bank Netherlands Water Partnership Program (BNWPP), the Shiga

Prefectural Government of Japan and ILEC.

This occasion was a good moment to hand over the laptop equipped with ILWIS and Intergraph Geomedia Software to Sarah Higgins, Honorary Secretary of LNRA, in the presence of Professor Odada of the Pan African START Secretariat, Dr Nakamura of ILEC in Japan and Dr Baker of LakeNet in the USA (see photo).



staff news

Welcome to ITC

Drs Willem Kruijer	Project Assistant, Department of Earth Observation Science (per 15 October 2003)
Dr Mark van der Meijde	Assistant Professor, Department of Earth Systems Analysis (per 1 November 2003)
Prof.dr.ir. Rien Bos	Visiting Professor in irrigation water management, Department of Water Resources (per 1 November 2003)
Monika Kuffer	Lecturer, Department of Urban and Regional Planning and Geo-Information Management (per 1 November 2003)

Staff leaving

Jannie Broelman-Heutink	Housekeeping, Facility Management (per 1 October 2003)
Emerson Howard	Instructor, Department of Earth Observation Science (per 1 October 2003)
Karen Buchanan	Lecturer, Department of Urban and Regional Planning and Geo-Information Management (per 1 October 2003)
Barbara Casentini	Research Assistant, Department of Water Resources (per 1 October 2003)
Marcia van Doeselaar	Receptionist, Facility Management (per 28 October 2003)
Jannie Wolters-Voogd	Housekeeping, Facility Management (per 1 December 2003)
Ir Edwin Keizer	Lecturer, Department of Natural Resources (per 7 December 2003)

research news

PhD Day: "A Scientific Conference for PhD Students"

Etien L. Koua

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On 31 October 2003 the PhD community at ITC organised the "PhD day". This full-day event takes the form of a scientific conference and offers the opportunity for scientific exchange and social contact among the ITC PhD student community, its guest speakers and fellow PhD students from universities and research schools.

The conference gathered together PhD researchers working in a wide range of scientific fields related to geo-information science, for the purpose of exchanging scientific knowledge and experience. It was also an occasion to establish direct contacts and improve social relationships between PhD researchers inside and outside ITC.

The idea of organising the PhD Day originated in January 2002, during one of the monthly get-togethers when ITC PhD students discuss issues related to their research and stay at the Institute. The idea was warmly received. Shortly afterwards, an organising committee was put in place to plan and organise the event. This organisation had the benefit of support from ITC's Research Coordination and

Directorate, as well as from a number of ITC academic staff members.

The theme of the first edition was "Remote sensing and spatial data analysis". The conference was structured to incorporate oral presentations from guest speakers and selected ITC PhD candidates, and poster presentations from PhD candidates inside and outside ITC. On this occasion, the ITC PhD student community had the privilege of welcoming two leaders in GIScience research as guest speakers: Professor Peter Fisher from the Department of Geography, University of Leicester, UK, and Professor Peter Burrough from the Department of Physical Geography, Utrecht University, the Netherlands. The conference attracted a goodly number of participants from ITC and other universities in the Netherlands. In total, two keynote presentations, eight oral presentations by ITC PhD students, and 14 posters from PhD students from ITC and other Dutch universities were on the programme. A booklet of abstracts of all the oral presentations and posters was distributed at the conference, and made available on the Internet.

The presentations were selected to cover most areas of research undertaken at ITC and were structured in three sessions to deal with technical as well as application-oriented research. The two keynote presentations were very inspiring. Professor Fisher delivered a presentation on *Modelling and recognising fuzzy spatial objects*, in which he shared some experiments dealing with the important problem of uncertainty in spatial data. The second keynote presentation, given by Professor Burrough, provided an interesting outlook on *The development and application of dynamic numerical tools in geo-science research*.

The ITC PhD students' presentations included technical as well as application-oriented research. Arko Lucieer from the Department of Geo-information Processing (GIP) and Earth Observation Systems (EOS) gave a presentation on *3D visualisation of remote sensed image classification*, dealing with the problem of uncertainty and image classification. Daniel van de Vlag, from the same department, discussed *An application of problem and product ontologies for coastal movements*. The design, ac-



ITC Rector Professor Martien Molenaar opening the event



Professor Peter Fisher delivering the first guest lecture



Professor Kraak (right) introduces the second guest speaker, Professor Peter Burrough (left)



The audience



Session chairs: (left to right) Professor Kraak, Professor Skidmore and Professor Stein



Poster presentations

cess and quality of distributed geoservices were discussed by two ITC PhD students: Javier Morales and Richard Onchaga, both from the Department of Urban and Regional Planning and Geo-information Management (PGM). Several presentations on different application domains were also given. Amon Murwira from the Department of Natural Resources Management (NRM) gave a talk on *A new approach to predict wildlife distribution from NDVI*. Sicai Zhu and Prasum Gangopadhyay, both from the Department of Earth Systems Analysis (ESA), respectively discussed *3D and knowledge-based systems for geo-technical modelling* and *Satellite-derived emissivity and coal-fire detection*. The last talk, given by Corné van Elzakker, an ITC staff PhD researcher, discussed map user research, specifically *The use of maps in the exploration of geographical data*.

The concluding session took the form of a panel discussion and afforded the opportunity to debate an important topic. The topic was a very interesting one: *Is GIS a science or a system?* Under the guidance of Professor Skidmore, two teams, each composed of one professor and one PhD student (Arko Lucieer and Professor Stein vs Amon Murwira and Professor Kraak) defended opposing viewpoints. It was an essential discussion as research and technical developments in the field move side by side.

After a quick summary and synthesis of the different sessions by the three session reporters (Arta Dilo, Etien Koua and Martin Yemefack), a visionary speech by ITC's rector brought the conference to a close. In his talk, the rector encouraged the ITC PhD community to repeat such an event and

share scientific experiences. One of his key messages was to remember that PhD work should contribute to society. All PhD students should constantly ask themselves: How does my PhD work contribute to society?

This first edition of the PhD Day (PhD Day 2003) was a success and the event will be repeated on an annual basis. The ITC PhD student community would like to thank ITC's rector, research coordinator and PhD helpdesk officer, as well as the professors who agreed to chair the different sessions and contributed to the panel discussion (Professors Kraak, Stein and Skidmore), for their support in organising the event.

Finally, the ITC PhD community welcomes you all to attend the PhD Day 2004, and information in this respect will soon be made available.



Panel session: Is GIS a science or a system?



The reception afterwards

The GEOPARK Concept: Mexicans May Have Found the Way

Abbas Farshad

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A geopark, as defined by UNESCO (1999), "is a territory encompassing one or more sites of scientific importance, not only for geological reasons but also by virtue of its archaeological, ecological or cultural value ... will have a management plan designed to foster socio-economic development that is sustainable (most likely to be based on geotourism) ... will demonstrate methods for conserving and enhancing geological heritage and provide means for teaching geoscientific disciplines and broader environmental issues ... it should also be recognised that success can only be achieved through strong local involvement"

The idea of carrying out holistic researches - multidisciplinary (polydisciplinary), interdisciplinary or intradisciplinary - is not new. In the Netherlands, for instance, in the period since 1992 the Department of Physical Geography and the Section Hydro-ecology and Environmental Impact Analysis of Utrecht University, and the Department of Physical Geography and Soil Science, the Section Palynology and Paleo-/Actuocology and the Section Quaternary Geology and Lowland Genesis of the University of Amsterdam have come together to form the Netherlands Centre for Geo-ecological Research. Research carried out by a greater-

than-usual group of specialists has focused on "patterns and processes in changing environments". During the same period landscape ecology, in which many disciplines are involved, has received ample attention, from ITC among others. However, the objectives of the research have been to stimulate applied research into geo-ecological systems, and to expand research opportunities through participation across the board, all directed towards mitigating environmental problems.

Although this can be considered an important achievement, it misses participation in the broader sense. The question is how to prepare ordinary people for participation in solving environmental problems. For decades now, all of us - be we geologists, soil surveyors, vegetation specialists, or any other type of specialist - have been doing our own particular jobs, often without involving colleagues, let alone ordinary people (non-specialists). This has become so common that non-specialists no longer bother about what the specialists are doing! A shocking situation and one recognised by a large group of specialists. Scientists may come together and carry out fantastic research resulting in good reports that prescribe many activities and make many recommendations - but scientists are not the only group living in this world.

Actually, those who have to apply such research results are the ordinary people, and they are nearly always absent. So how can we bring science to these people?

Experience in certain countries such as Spain and Portugal has shown that people - from school children upwards - find geotourism quite attractive. Geotourism enables a large number of people of all levels to become acquainted with environmental issues - issues that until now have been dealt with solely by scientists. The concept of the *geopark*, however, goes further than geotourism (knowing that scientists also come together to look at the issues holistically). Dr José Luis Palacio, Dr Gerardo Bocco, Dr Lorenzo Selem Vazquez, Dr Alejandro Velazques and the freshly qualified Dr Narciso Barrera-Bassols (all very active ITC alumni) are working hard to launch the GEOPARK project in a volcanic landscape in Mexico. The area, covering 2,700 ha and surrounding the Parícutin Volcano, is not far from the town of Morelia, which is renowned for its architectural beauty. While wishing them all (and that includes our MSc students, Arturo Garrido and Jamali Baruti, who are doing their research in the same area) every success, let's also hope that a way of bringing science to the people has finally been found.



View of the volcanic landscape



Soils formed in volcanic materials (Andosols): Are they very different from other soils? How do they behave under different management systems?



Doing fieldwork in November is not easy, but it's interesting to see how the rain etches rills and gullies



Now you know what I meant when I said: "Don't plan your fieldwork in November!"

project news

Closing Workshop of Natural Disaster Reduction Project in Central America

Sabine Maresch

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On 12 and 13 December, ITC staff participated in the closing workshop in Tegucigalpa, Honduras, of the project Regional Action Program for Central America, which aimed at capacity building for reducing natural disasters.

Central America and the Caribbean frequently suffer severely from natural disasters such as earthquakes, landslides, floods and volcanic eruptions. In 1998, category five Hurricane Mitch unleashed 180 mph winds and deposited more than six feet of rain on Honduras, Nicaragua, Guatemala and El Salvador, killing almost 9,000 people and leaving more than 700,000 homeless. Schools, bridges, water systems and roads were destroyed by one of the most destructive hurricanes in history.

GIS and remote sensing can be very helpful tools in setting up programmes for natural disaster vulnerability reduction. Thus ITC and partner organisations in the Netherlands and in Central America decided to start a project in 1999 called "Capacity Building for Natural Disasters Reduction, Regional Action Program for Central America (RAPCA)". UNESCO co-funded the project, and ITC and CEPREDENAC (Coordination Centre for Natural Disaster Prevention in Central America), its counterpart in Panama, took charge of the coordination.

The main project activities involved were:

- training a core group of regional experts at ITC and in their own countries



RAPCA group in front of Hotel Clarion, Tegucigalpa, Honduras, with representatives from Costa Rica, El Salvador, Honduras, Costa Rica, the Dominican Republic, Guatemala, CEPREDENAC, UNESCO, ITC and TU Delft

- implementing case studies in Honduras, Costa Rica, Guatemala, El Salvador and the Dominican Republic
- organising short courses in the region
- frequent visits and advice from experts from ITC, the Technical University of Delft and Utrecht University.

After four years, it was time to close the project and organise a final workshop, bringing all country teams, CEPREDENAC, UNESCO and the Dutch experts together one more time to present and discuss the final results, and discuss plans and possibilities for follow-up actions. We decided to organise the workshop right after the Central American Forum Mitch +5, organised by CEPREDENAC in Tegucigalpa, Honduras, from 8 to 11 December 2003. The objective of Mitch +5 was to look back at the lessons learned in the five years since Hurricane Mitch hit the region, to consolidate, and to commit national governments, international aid organisations, companies and all others involved to a well-coordinated disaster

vulnerability and reduction policy. Now the RAPCA country teams also had the opportunity to participate in Mitch +5 and present their project results to a wide international audience.

All five country teams presented their final results at the RAPCA workshop held on 12 and 13 December, and Cees van Westen, the project supervisor, presented the final project products. These consisted of six country reports in Spanish and one CD-ROM containing all project-related results and information, including a full course on using GIS and remote sensing for natural hazard and risk assessment, as well as ILWIS software. The



ITC/RAPCA booth at the Mitch +5 Forum (Tegucigalpa, Honduras, 8 to 11 December 2003)

project results were officially handed over to Mr Arvelio Garcia Rivas (UNESCO Central American Office), Mr Geronimo Giusto (executive secretary of CEPREDENAC), Ing. Luis B. Gómez Barahona (Comisionado Nacional COPECO Honduras) and Mr Antonio Arenas (director of SNET, El Salvador).

In addition, some country teams had made their own posters, CD-ROMs and coloured reports. Generally, the results were very good as far as both quality and presentation were con-

cerned. At the end of the workshop, ideas for continuing our capacity building efforts were discussed, and worked out further the next morning.

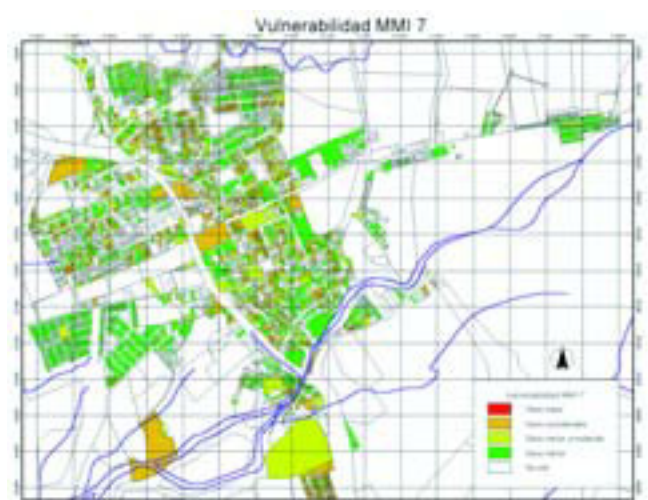
In general, it can be concluded that, although the project got off to a slow start and had its difficulties in planning and administration, the end results are very good. Local projects are successful; about 200 people have been trained; an extended training package has been developed in Spanish, which can be widely used; the RAPCA group has developed into

a strong expert network; and ideas for continuation abound. We sincerely hope that the experiences gained through this project can be further deepened in follow-up projects in the region or in similar regional action programmes in other parts of the world.

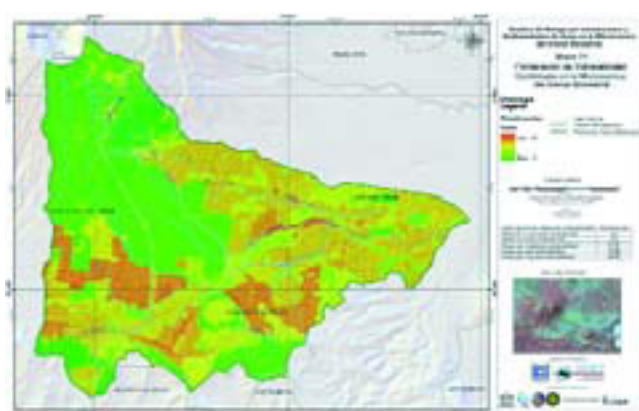
For more information, please contact RAPCA Project Supervisor Cees van Westen (vanwesten@itc.nl) or Project Manager Sabine Maresch (maresch@itc.nl)



Opening screen of the training package on the "Application of GIS and Remote Sensing for Hazard, Vulnerability and Risk Assessment". This training package will be available on Internet through the website of CEPREDENAC: www.cepredenac.org. Currently it is also available from the following link: <ftp://ftp.itc.nl/pub/unesco-rapca/start.html>



One of the result maps of the case study on seismic hazard and risk assessment for the city of Cañas, Costa Rica, displaying the building vulnerability in case of an earthquake with a Modified Mercalli Intensity of VII.



One of the result maps of the case study on flood and landslide hazard and risk assessment for part of the city of San Salvador, El Salvador. The maps displays the vulnerability classes of buildings using a qualitative weighting method.



Volcanic hazard map for the case study are near Retalhuleu - San Sebastian - Volcan Santa Maria - Santiaguito in Guatemala. The maps shows the modeled runout zones for the Santiaguito volcano.

education

Geoinformatics Diploma Course Graduation Ceremony

Samuel Adu-Gyamfi

President Student Association Board (SAB)

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The auditorium in the ITC building in Enschede has been the setting for many a happy occasion in the past and was so again on Friday, 19 December 2003. Staff, students and guests took their seats for the graduation ceremony that officially brought the Geoinformatics Diploma Course to a close. One of the speakers on this red-letter day was Mr Samuel Adu-Gyamfi, president of the Student Association Board, and in his farewell address he was both warm in his congratulations and encouraging regarding the tasks that lay ahead.

"Rector Professor Molenaar, Dean of Students, distinguished professors, programme directors, members of staff, invited guests, graduates, colleagues, ladies and gentlemen, I am highly enthused and filled with great joy to have been invited to be part of today's special ceremony for our dear colleagues in GFM.4 who have successfully completed their academic programmes and will soon be leaving this great Institute of ours and travelling to the four corners of the world.

"I wish to express my profound gratitude to the organisers of this ceremony for the invitation. On behalf of all students currently studying here, and on my own behalf as chief servant of the SAB, I wish to formally congratulate all the graduates on their great achievement. You have indeed toiled, and it is no wonder that you are being honoured on this day of your graduation.

"I would sincerely like to enjoin you to express a deep sense of appreciation first to God Almighty for His Protection, Provisions and Guidance throughout the period of your stay in Enschede in the Netherlands. Many thanks also go to the Netherlands government, your various sponsors, and especially the NUFFIC Directorate, the ITC rector and his team of well-qualified staff for their selfless services to you while studying. Words are indeed not enough to convey our appreciation to all who have contributed in no small way to making your stay here joyous and fulfilling.

"On this great day of your graduation, I wish to spur you into action and progress, wherever you go from here, by asking the following questions:

- Can anything good come out of the knowledge that you have so far acquired at ITC?
- Are you now ready to go home and serve as true products and ambassadors of ITC? - since the greatest joy of any parent is to see his or her offspring progressing in life.
- What good things have you learnt so far from the Dutch? Their time consciousness? their great respect for human beings? their capacity for hard work? their good managerial skills, especially with their money?
- Are you now willing to fully identify with the great ITC alumni network all over the globe? It will do you good if you can join your local branch of the ITC Alumni Association, since there is power in teamwork.



The Geoinformatics diploma course graduates 2003

"By organising this ceremony in your honour, ITC is ushering you back into your respective countries of origin to brighten the corners where you may find yourselves, with humility and determination. And we sincerely believe that you will ultimately succeed. After all as the great William Shakespeare once said, 'What is knowledge if it is not used to solve problems that will bring relief and satisfaction to humankind?'

"Your respective sponsors, as well as ITC and your respective governments, have invested much in you and will also be demanding much from you. For to whom much has been given, much is also expected.

"The new SAB Executive Committee, with its great vision of encouraging students to be more active in all ITC and SAB programmes, wish to sincerely thank our departing colleagues in GFM.4 for their maximum cooperation so far. The executives also wish to thank the rector, the dean of students, and all the other staff members here at ITC for their genuine concern about issues that relate to

student welfare, and we hope the co-operation and the level of trust so far achieved will continue.

"With your good knowledge of GIS and remote sensing, I am tempted to fully agree that your contribution to your respective economies will be great in the field of research. Acquiring data from remote, previously inaccessible areas is now a problem of the past, and when such data are captured you will be able to extract good information to make informed decisions. Thanks go to our hardworking lecturers for their wonderful supervision, as well as for the knowledge they have imparted to us.

"The good lesson about ITC that you will never forget is 'dedicated service with humility'. The working pace you have acquired here must dominate your working environment, and never vice versa, since ITC where you have been trained has no room for laziness. You have been trained in a place where we work from dawn to dusk, come rain or shine.

"Go therefore to labour and be spent, since all eyes will now be on you. Go to invent, improve and upgrade the status quo. Go to influence your respective countries with your fresh ideas from ITC. Go to change things for the better, since there is nothing good or bad but it's the thinking that makes it so. Go to sup-

port your regional or local ITC alumni so that together you can continue the spirit of teamwork that you have learnt here and bring glory to yourselves and mother ITC at large.

"On behalf of the SAB and on my own behalf, I bid you safe journey and may God Almighty, the Allah, bless and establish you in anything that your hand finds to do, but never forget what ITC, the Netherlands government, your respective sponsors, and the people of Enschede have done for you. My warmest regards to your beloved.

"Zoi (dank U wel) - Thank you for your kind attention."

First Batch of Indian Graduates of New IIRS-ITC Master's Programme

Sabine Maresch

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On Thursday morning, 18 December, nine smartly dressed, slightly nervous Indian students, their friends and families, and their ITC supervisors, all gathered in the ITC auditorium. They were taking part in the graduation ceremony of the Master of Science Degree Course in Geo-information Science and Earth Observation and were the first batch to graduate from this course jointly set up by the Indian Institute of Remote Sensing (IIRS), Dehradun, and ITC.

The students had spent the first 15 months of the course at IIRS. The last three months were spent at ITC, completing their thesis and, finally, proudly receiving their MSc diplomas. One more student is expected to graduate in March 2004.

This joint course was financed by the Geonedis project, a collaboration of IIRS and ITC, with financial support



Graduates with Dr P.S. Roy of IIRS and the ITC staff involved in the Geonedis project

from the Dutch SAIL programme, administered by NUFFIC. In the course of this project, the curriculum for the joint MSc programme in geo-information was developed, Indian staff received training in the Netherlands, expert staff from ITC as well as IHE and Wageningen University frequently visited IIRS to teach and guide IIRS module coordinators, computer facilities were greatly improved,

and a modest start was made on joint research activities. One of the most important results of the project was the start of the first joint MSc programme in July 2003 - resulting in this first batch of graduates. All graduates receive an ITC MSc diploma, with reference made to the collaboration with IIRS.

Another important result of the Geonedis project was the development and start of a second joint MSc programme, this time in hazard and risk analysis. The first batch of eight Indian students for this programme are expected to arrive at ITC in March 2004 for a three-month study period. They are expected to graduate at the end of the year.

In July 2004, the Geonedis project will come to an end. This means the

external financial support for the two joint MSc programmes will also come to an end. But in view of the success and high quality of these programmes, as well as the enormous interest shown by Indian students, IIRS and ITC have decided to continue their joint MSc programmes. For the coming academic year, ITC has offered to sponsor a maximum of five Indian students per MSc programme during their stay at ITC. In return, IIRS will cover all expenses of the IIRS

study period and will look for other external funds and fee-paying students to make the programme financially sustainable.

And a few important words in conclusion: "Congratulations to this first batch of graduates from India!"

staff news

Winner of the Henk Scholten Award 2003: Sjeff van der Steen

Corné van Elzakker

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All staff and students are invited to submit nominations for the Henk Scholten Award and this year the winner was selected from a list of 15 candidates. The Henk Scholten Award Committee, which selects the winner, is composed of a SAB representative (SAB president Samuel Adu-Gyamfi), a representative of the PhD students (Javier Morales), a representative of the Directorate (Marja Verburg), a representative of the ITC staff (Corné van Elzakker) and a representative of the personnel association InTerContact (Ellen Steur).

The annual award for ITC's best team builder and team player was presented this year to our alumni coordinator, lecturer and colleague Sjeff van der Steen. ITC's rector Professor Martien Molenaar took care of this at the start of the end-of-year party on 18 December 2003.

Many current and former ITC staff and students have personally recognised the true team-building capacities of Sjeff van der Steen. Everyone admires and appreciates his ever-positive attitude towards, and genuine interest in, students and colleagues alike. With these capacities, and his constant friendliness and forgivingness, he was obviously the best candidate to assume the role of *Sint Nicolaas* at ITC. In this guise, Sjeff has



Professor Martien Molenaar presents the Award to Sjeff van der Steen.



The Certificate presented to Sjeff van der Steen

devoted part of his free time during the month of December, for a number of years now, to introducing our student and (foreign) staff community to some Dutch traditions and making them feel part of one big ITC family.

But *Sinterklaas* was only one reason why people nominated Sjeff for the award. Another argument put forward was that Sjeff has always been a catalyst in organising social activities that have largely contributed to creating a "we-feeling" in the ITC departments he has belonged to over the past few decades (Cartography, GLP

and PGM). And recently Sjef has also put a great deal of effort into bringing the alumni into the ITC family and keeping them in the fold.

With such a strong case, it's no wonder Sjef has been nominated various times in the past. So this year the committee could not do otherwise than unanimously elect Sjef van der Steen as the worthy winner of the Henk Scholten Award 2003.

Criteria for the Henk Scholten Award

To qualify for the Henk Scholten Award a person should:

- be an ITC staff member or student, or a former ITC staff member or student;
- have stimulated the "we-feeling" or have demonstrated team-building capacities at the Institute for a considerable period of time (teams usually consist of both staff and students);
- have fostered and promoted social and working relationships within the Institute as a whole for a considerable period of time;
- have done this voluntarily, over and above the usual tasks resulting from their function or participation in a course programme.

Previous winners of the Henk Scholten Award are:

Wilma Grootenboer, Johan Weggen, Ale Raza, Roelof Schoppers, Wan Bakx and Frans Gollenbeek.

EOS Department Creates

Mireille Meester

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Whereas departmental retreats usually deal with strategic discussions, important documents and statistics, Professor Alfred Stein of the EOS department gave a whole new meaning to this phenomenon. He wanted to leave the business part out of the retreat and lead the members of the department in a creative session. In his words of welcome, he said he could get work-related comments through regular meetings or by mail, but during this retreat he wanted staff members to become better acquainted with one another in a different, more social way - by creating something together. Paintings!

That's how the creative afternoon started for the AIOs, PhD students and staff members of the EOS department. In the art centre CREA in Hengelo, they began with some preliminary exercises to find out about colour, the effect of mixing colours, and the role of the brush in creating certain effects. After that the real work began. They were split into four groups, each one working on a related theme. EOS, the Goddess of Dawn, also had a role in the paintings. She symbolised the "Beginning



of EOS". Her three sons, the gods of three of the cardinal points, symbolised "Growth", "Blooming" and "Sacrifice" (all necessary to fruit bearing). All paintings were done intentionally in an abstract style, but each in a different colour and pattern symbolising these themes.

sults were surprising - especially as they were achieved in such a short timeframe. All four paintings are now on display in the EOS corridor and in the vicinity of their artists, who can look back on a retreat to be remembered.

Most EOS department members had not painted since infancy, but the re-



life after itc

Alumni Meet during Pan-African Implementation and Partnership Conference on Water

Dr Tenalem Ayenew

Department of Geology and Geophysics, Addis Ababa University

Held in Addis Abeba, Ethiopia, from 8 to 12 December 2003, this conference was attended by more than 1,000 high-level participants from the African water sector and the international donor and development cooperation community. ITC was represented by Arno van Lieshout, Robert Becht and Jan Schipper. ITC had rented a booth at the rather large exhibition at the main venue, and was also representing the Netherlands Water Partnership. The booth attracted many visitors and a large quantity of promotional material found its way into the hands of the participants.

During the conference, the ministers launched a number of initiatives, including the African Water Facility, with a targeted funding of over \$600 million for medium-term projects on water and sanitation; the African Water Journal, which will provide an outlet for disseminating knowledge; Water and Sanitation for African Cities (Phase II); the Rural Water



Alumni and the three ITC staff members had a great time



Supply and Sanitation Initiative; and the G8 Action Plan on Water for Africa. They also signed a joint declaration with the European Commission regarding the implementation of the African-European Union Strategic Partnership on Water Affairs and Sanitation.

It is encouraging to see the applications of earth observation in water and natural resources management moving steadily up the international agenda. The ministerial statement on "Ensuring water wisdom" read as follows:

"Water policies and management depend for their effectiveness on accurate and timely information being available to decision-makers.

- To accelerate technical support and capacity building measures in order to strengthen the role of our countries, experts and civil society groups in international water quantity and quality monitoring and risk assessment programmes with priority attention to the protection of ecosystem and human health.
- To ensure that new ways of collecting, analysing and disseminating

information, and policies and sharing knowledge are promoted. These include earth observing programs, a dedicated African Water Journal, an African Water Information Clearinghouse, joint monitoring programmes, the use of modern decision-supporting technologies and the promotion of networks and other systems to link the scientific community with governments and civil society."

Alumni Meet and Ethiopian Alumni Association

With over 325 ITC alumni, Ethiopia is a paradise for lovers of alumni meet-



The ITC booth at the exhibition during the Pan-African Implementation and Partnership Conference on Water

ings, and this was an ideal opportunity to throw an alumni party. Arranging the venue was easy. Ghion Hotel happened to have the perfect facilities for this. But how to contact all those alumni, young and old, who are scattered the length and breadth of Ethiopia and work for so many different organisations? Luckily, Dr Tenalem Aynew, Mr Mogesie Ayele and the director of the Ethiopian Mapping Authority had many up-to-date addresses of ITC alumni. Within three days more than 45 had been

reached and they managed to get over to Ghion Hotel. The barbecue was burning, the drinks fresh and cold, the atmosphere excellent for this type of meeting. All the alumni and the three ITC staff members had a great time (see photographs).

Mr Tenalem (known in Ethiopia as "the father of ITC" because during his own six-year stay at the Institute he introduced so many Ethiopians to living and surviving in Enschede) is willing to act as contact person for

the Ethiopian ITC Alumni Association. So any alumni who have not yet registered, please contact the:

ITC Alumni Association of Ethiopia.
Dr Tenalem Aynew
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Addis Ababa University
Addis Ababa
P.O. Box. 1176
Phone: +251-1-553214
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Refresher Course: Modern Aspects of Remote Sensing and Geo-information Science for Professionals in the Earth Sciences

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Introduction and Motivation
From 1 to 10 October 2003, an ITC refresher course on Modern Aspects of Remote Sensing and Geo-information Science for Professionals in the Earth Sciences was held in Johannesburg, South Africa. The ITC Department of Earth System Analysis, the Netherlands, and the School of Geosciences, Wits University, Johannesburg, South Africa, organised the course jointly. The latter provided a stimulating working environment and ensured that the participants could concentrate fully on their course.

The refresher course Modern Aspects of Geo-information Science and Earth Observation for Professionals in the Earth Sciences was partly inspired by the course organisers' experience in the mineral capacity building project in Mozambique. Here, lack of framework data, metadata and digital standards; geometric registration problems due to poorly reported geodetic data; and poor matching of remote sensing interpretations with field-established concepts appear to

be the typical hurdles to overcome. In addition, the objectives and course level were defined against the educational background of the ITC curriculum and the current status of decentralised affordable information technologies and infrastructures available in most working environments around the world today (e.g. cheap handheld GPS units, web-access to affordable remote sensing data sets, and widely distributed affordable database management and GIS software).

As a result of these considerations, the course organisers decided to offer a range of topics that would provide participants with up-to-date knowledge on modern solutions for managing the complete digital data-information-knowledge process, including the digital capture of field observations, the acquisition of data and metadata from the Internet, the geometric registration, integration and interpretation of newly acquired data in conjunction with pre-existing data/information and the combined re-use of data and information in



University of Witwatersrand (main university building), Johannesburg, South Africa

state-of-the-art analytical integration methods. These topics were augmented by lectures by staff from the School of Geosciences, Wits University, South Africa, which were



The participants of the refresher course and some staff from the School of Geosciences who directly or indirectly contributed to the course

complementary in the sense of state-of-the-art image processing techniques applicable to girded geophysical data and satellite imagery and a range of real-world remote sensing applications in mineral exploration and the environmental monitoring of mine pollution in African and South American settings, backed by field expertise acquired over decades and validation by successful discovery to the point of drills penetrating economic ore bodies.

Course Applicants and Participants

Twenty participants out of a total of 150 applicants were selected for the refresher course: two from Botswana, three from Kenya, one from Mozambique, one from South Africa, six from Tanzania, four from Uganda, one from Zambia and two from Zimbabwe. In the selection criteria, preference was given to applicants with an earth scientific background who have an active role in projects dealing with the acquisition, management and analysis of geoscience data in academia, industry and government. Of the 20 participants accepted for the course:

- three were females
- 18 were ITC alumni, the rest coming from organisations having links with ITC
- 14 were from national geological survey organisations actively involved in the planning of geological, geophysical and mineral capacity surveys
- three were private consultants, with project activities ranging from environmental geology to mineral and groundwater exploration
- three were from universities in the region.

It is important to note that applications to attend the course were also received from countries as far away as Bangladesh, Brazil, Colombia, Costa Rica, Cuba, Germany, India, Italy, Japan, Nepal, Nicaragua, Pakistan, the USA and Vietnam, including seven from UN offices in Africa.



Lectures, interpretation/computer exercises and group discussions during the refresher course

Overview of the Course

The course provided a two-week programme on new approaches in the development and building of geoscience databases and information infrastructures for earth scientists. The course integrated aspects of remote sensing and ground-based data acquisition, data integration, information extraction and analytical GIS approaches to mapping and modelling earth systems. It provided participants with the practical skills and underlying theoretical aspects that allow them to streamline the information for individual projects as well as to obtain valuable insights on how to modernise geospatial data infrastructure in their home organisations. The focus was on geoscience databases that support the work of geological survey organisations in a modern setting.

The refresher course objectives were achieved through a series of formal lectures supported by practical exercises and case histories in the interpretation and analysis of imagery, the application of various remotely sensed data in earth-science-related surveying and mapping, digital image processing, basic data models and database schemas for managing existing data sources and new data acquisition, digital field data capture techniques, including the basics of

handheld GPS and database management aspects, relative and absolute geometric registration of heterogeneous data sets, integrated data analysis using GIS and predictive modelling (data-driven, knowledge-driven and model-driven).

Institutional issues were discussed in the context of implementing novel processing and analysis chains. Increased relevance to the course was achieved by means of fieldwork in the "Cradle of Humankind", a world heritage site about 40 km northwest of Johannesburg. Staff from Wits University provided a convincing case for combining field knowledge with the interpretation of remote sensing data to analyse the relationships between karst and caves with mammal bone breccias (including hominid remains) controlled by acid mineralised fluids percolating along shear zones cross-cutting stromatolitic Archean dolomites. The course and the fieldwork exercise were considered to be an excellent vehicle to achieve the goals of the refresher course.

The overall impression by the teaching staff is that the course met with a very favourable response from the participants. All the participants were exceedingly enthusiastic and motivated throughout the course. As most of the course participants held

senior or high-level positions in their respective organisations, they were in a position to make very relevant contributions. No doubt the course helped to strengthen the existing ITC network.

The course participants were awarded the joint certificate of attendance from ITC and the School of Geosciences, Wits University, Johannesburg, South Africa.

On request of the participants and the staff of the School of Geosciences, web-based support has now been implemented via the Blackboard environment available at ITC. All participants and staff involved

can access this medium freely and can use the discussion forum to share ideas and provide/receive feedback on topics related to the refresher course.



Fieldwork site: the "Cradle of Humankind"



Refresher Course: Geo-Information for Natural Hazards and Disaster Management in Indonesia

Robert Voskuil

voskuil@itc.nl

Floods, volcanic eruptions, earthquakes and landslides are increasingly causing loss of life and serious damage to settlements, infrastructure and economic activity in Indonesia. These events form a serious obstacle to economic development and lay a heavy claim on the financial resources of the already fragile economy.

From 8 to 19 December 2003, a refresher course was organised at the Faculty of Geography, Gadjah Madah University, Research Centre for Disasters in Yogyakarta, entitled "Geo-Information for Natural Hazards and Disaster Management in

Indonesia". The course was jointly organised and executed by staff of ITC, the Department of Earth Systems Analysis and Water Resources, and the Faculty of Geography, Gadjah Madah University (UGM). In addition, a number of Indonesian experts were invited to highlight natural hazards and disaster management from an Indonesian perspective.

The course was attended by ITC alumni in the fields of applied geomorphology, engineering geology, geological surveys and urban surveys; staff from key local government and planning institutions; and interested

staff and students from UGM; all from Indonesia. Most of the invited participants, who came from a wide range of disciplines, illustrating the multidisciplinary nature of disaster management, have obtained senior positions since their graduation from ITC. The course was a true ITC course as nearly all the Indonesian lecturing staff were ITC alumni as well. Furthermore, recent ITC graduates were invited to present the results of their thesis work as case studies and demonstrations.

The Faculty of Geography, together with the Research Centre for Natural Disasters, of the UGM is a national education institute in the field of natural hazards and disaster management, and as such a logical place to conduct the two-week intensive training programme. The course was officially opened by the dean of the Faculty and was broadcast on television during the evening news. Radio interviews were also conducted, stressing the importance of the course objectives and their relevance to society - for example, strengthen-



Opening ceremony of the refresher course



Banner on the campus of Gadjah Mada University



Participants during a class on 3D image interpretation with anaglyph glasses



Demonstration of mobile GIS for volcanic hazard mapping of the Merapi Volcano



The course participants

ing the capacity of representatives of regional and local governmental and non-governmental organisations to:

- apply geo-information in natural hazards and disaster management, and
- contribute to the capacity of, and provide advice to, national, regional and local governmental and non-governmental organisations in order to achieve, by using geoinformatics in the disaster management process, sustainable preparedness and thus minimise environmental degradation and disaster-generated sufferings.

The course presented the participants with relevant new developments in geoinformatics, particularly in the fields of GIS and remote sensing, for integrated natural hazards and disaster management. In addition to these new developments, attention was also given to generic concepts and methodologies that can be applied to hazard, vulnerability and risk assessment. The participating Indonesian

experts focused on the predominant natural hazards and vulnerability and risk assessment in an Indonesian context. During the course, a variety of activities were conducted:

- *Lectures* by ITC staff and experts from the UGM and other Indonesian institutions on hazard and disaster management, the latest sensors, and software developments for hazard assessment and monitoring.
- *Demonstrations* of:
 - mobile GIS-GPS during a field excursion
 - various software packages for (dynamic) terrain modelling of hazardous areas.
- *"Hands-on"* computer practicals on various examples of using GIS and remote sensing for hazard, vulnerability and risk analysis.
- *Group discussions* on the expectations regarding the refresher course, the use of geoinformatics in the respective participants' organisations, the selection of relevant spatial information for

different natural hazards and its use in the disaster management process.

- *Field excursion* to hazard-affected areas of the Merapi Volcano (both pyroclastic and lahar flows) and people (infrastructure at risk, as well as mitigation measures that have been conducted). With regard to early warning and prevention, site visits were made to relevant governmental organisations, demonstrating the use of an operational telemetric system for the Merapi Volcano to forecast the occurrence of lahars, and to a volcanic observatory station to see the seismographic equipment and discuss the station's role in monitoring and subsequently warning the local population.

To enable the participants to review the course material afterwards, a CD was provided giving copies of all lecture presentations, instructions, and the GIS and remote sensing data used in the practicals by both ITC staff and contributing Indonesian experts. Furthermore, additional literature was given to the participants to give them greater in-depth knowledge of several topics discussed.

The course was perceived as well organised, and the participants agreed that the refresher course objectives had been achieved. The lectures, demonstrations and practicals were evaluated positively. Given the discussion on expectations and the remarks made by the participants at the start of the course, the evaluation showed that, although there was a wide variety of expectations, these could be incorporated in the course and the participants were generally satisfied with what they had learned during these two weeks.

For further information, please contact Robert Voskuil (voskuil@itc.nl).

Refresher Course: Geospatial Data Infrastructure East Africa

Aster Denekew Yilma

adenekew@yahoo.com

In most countries large and valuable data sets are used in only a few institutions. Others who are unaware of the existence of the data, or who lack access or data sharing mechanisms, duplicate the efforts to create the data sets. In addition, spatial data acquisition is still very expensive.

This calls for a spatial data infrastructure to be established as an international response to the challenges of organising, using and sharing geographical information. Initiatives to implement spatial data infrastructures (SDI) are thus emerging at the national and regional levels in industrialised as well as developing countries, which will complete the global SDI.

In 2001 Ethiopia took the initiative to establish NSDI Ethiopia, and in May 2003 the NSDI steering committee was formed. The Ethiopian Mapping Agency is taking the lead, with partner organisations as members of the committee. The Environmental Support Project, under the auspices of the Ministry of Water Resources and in cooperation with partner institutions, has not only created EN-RAEMED, a software package for capturing metadata, but is also responsible for organising the generation of metadata. Furthermore, a clearinghouse has been established. Also taking the initiative, Kenya conducted the Kenya NSDI Workshop in 2001, and the process of establishing Kenyan standards for geospatial data is underway. Other countries in the sub-region are taking similar measures.

The refresher course Geospatial Data Infrastructure East Africa (GDIEA) was conducted in Addis Ababa, Ethiopia, from 19 October to 1 November, hosted by the United Nations Economic Commission for Africa



The course participants and ITC staff

(UNECA). The course was jointly organised by ITC and UNECA, and the participants were ITC alumni from Ethiopia, Sudan, Kenya, Uganda and Tanzania.

The course covered issues related to geo-information and data sharing in East Africa, such as legal, institutional and economic aspects of GDI; discovering spatial data (metadata creation and clearinghouses); integrated spatial data sharing (OpenGIS and interoperability); and GDI development strategies and future follow-up schemes. The discussion sessions also gave the participants the opportunity to present the current status of geospatial data infrastructure in their own countries. All the participants were actively involved in the discussions and presentations throughout the course and exchanged relevant experiences and viewpoints. The practical sessions also included technical issues such as generating and maintaining metadata and exploring clearinghouse mechanisms.

The group appreciated the quality of the GDI lectures and applauded ITC for its wisdom in organising such a course at a crucial time when many countries in the sub-region are struggling



Computer exercises during the refresher course

gling to implement GDI. It is also worthwhile recording that the course has transformed the participants into a respectable pool of resource persons and consultants to serve the sub-region. The effects of the refresher course are likely to contribute greatly to the establishment of GDI within the sub-region, as well as foster good working relationships among the participating members.

The refresher course also proved a good meeting ground for ITC alumni dating back decades. Social events in

the form of a trip out of the city and a dinner plus cultural show were among the enjoyable highlights.



Walter de Vries presenting the certificate of attendance to Ms Hind Mahmoud and to Ms Aster Denekew Yilma

Many ITC memories were rekindled, and it was interesting to see just how close the ITC family really is!



Life after ITC

Dear Mr de Smeth and Mr Frank,

How are you? I hope everything is fine and your day as usual is full of happiness. Sorry for not contacting you for such a long time, but my life and career have been full of uncertainty. But now everything seems a little bit clearer and I can see my future, and although it's still faint, I really thank God for everything that has happened in my life.

As soon as I arrived in Indonesia, I tried to get a new job in mining or geothermal exploration. But I also returned to ITB, my university, just to say "thank you" for my lectures there. Beyond my expectations, the head of the Geology Department and the dean of Earth Science and Mineral Technology asked me to join ITB and become part of their research staff and a junior lecturer. At the same time, Unocal, one of the geothermal companies in Indonesia, approved my application for a position as geologist. After a long discussion with Lucas, we finally came to the decision that it would be better if I worked for ITB. This was because there were better opportunities here for me to develop my knowledge than in a private company.

After coming to an agreement with ITB, I was given the task of developing GIS for regional geology studies by Exspan Oil Co. This project is a collaboration project between ITB and Exspan. We use MapInfo to generate layer maps and a database. Apart from that, I am also responsible for developing the geothermal direction at ITB. I have assisted in some geothermal feasibility studies for the Pertamina Geothermal Division. I am also involved in arranging a practical module on the geology and geochemistry of a geothermal field for the ITB Volcanology and Geothermal Course. So that's all about my job.

More good news: on 28 September 2003, Lucas and I became engaged.



Pictures of a traditional Javanese engagement ceremony

We plan to get married in March 2004. He is now in Japan, so I am waiting for the exact date when he can come over for the wedding. I'm sending you some pictures of a traditional Javanese engagement ceremony. Hope you still recognise me.

I think that's all from me now, but I hope to hear something from you at ITC.

Regards
Ninik Suryantini
suryantini@alumni.itc.nl



Passionate about ITC

Shyam K. Paudel
INBAR, P.R. China

spaudel01312@alumni.itc.nl



I am Shyam from Nepal and followed the ITC MSc course on socio-economic information for natural resource management (SIG.2) from 1998 to 2000. There's no doubt that ITC provided the pragmatic training that has put me in the position I am today.

At ITC I acquired not only a "degree" but also "desire". There's something about ITC that always attracts me. I have been back twice since my MSc course, just to see the familiar faces, my torture chamber (that's what we used to call the MSc room), restaurant, etc., and I can never get enough of it. What passion!

I remember one particular story. I was returning to China from Ghana in April 2003 and I had ten hours in transit at Schiphol airport. I was near

to ITC, at least compared with where I am now, and desperate to get there. Unfortunately I did not have a visa, but I thought, well, no harm in trying. I went to the police officer (immigration officer) and asked whether I could go out of the airport. They flatly said, "No, without a visa it's impossible."

But I didn't give up. Again I showed up. This time at least, they asked where I wanted to go. I said, "Enschede." This answer amazed them. Probably they were expecting "Amsterdam", as hardly any tourist would go to Enschede if they had only a few hours. They looked at me for a while and probably believed what I said. I also explained why I'd like to go there.

Finally, I got permission provided I came back on time; if not, I would be blacklisted. They told me that I was probably the first Nepalese to enter without a visa. Now, I had to rush. In next to no time, I was on the train to Enschede - not very difficult as I'm

quite familiar with the airport. I had only eight hours left. I spent about four and a half hours on the train, two hours at ITC, and about an hour looking around, and that included DISH. I gave a big sigh as I entered the ITC building and was excited to see once again where I'd spent some 20 months.

Before I left ITC, Dr Mike and Dr Lucas said they would not be surprised if I turned up again unexpectedly. True. You'll never know when my passion will make me pop in out of the blue.

Another surprise, ITC knows I'm in China. They invited me to join the alumni meeting in Beijing on 25 November 2003 during the ceremony celebrating 25 years of cooperation between China and ITC. I was curious to see ITC faces again and elated at meeting a few Chinese colleagues who were at ITC when I was there. I've come to the conclusion that ITC gives a solid foundation for a professional career, so hardly anyone forgets it.

letter to the editor

Dear Editor,

I am proud to be an alumnus of ITC. I followed the postgraduate diploma course in photogrammetry (P1 Course in 1981/1982). After that I spent about 16 years in the photogrammetric field in different branches of the Survey Department of Nepal.

I migrated to New Zealand in 1997 and since then I have been involved in various types of survey work, becoming acquainted with the New Zealand system. I wish to take my experience back to Nepal.

I must thank the ITC staff for enriching my knowledge in the field of photogrammetry. In particular your publication is helping to keep me up to date regarding developments in photogrammetry. I am very grateful to you for sending me a copy of your publication (ITC News).

As I have moved to a new house, please make a note of my new address. I'd like you to post it to my new address.

My best regards to all staff and best wishes to all students of the Institute.

Yours sincerely,

Kamal Prasad Shrestha,

shrestha@clear.net.nz



Alumni associations

Listing of all Netherlands and ITC alumni associations

The mission of the Netherlands Alumni Associations (NAAs) and the ITC alumni associations is to enable people all over the world who have studied in the Netherlands or at ITC in particular to build personal networks and share knowledge, ideas and experience with one another and their Dutch counterparts. Alumni who would like to set up similar associations in their own country can contact ITC.

ARGENTINA

Asociación Cultural Argentino-Neerlandesa de Ex-Becarios (ACANEB)
c/o Royal Netherlands Embassy
Avda. de Mayo 701, Piso 19
1084 Buenos Aires
President: Ing. Pablo Bereciartua
Phone/fax: +54.11.4345.4399
E-mail: info@acaneb.org.ar
Website: <http://www.acaneb.org.ar>

BANGLADESH

Netherlands Alumni Association of Bangladesh
Mr Qazi H. Kabir, Secretary General
42/7 Block F, Babar Road
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Phone: +880.2.323855

BULGARIA

Bulgarian-Dutch Alumni Association
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President: Dr Tihomir B. Mustakov
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President: Kiemtoré Moustapha
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CHILE

Corporación Cultural Chileno-Holandesa:
José Miguel Infante 146
Providencia, Santiago de Chile
Chairman: Mr. Enrique Román.
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Website: <http://www.ccchh.cl>

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54, Sheikh Ahmed El Sawy Street
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Phone: +20.2.2746513
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Ghana Netherlands Alumni Association (GNAA)
P.O. Box 8148, Accra-North
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C/o School of Planning and Architecture
4-B, I. P. Estate, New Delhi 110002, India
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Secretary: Mr Tan Teow Soon
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MEXICO

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Alumni associations

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SINGAPORE

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E-mail: vnac@fpt.vn

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CONFERENCE CALENDAR

Third 3rd European Geosynthetics Conference

1-Mar-04 - 3-Mar-04
Germany, Munich

<http://www.gb.bv.tum.de/eurogeo3/main.htm>
eurogeo3@bv.tum.de

Geovisualisation

13-Mar-04 - 18-Mar-04
Greece, Kolymbari, Crete

http://www.esf.org/esf_euresco_conference.php?language=0&domain=2&conference=179&meeting=2
imangion@esf.org
ITC attendance: Menno-Jan Kraak

ESA-EUSC 2004 Conference

17-Mar-04 - 19-Mar-04
Spain, Madrid

http://earth.esa.int/rtd/Events/ESA-EUSC_2004/index.html

International Conference on Innovative Techniques in Soil Resources inventories

22-Mar-04 - 26-Mar-04
Thailand, Cha-Am

http://www.idd.go.th/web_ssd/index.htm
vearasilp@access.inet.co.th
ITC attendance: Rob Hennemann

Mobile Mapping Technology 2003 (postponed from Aug 2003)

29-Mar-04 - 31-Mar-04
China, Kunming

<http://www.geoict.net/MMT2003/index.htm>
tao@yorku.ca

International Conference on Spatial Point Process Modelling and its Applications (SPPA)

04-Apr-04 - 08-Apr-04
Spain, Castellón

<http://www.sppa.uji.es/>
mateu@mat.uji.es
ITC attendance: Alfred Stein

International Symposium on Spatial Data Quality

15-Apr-04 - 17-Apr-04
Austria, Vienna

http://www.geoinfo.tuwien.ac.at/events/ISSDQ04/ISSDQ_call.html
frank@geoinfo.tuwien.ac.at

European Geosciences Union 1st General Assembly

25-Apr-04 - 30-Apr-04
France, Nice

<http://www.copernicus.org/EGU/ga/egu04/index.html>
egu@copernicus.org

AGILE 2004

29-Apr-04 - 1-May-04
Greece, Heraklion

<http://agile2004.iacm.forth.gr>
agile2004@iacm.forth.gr

EurEnGeo 2004

4-May-04 - 6-May-04
Belgium, Liege

<http://www.ulg.ac.be/eurengео>
info@eurengео2004.org
ITC attendance: Robert Hack

GISDECO 2004

10-May-04 - 12-May-04
Malaysia, Johor

<http://www.utm.my/gisdeco>
b-haris@utm.my
ITC attendance: Luc Boerboom, Richard Sliuzas, ITC booth

GEOMATICA 2004

10-May-04 - 14-May-04
Cuba, Havana

<http://www.informaticahabana.com>
geomatica2004@geocuba.co.cu

1-Jul-04 - 2-Jul-04

GeoSpatial World 2004

12-May-04 - 14-May-04
United States, Miami

<http://www.geospatialworld.com/housing/default.asp>
iguc@intergraph.com

FIG Working Week 2004

22-May-04 - 27-May-04
Greece, Athens

<http://www.fig2004.gr/info@erasmus.gr>

ASPRS 2004 Annual Conference

23-May-04 - 28-May-04
United States, Denver

<http://www.asprs.org/denver2004/index.html>

Workshop on Basic Space Science

24-May-04 - 28-May-04
China, Beijing

<http://www.oosa.unvienna.org/SAP/act2003/china/index.html>
oosa@unvienna.org

24th EARSeL Symposium

25-May-04 - 27-May-04
Croatia, Dubrovnik

http://www.earsel.org/earsel_events/index.html
earsel@meteo.fr
ITC attendance: Freek van der Meer

Workshop of the EARSeL Special Interest Group

28-May-04 - 29-May-04
Croatia, Dubrovnik

<http://www.zfl.uni-bonn.de/earsel/earsel.html>
earsel@uni-bonn.de

Geoinformatics 2004

7-Jun-04 - 9-Jun-04
Sweden, Gävle

<http://www.hig.se/geoinformatics/geoinformatics@hig.se>

EARMA Annual Conference

24-Jun-04 - 26-Jun-04
Romania, Bucharest

<http://www.earma2004.ro>
info@earma2004.ro

GI-Days 2004

1-Jul-04 - 2-Jul-04
Germany, Muenster

<http://www.gi-tage.de>
info@gi-tage.de

20th ISPRS Congress #20

12-Jul-04 - 23-Jul-04
Turkey, Istanbul

<http://www.isprs2004-istanbul.com/oaltan@srv.ins.itu.edu.tr>
ITC attendance: t.b.d., ITC Booth

PPGIS

18-Jul-04 - 20-Jul-04
United States, Madison

<http://www.urisa.org/ppgis.htm>
info@urisa.org

35th COSPAR Scientific Assembly

18-Jul-04 - 25-Jul-04
France, Paris

<http://www.cospar2004.org/cospar2004@colloquium.fr>

ESRI International User Conference

9-Aug-04 - 13-Aug-04
United States, San Diego

<http://www.esri.com/events/uc/index.html>
ucregis@esri.com
ITC attendance: Lyande Eelderink, Mark Noort, ITC Booth

30th Congress of the International Geographical Union

15-Aug-04 - 20-Aug-04
United Kingdom, Glasgow

<http://www.meetingmakers.co.uk/igc-uk2004/index.html>
igc2004@meetingmakers.co.uk

ITALIA 2004, 32nd International Geological Congress # 32

20-Aug-04 - 28-Aug-04
Italy, Florence

<http://www.32igc.org>
ITC attendance: Sabine Maresch, Phil Westerhof, ITC Booth

SDH 2004

23-Aug-04 - 25-Aug-04
United Kingdom, Leicester

<http://www.geog.le.ac.uk/sdh2004/>

Remote Sensing and Photogrammetry Society Annual Conference

7-Sept-04 - 10-Sept-04
United Kingdom, Aberdeen

<http://www.rspsoc.org/rspsoc@nottingham.ac.uk>

IGARSS 2004

20-Sept-04 - 24-Sept-04
United States, Anchorage

<http://ewh.ieee.org/soc/grss/igarss.html>

14th International Symposium on Remote Sensing and Development

27-Sept-04 - 30-Sept-04
Syria, Damascus

<http://www.gors-syr.org>

Conference on Laser Scanner Application for Landscape Assessment

3-Oct-04 - 6-Oct-04
Germany, Freiburg

<http://www.natscan.de/conference/info@natscan.de>

FIG Regional Conference for Asia and the Pacific

3-Oct-04 - 7-Oct-04
Indonesia, Jakarta

<http://www.fig.net/figtree/jakarta/fig@fig.net>

The 5th AARSE Conference

18-Oct-04 - 21-Oct-04

Kenya, Nairobi
ottichilo@rcmrd.org

5th International Symposium on Mining Science and Technology

20-Oct-04 - 22-Oct-04
China, Xuzhou

<http://ismst.cumt.edu.cn/english.htm>
ismst@cumt.edu.cn

URISA 2004

6-Nov-04 - 10-Nov-04
United States, Reno

<http://www.urisa.org>

ISWC 2004

7-Nov-04 - 11-Nov-04
Japan, Hiroshima

<http://iswc2004.semanticweb.org>

XI 11th Latinamerican Remote Sensing and Spatial Information System Symposium

15-Nov-04 - 19-Nov-04
Chile, Santiago

<http://www.cprsig.cl/>

ACRS 2004

22-Nov-04 - 26-Nov-04
Thailand, Chiang Mai

<http://www.aars-acrs.org/invitation.htm>

CIPA International Symposium

26-Sept-05 - 30-Sept-05
Italy, Turinorino

<http://www.cipatorino2005.org>
info@actacongress.com