content

2005 number 1

introduction

Time, space, money: the eternal triangle of constraints that seems to dog our tracks. We meet it in our daily lives – perhaps snarled up in traffic, impatiently drumming our fingers on the wheel as the clock ticks closer towards that important business engagement. We meet it when drafting project proposals or strategic plans; and we meet it in the educational arena. Nowadays, while ongoing education is becoming a serious necessity in the effort to stay abreast of rapid developments in the world of technology, mid-career professionals are finding it ever more difficult to take time out from family and work commitments to follow long educational programmes abroad. What to do?

Never one to shy away from challenges, ITC is seeking to harness technological advances to extend the range of options open to its clients, be they individuals or organisations. For example, much work is afoot in the realm of distance education (p.5), and ITC News 2005-1 carries a progress report in this respect, exploring the views on both sides of the table. Joint educational programmes and projects are another feature of ITC's portfolio, and in this issue you'll find details on various stages of such initiatives: from the signing of an agreement in Nigeria (p.24), to the opening project at the National University of Rwanda (p.22), to the graduation ceremony of the Earth Resources and Environmental Geosciences course in India (p.25).

All the same, there's still much to attract students to Enschede: for example, the newly structured Master's course in geoinformatics (p.15), which reflects growing societal interest worldwide in spatial data infrastructures. And there's the 2005/2006 MSc course in environmental modelling and management (p.16), which offers participants not only the chance to acquire new skills and abilities but also ample opportunity to experience the European cultural diversity – and the Erasmus Mundus scholarships on offer may be the solution to someone's constraint. But that's for the future. What of the students at ITC now? What's keeping them busy? If you turn to pages 14 and 17, you'll get some idea.

So although isolation is often considered one of the perils faced by students at a distance, it's our hope that ITC News 2005-1, with its varied offering of reports and articles, will bridge any such gap felt by our readers and overcome to a some degree the constraints of both time and space.

Janneke Kalf
Managing Editor

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Applied Geoinformatics Research to Solve Latin American GI Challenges

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Geo-information sciences are dealing with leading-edge concepts such as service chaining, geographical information (GI) components, grid computing, sensor web, context-aware tools, and location-based services.

On the other hand, Latin American countries are facing challenging and urgent problems in terms of designing, implementing, and supporting solutions to integrate and harmonise information from different sources and apply them to the protection of critical infrastructure such as highways and power lines. Today's markets offer huge amounts of data with different characteristics. To connect such data, markets also provide a set of functions available on Internet with different behaviours. One of the main problems that we have to tackle is the different meanings of data and functions, and their understanding among stakeholders. The opportunity to follow an MSc programme at ITC in geoinformatics offers the possibility to check on the feasibility of applying geo-information tools and methods in the Latin American context, using an innovative, practical and moderate-cost approach.

From an empirical point of view, in Latin America a utility service is something that people become conscious of when they don't have it. For example, it is generally expected that when you arrive home, you can turn on your lights at the flick of a switch. The average person is not aware of the complex infrastructure behind the scenes. Only people involved with the energy and gas infrastructure realise the complexity of planning, controlling and maintaining the networks and pipelines, and the great efforts required to offer and maintain good quality and continuity of service.

In addition, Latin American companies face huge pressure from both public opinion, controlled by various stakeholders with a vast diversity of interests, and privatisation processes, pushed by government open-market policies. In this context, utility companies have to rapidly define and implement strategies to counteract their weakness and implement ambitious plans to fulfil their stakeholders' expectations.

One of the main problems faced by these organisations in establishing and maintaining any kind of solution to current problems is the different meanings ascribed to the same object. Our interactions with each object are diverse, so each person can model objects in many different ways. The result is that the same object is represented with different attributes, descriptions, names and meanings. It is the context or type of application or problem to be solved, as well as the detail of the information to be captured, that determines which model is the more suitable.

This is the interoperability aspect of problem solving. The Open GIS Consortium (OGC) defines interoperability as the capability to communicate, execute programmes, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units. Solving this subject of interoperability is a mythical issue that has demanded, and been supplied with, several approaches. The first approaches went for standard formats and connectors between heterogeneous systems applications. This alternative solved some initial expectations, but maintenance and support costs were high. Actually the proposals deal with the

understanding between software components. In this context, the components are self-assembled in a dynamic way. The aim of all these proposals is to fulfil the user's requirements and the expectations of business – ultimately, all technological advances have to be business-driven and user-driven.

Web service is an additional element required to gain the big picture of one set of solutions. A working definition of web service is network-resident software services that are accessible via standardised protocols. This means that web services are available via the Internet and they are used on demand when the user requires the function. Service chaining is a way of organising or composing a set of functions and data sets in order to obtain a stronger solution. It is a synergetic approach: the combined interaction of two or more elements produces a stronger result than their individual efforts.

There are two main proposals regarding composition: the business workflow approach with BPEL, which has the support of the main technological companies; and the semantic web approach with OWL, a continuation of artificial intelligence (AI), with the management of knowledge and its representation.

A current Geoinformatics (GFM) MSc research project at ITC is proposing to combine the strengths of these two approaches in the composition and execution stages of service chaining. The aim is to introduce an extension to the service description used to publish a web service and include a link to an ontology (common understanding of a domain knowledge). In this way, organisations that decide to implement geoinformatics solutions do not have to start from scratch. Consequently, their projects will be more focused on the domain area of the problem, and the implementation of the solution will be the composition of service chains. In addition to the semantic extension, the composition process will be speeded up because the person in charge of the composition will have the support of an ontology to understand the behaviour of the different components available on the Internet.

Figure 1 presents the outline of a real situation faced by a user. The process starts by the user defining his requirements in a business workflow. This user knows that in the world of web services he can find the necessary components to meet his requirement, so he looks in the web service registry (UDDI) for candidate services available on the Internet. The UDDI searches in its repository for candidate services and sends back the corresponding service description. So far, the user has to know the meaning, scope and business use of the candidate service descriptions. The language used to describe services or the business process itself is not

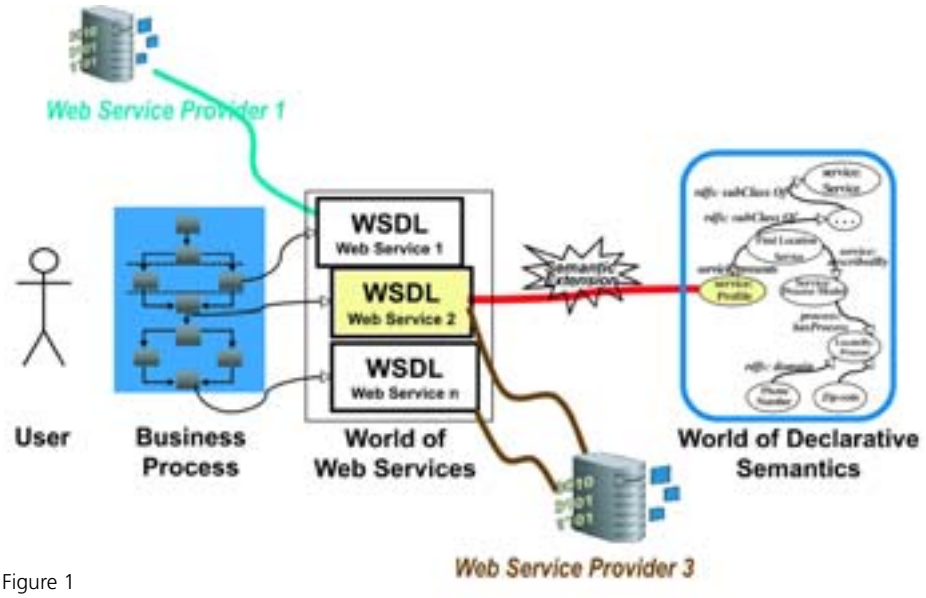

Figure 1

Biography

Gustavo Zarrate received his university degree in information systems and computation engineering at the Universidad Distrital in Colombia. He received his certificate in marketing and sales management at the Universidad Industrial de Santander in Colombia, and also his specialisation certificate in business management at the Central University in Colombia

At present Mr Zarrate is doing his research in geospatial sciences at ITC in the Netherlands. In his research, Mr Zarrate is working on modelling and designing the integration of billing databases with geospatial data, with a case study focused on energy and gas companies. For this purpose, he is working on the composition and execution of distributed geographical information components through web services.

Mr Zarrate has worked in Latin America for 14 years, where his work has focused on public utilities services such as electricity and gas. He has designed and implemented solutions for billing processes in energy and gas companies in Colombia, Ecuador and Argentina, using Oracle products in Unix and Windows environments.

Gustavo Zarrate

declarative and does not facilitate symbolic manipulation. So the link between the world of web services and the world of declarative semantics is an extension of the service description included in the WSDL file.

Along with this proposed semantic extension, a prototype harnessing the strengths of these two worlds is analysed and designed through a use case taken from a practical application in the area of energy and gas knowledge applied in Latin America. The study is working on the emergency line (e-line) to protect power lines and gas pipelines, with functions such as finding the location of the emergency with a geocoding service, generating a map of the network features of the emergency area, obtaining the connected service points infrastructure, and reaching the closest active crew in the field.

Problems of this type and their potential solutions are the reasons why many Latin American professionals apply to follow an MSc study at ITC. Students arrive with real significant problems and expect, given the ITC expertise, facilities, environment and programme structure, to be able to figure out not just single solutions but various alternatives to propose to their home countries and organisations. The support, guidance, and discussion with the research supervisors are very important, and are necessary to focus initial expectations. Students want to solve entire problems in one go after scarcely six months of research. But time constraints and the complexity of understanding, mixing, linking and proposing alternatives demonstrate that such problems require a research bureau in charge of solving Latin American challenges of this nature, with the support of different MSc theses in several fields.

Solutions are a set of different components such as technology, management, data, methods, tools, cost, and domain knowledge. ITC offers programmes that cover all these aspects, but each programme is focused on only some aspects, not all of them. The combination of the Geoinformatics (GFM) and Geo-Information Management (GIM) programmes covers technology and management issues, with the percentage of focus different in each. The GFM programme focuses more on technological tools and methods, whereas GIM focuses more on management, policies and financial issues. You have to check your professional background to identify which component you want to improve, update or develop in line with your future plans. Nevertheless, you have to realise that technology and management proposals evolve every day, so you have to go to the root of the problem, and to accept that the current tools and methods available can change in a very short time. The geoinformatics component of the problem and its alternative solutions are the core of the ITC knowledge transfer activity and the core of MSc researches.

Industry is expecting real products from our research work. Some companies organise events and seminars to present innovations and solutions to deal with the current problems of the geoinformatics community, or of one specific interest group, in a faster cheaper way that combines high levels of reliability and quality. With the support of ITC's rector and director of external affairs, this proposal for a semantic extension to service chain composition was presented at the ESRI Energy and Gas User Conference 2004 (see http://www.esri.com/events/egug2004/presentations/focusing-on-utilitites.pdf). The big question from the audience was when would this solution be available to them. This question means that industry expects research project results – the opportunity that many of us have been waiting for, and a signal for ITC to encourage students to propose and develop challenging, innovative and practical projects.

Stage Set for Distance Education

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It may seem like yesterday that ITC celebrated its 50th anniversary but actually it's five years ago, and many changes have occurred during the intervening period, both within the Institute itself and in the world about it.

The lustrum year of 2005 is already witnessing exciting developments in ITC's education system and, consequently, it was felt that the time had come for *ITC News* to talk to ITC's rector, Professor Martien Molenaar, on one particular area of development that was making waves: the rise of distance education and the importance of e-learning over the next few years. It makes for interesting reading, as you will see.

"Recently ITC's *Strategic Plan 2005-2009: From Building Capacity to Building on Capacity* was published. This follows on from the plan that terminated last year. The leading theme of this new strategic plan relates to building a network of partnerships that will deliver joint educational programmes. To date we have installed a total of 15 such programmes, but our aim is to increase this number to 20 and then see how the picture stabilises. This strategy was initiated four or five years ago, when it became clear that, under changing conditions, students were unwilling to be away from their work and families for periods of long duration. It was necessary to explore other ways of delivering programmes, such as distance education and supervision supported by the appropriate tools. Although it is envisaged that staff will continue to fly in and fly out, good tools are essential to ensure the effectiveness of such visits.

"The Blackboard digital learning environment is already widely used within the Institute, and this helps us to structure and share lecturing material among staff and students. The next step will be to make this available to partners in the network and assist them in setting up courses. In the third stage it will be possible to supervise or offer e-learning to individuals in the organisations. Over the past few years, various ITC staff members, individually and in different departments, have been working in this area. Now, with quite a few people in house with the relevant experience, the time has come for a more structured approach. And this will require a substantial investment from ITC.

"We're not talking here of an ad hoc approach; priorities will have to be clearly set. We have therefore decided to give it a more enhanced project structure, with budgets for material and staff, and with a steering group to determine policy and a project group to work out the implementation. And that's where we are now: initialising this project structure. The development of ITC services over a period requires cooperation from different people from different departments. This means across-department discussions to set the right priorities and to ensure the right people are available. As chairman of the steering group, I would, after discussions, take the final responsibility for the whole undertaking.

"While the tools concerned are important for distance learning and support, their presence in house also gives us the possibility of offering sophisticated teaching facilities here in Enschede. But this means a different type of interaction between staff and students, a different in-house approach – and that requires a real effort from the staff. Significant changes then, which is why distance education is a central issue in our strategic development for the coming years."

Behind the Scenes

It was towards the end of 2001 that ITC decided to embrace e-learning in a more structural way by setting up a project group to stimulate work in this area.

Until that time, individual staff members had certainly been involved in distance education, but mainly in the production or co-production of stand-alone learning packages for externally funded projects. Such efforts had been scattered over the ITC building, without any coordination. So there was much to do if ITC were not to fall behind in the development stakes and the advances in education offered by new technologies. Now four years on, that particular project group has served its term. What has been achieved? What lies ahead? Drs Ineke ten Dam, leader of the new project group recently established to carry on the work, picks up the thread.

Stagecraft

"The first step was to introduce Blackboard internally. This allowed not only students but teachers in particular to acquire experience with a digital learning platform, which was used initially on a voluntary but later on a compulsory basis. Now every lecturer uses Blackboard as a database for courses, and naturally this makes it easier for colleagues to know what's contained in the modules. So a quick and successful beginning. But the next step, which entailed the move into distance education, went less well – the main reasons being those old adversaries lack of time and lack of money.

"Now, however, we have a new strategic plan, a new steering group, a new project group, and our sights clearly set on the firm establishment over the next five years of e-learning as an educational tool. We have a budget and at least four fte's until the end of 2005. That's very important. And with less students currently at ITC, we can invest in e-learning.

"Our aim then is to develop the distance education programme, but let's translate this into more concrete terms. Our goal this year is to redevelop eight modules – modules on GIS and remote sensing, and one module per ITC programme – in an appropriate format for distance learning. Develop them this year, and offer them in the course of the academic year 2005-2006 (September 2005 to July 2006). In practical terms, this means chiefly the first half of 2006. We have offered one distance course on image fusion and one on remote sensing before. The first on image fusion went quite well, with a dropout of 40%. That's more or less the average for this type of course but it's not what we want. We want a completion rate above 60%. The second course, on remote sensing, produced an excellent result: 11 students started and 11 finished successfully. But – and this is a big but – it took more staff time than needed for face-to-face teaching.

"This brings us to the subject of multi-usable courseware. It's not easy to transfer courseware designed for face-to-face teaching. Too much is in the head of the teacher; it is not made explicit in the material. So a module has to be redesigned when there's distance between student and teacher. To increase efficiency, it's easier to start with the format for distance education, and adapt it for face-to-face and joint support programmes. And for projects too – these are not a focus but certainly nice if they come along, and then we'd be ready for them. Staff exchange missions would still be important, but some could be replaced by online support – for the teachers not the students.

"Here in Enschede, we want to use e-learning to create extra value in our face-to-face education, and make the modules richer. For example, we would try to develop a simulation to help students to learn fieldwork techniques. This would mean the first fieldwork stage could be done by e-learning and the second stage, collecting data for a thesis, would be carried out in the field. In the past, two periods on location have been necessary. Thesis supervision is another good example of what can be achieved at a distance. All in all, ITC will be able to offer a more flexible product with more options and, in so doing, adapt to and survive in this rapidly changing world."

This year of 2005 looks well and truly set to see some remarkable developments in ITC's educational portfolio. Of course *ITC News* will continue to keep you posted in this respect, and a flier is planned in due course.

But, for immediacy of information, there's nothing to beat the Internet, so please keep your eye on our website and read about our progress backstage.

Shifting the scenery

ITC is receiving a growing number of requests from students who wish to write their theses at home supervised by ITC at a distance.

ITC is receiving a growing number of requests from students who wish to write their theses at home supervised by ITC at a distance. With the focus on e-learning gaining increasing momentum, it seemed the appropriate moment to test the feasibility of such an approach and explore the ways of ensuring a successful outcome. So ITC allowed two MSc candidates to do their thesis in their home countries: Ms Anuvapura Seetharamaih Padmavathy from India and Mr Dev Raj Paudyal from Nepal. The ITC supervisors in this pilot project were Ir Walter de Vries and Dr Arbind Tuladhar. The short report below was prepared by Drs Ineke ten Dam while the pilot was still in progress, so please bear in mind that we've been overtaken by events. Nevertheless, it charts the learning process, including the occasional hiccough, experienced by both students and supervisors, and provides valuable insight that can be taken on board in future efforts

Lights, Camera, Action

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After preparation and approval of the thesis proposal, the students returned home. Mr Dev Raj Paudyal is still on leave and is working full-time on his thesis at home.

Ms Anuvapura Seetharamaih Padmavathy is working partly at the office and partly at home on her thesis. Students and supervisors communicate via chat sessions and e-mail at least once a fortnight, and usually more often. The planned webcam connection does not work due to the firewall policy of the home organisation in India and the limited Internet connection in Nepal.

The thesis period is structured in the same way as the thesis period of the students at ITC. It lasts six months, and includes a mid-term presentation and participation in the MSc Day. The students will return to ITC for the thesis examination and the graduation ceremony at the beginning of March. The MSc Day presentations were recorded and offered live on the Internet for the distant students to follow. Mr Dev Raj Paudyal qualified for a presentation on this occasion, and he delivered it from a room in his house in Nepal to the audience at ITC in Enschede.

The experiences until now are positive. The supervision is running quite smoothly, the students are making progress, and no serious problems have been reported during the first two-thirds of the thesis period.

However, a few interesting learning points can already be highlighted:

- Both students receive local support, but since the relevance and direct applicability of the thesis topics in the respective organisations are limited, the local expertise and the support given are limited as well. It can be concluded that students should know well in advance whether they will be allowed to do the thesis work in their home country, so that the research topic and questions can be chosen in consultation with the home organisation.
- Chat and e-mail are seen as sufficient for week-to-week or day-to-day contact between supervisors and students. But students still feel a bit isolated; they miss the face-to-face communication and the explanations and figures on the white board. Contact with fellow students at ITC is scarce. ITC has therefore introduced new communication possibilities in the second half of the thesis period, such as phone calls and video connections on important occasions (as on MSc Day).
- The supervisors need more time for distant supervision than for face-to-face supervision of a student. Communication through written text requires more time than

speaking. The supervisors support the continuation of the experiment with other students, but they do emphasise the importance of selecting suitable candidates for e-supervision. Only students who can work independently, who have sufficient discipline, and who are allowed to do a significant part of the work during office hours should be selected.
- The technical quality of the live presentation and the real-time presentations on the Internet on MSc Day need to be improved next year.
- The department secretary (in this particular case Ms Laura Windig) plays a pivotal role. She is always on line and, consequently, often the first port of call if assistance or information is required.

ITC intends to offer thesis at a distance to more students, but it will always be one option among others – as reflected in the opinion of the two students. Halfway through the thesis period, we asked them what their preference would be if money did not play a role.
- Mr Dev Raj Paudyal would again choose to do the thesis at home: "I am close to my family (not the problem of being homesick), my children are near my eyes. No wasting of time on cooking, washing, etc. The most important advantage for me is to be in contact with the research area, including the possibility to do field checks whenever required and to discuss results with local experts. The main disadvantages for me are the lack of moral support and the limited challenge to perform better, as a result of absence of face-to-face contact with supervisors and fellow participants, and also the limited access to library materials."
- Ms Anuvapura Seetharamaih Padmavathy would prefer the opposite: "I think I prefer ITC only. This is because I could have spent all my time with the library, Internet, and other classmates who are also in the same situation. The environment at ITC is meant for studies and I would have enjoyed it. Here, there are a lot of responsibilities, both on the office front as well as on the domestic front, and I have to put all my effort to accomplish the task in time."

"I regularly refer to daily news items, things which have been on TV, things which have appeared in e-mails or e-newsletters, or things which have happened in Enschede or at ITC (party, sports day, guest lecturer, comments during a discussion session, etc.), in order to explain the relevance of something. This is much easier if you see the people regularly and face to face than if people are at a distance or on the webcam" (Walter de Vries).

In the Spotlight

Janice Collins

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Those of our readers who have attended an ITC graduation ceremony – and that must be a vast number indeed, given the Institute's global alumni network – would have felt perfectly at home in the auditorium on 11 March.

Flowers, colourful costumes, smiling faces and the intermittent flashing of cameras: nothing was missing on the day when the GIM and UPLA students received their diplomas. Moreover, as Rector Martien Molenaar pointed out in his opening speech, the official accreditation of ITC's programmes and their integration into the higher education system of the Netherlands meant that these students – on the brink of becoming alumni – could be confident that their hard-earned degrees were equal to degrees awarded in universities across Europe.

And then it was down to the core business of the morning – presenting the diplomas, which included a fair sprinkling of "distinctions". Moreover, it seems that the words of Dr Richard Sliuzas, one of those charged with this pleasant task, hit the mark when he referred to the "marriage of people and technology" and the role of MSc and PM graduates "as agents of change, contributing to the expansion and development within organisations". Vocal confirmation of these sentiments came from the youngest attendee at the ceremony, who was all of four months. It seems that one or two stu-

GIM class of 2003-2005!

dents had successfully managed to combine their technological studies with social renewal and sustainability – sometimes nerve-racking but always rewarding!

So our congratulations to all those who received their diplomas on that day and were soon to head back to their own countries. But this was a ceremony with a difference, because two people who mounted the podium, Mr Dev Raj Paudyal from Nepal and Ms Anuvapura Seetharamaith Padmavathy from India, had cooperated in an experiment – a pilot project in the context of e-learning. Both students had originally registered for the GIM PM course but were given the opportunity to do their MSc under e-supervision. Distance education powered by e-learning is one of the main thrusts of ITC's Strategic Plan 2005-2009, but how does it translate into practice? And how did our pioneers fare? We'll leave them to tell their own stories.

Mr Dev Raj Paudyal from Nepal
Supervisors: Dr Arbind Tuladhar and Ir Walter de Vries
Thesis: Evaluation of alternatives: district versus central cadastral information updating in Nepal

Mr Dev Raj Paudyal (right) receives his Degree from supervisor Ir. Walter de Vries

Mr Paudyal has worked for the Survey Department of Kathmandu, Nepal, for nine years, and, since the ex-director and many senior officials of the organisation had previously graduated from ITC, the Institute was not exactly an unknown quantity when he arrived in Enschede to embark on his study. In fact, no less than five from his department have been following ITC educational programmes during this current academic year.

Although his government had nominated him for a PM degree, he had always been interested in research and a research fellowship, and an MSc would definitely be advantageous in his future career. Nevertheless, there were always those tedious practicalities that refused to go away: to put it simply, an MSc programme took six months longer and was more expensive than a PM programme. But with his sights set on that research component, as well as the possibility of going on to study for a PhD at ITC or another university, Mr Paudyal was not about to give up easily. Once he had settled in, he broached the subject with Programme Director Kees Bronsveld, who set about exploring the options available. The result? He was given the opportunity to take part in the pilot project on e-learning, the cost being borne by the Institute. So the chance of an MSc! And he received the full backing from his organisation, even though it would mean taking extra leave.

Mr Paudyal had registered for the cadastre stream, and the electives he chose to follow were land administration, cost-benefit analysis, project formulation and international funding. Now this newly acquired knowledge could find an outlet in a thesis. "I spent a year at ITC following the regular courses and then returned home for six months for the research component. One month was devoted to fieldwork and five months to writing my thesis. But as I was near the research area, I could return whenever necessary to gather additional and up-to-date data. This was a definite plus point." During the first year he had had all the documents from Blackboard –

a system he finds very easy to work with, although "students need good support to work with Blackboard in their own country. Good Internet facilities and a large capacity to handle the files are essential."

So back home alone for those last months. Did that oft-reported sense of isolation set in? Perhaps a little, but "I had regular contact with the supervisors, at least once every two weeks. And the provision was made that, if we mailed a document, they would acknowledge receipt within three days. Mostly it worked very well. And being with different people and with the family was also a positive aspect." Mr Paudyal is married, with two young sons of six and three who readily understood his predicament: "You must do your homework or your supervisor will punish you!" There was also a fair amount of e-mail traffic with other course participants at ITC: questions relating to research, news and details of progress, and the sharing of problems. Nor did he miss out on the MSc Day on 26 January, but gave a remote presentation from Nepal: "We used the web camera, and the conversation was via telephone; so two lines: one for Internet and one for conversation. You may be sitting faraway in your own home, but in your mind you're in the auditorium." And reactions to his presentation came in via e-mail. All in all, you can say that Mr Paudyal coped with the isolation amazingly well!

Mr Paudyal returned to ITC to defend his thesis on 9 March 2005 in company with his fellow students. He was awarded his MSc degree with distinction, and is "very very satisfied with e-learning, and the opportunity it gave me". His advice to others who may wish to follow this path: "Really want that research component, and carefully consider your research topic: does it benefit your organisation?"

Ms Anuvapura Seetharamaith Padmavathy from India
Supervisors: Dr Arbind Tuladhar and Ir Walter de Vries
Thesis: Developing and comparison of strategies towards market-driven NSDI in India

Ms Anuvapura Seetharamaith Padmavathy receives her Degree from supervisor Ir. Walter de Vries

In taking up the challenge of e-supervision, Ms Padmavathy was thrice blessed when it came to supervisors. Not only was she in contact with her supervisors at ITC but she also found an encouraging guide in Mr Mukund Rao, her supportive boss at the Indian Space Research Organisation (ISRO) in Dehradun, where she works as a scientist dealing with satellite data for a natural resources management system. Stimulation, and an active personal interest in spatial data infrastructure, yes, but his support also took a practical form and enabled her to combine travelling to meetings with fieldwork.
Although Ms Padmavathy received such strong official backing – indeed the suggestion to study at ITC came from her own organisation – it was difficult for them to release her for a period longer than one

year, and that's why the original choice had inevitably fallen on the GIM PM degree programme. So Ms Padmavathy arrived at ITC and began her studies. "It was thrilling. I was enjoying each and every module, and things were going well. Some people had a tough time with the core modules on remote sensing and geo-information systems but, with my work background, I was able to help them and give guidance." Then why the change of plan? Enter fellow student Mr Dev Raj Paudyal from Nepal, whose strong motivation to switch to an MSc programme proved infectious. Still, there was much to consider when the e-learning pilot was proposed as a solution. "I couldn't spare the time to stay longer at ITC for official and personal reasons – I'm married and have a 17-year old son – but it would be quite a risk to switch from the PM to MSc and try to combine work and study at home. Maybe I would end up with nothing."

But permission was obtained from ISRO, internal arrangements were made at ITC, and the gauntlet picked up. "Combining work and study is not impossible and can even be enjoyable – I'm the living proof. I worked in the evenings and during holidays, and as my work is characterised by peaks and flows, I could also take advantage of the occasional dips. And you have a goal, and the end is in sight. Besides, e-learning is certainly an interesting option from an organisation's point of view." Although ISRO is very well equipped to handle e-learning on a technical level, Ms Padmavathy did feel a bit isolated from time to time. "I had a good relationship with my supervisors and particularly enjoyed the Internet chat, but had little contact with co-students. Except Dev; we e-mailed each other and spoke on the telephone once in a while." On the other hand, the experience regarding fieldwork was "very positive, a continuous process, and the thesis can incorporate a lot of feedback from users". However, she does think a five-month period in the home country would be preferable to the six months in the pilot. That extra month at ITC would make it easier to manage and collate the sizeable files before submitting the final product – the thesis.

So it seems to be a case of swings and roundabouts, of finding that delicate balance, not only between the elements within the field of study itself, but also between the demands of work and family and the pressure of time constraints. Still, at the end of the day did the risk turn out to be worth the taking? Indeed it did: Ms Padmavathy successfully defended her thesis in March this year and gained her MSc degree with distinction. "E-learning definitely has a future. ITC's systematic approach is very clear, and planning and a keen eye for management are among the Institute's strong points. I really appreciate the efficiency I've found here. On a personal level too. Last August I lost my mother and I had to return suddenly to India. Travel, tickets, taxis, all were arranged for me very quickly and to suit my programme."

When all's said and done, distance, it seems, is no barrier to (e-) learning!

project news

Somalia Urban Development Programme

Jan Turkstra jan.turkstra@unhabitat.org / turkstra@itc.nl

After many years of civil conflict, large numbers of internally displaced persons (IDPs) and returnees are migrating to the main cities and towns of Somalia. Local authorities are unable to provide suitable land, financial resources or basic services to support these vulnerable groups (or the squatting of (public) land) without access to adequate water supply, sanitation and job opportunities.
This situation is a threat to the fragile peace process and the general stability of the region. Development indicators rank Somalia among the poorest and least developed regions in the world. The GNP per capita for Somalia as a whole was measured at US$ 200 in 2001, with an average life expectancy of 47 and an adult literacy rate of 17.1% (UNDP, 2001).

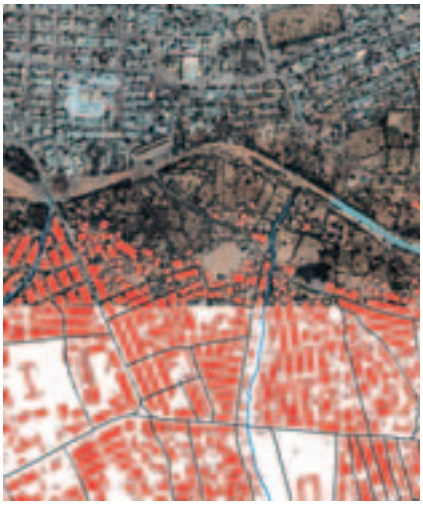
UN-HABITAT is supporting the development of urban governance, urban land management and the upgrading of urban services and infrastructure. The Somalia Urban Development Programme, with funding from the European Commission and co-funding from UNDP Somalia, is a continuation of these activities and started in April 2005.

With the permission of ITC, I have been working for the Regional Office for Africa and the Arab States of UN-HABITAT since February 2005, and I am involved in the urban land management and GIS component of the Somalia project (and also in a project with the Urban Planning Agency of Libya). The UN-HABITAT office is located in Hargeisa, the capital of Somaliland, with declared independence but lacking international recognition. The project covers some 14 cities in the different regions of Somalia (Somaliland, Puntland and South-Central Somalia).

Quickbird Satellite images have been acquired for the cities and are used as base maps and a data source to create a property database to increase municipal revenue collection. The database for the city of Hargeisa was created through field surveys using PDAs – the survey started in July 2004 and was finalised in March 2005 – and contains almost 60,000 properties. A property survey for the city of Burao, another city in Somaliland, will start in May 2005. A GIS support office has been created within the municipality of Hargeisa, functioning under the taxation, urban planning and land departments. The challenge is not only to install the GIS database (ArcGIS) in the municipality but to see that it becomes part of a process leading to an expanded number of property tax invoices with updated information on the properties, and ensuring that tax bills are paid and that the revenue, through transparent booking, is used by the municipality for investment in public works – badly needed in this city lacking many basic services.

A squatter settlement in Hargeisa occupied by returned refugees

Quickbird Satellite image of the State House, one of the large squatter settlements in Hargeisa



Properties (building blocks and stand-alone properties are indicated) created through on-screen digitising of a Quickbird image and field verification

Opening Project at the National University of Rwanda

Walter de Vries devries@itc.nl

ITC and the Centre for GIS at the National University of Rwanda (CGIS/NUR) have embarked on a new NUFFIC-funded project, which aims at the development at NUR of educational and research programmes based on geographical information sciences.
The project, which officially opened with an inception workshop on 2 and 3 March 2005 in Butare, will last for four years, until 2009. During the inception workshop, various aspects of the new programmes were discussed, including possible stakeholders and issues concerning the new educational programmes, possible candidates for fellowships, and the relations of CGIS with regional partners.

The specific project objectives include:
- Capacity building of CGIS-NUR
  (1) staff upgrade to PhD (4) and MSc (10) levels
  (2) curriculum development for three new programmes:
    - MSc Environment and Sustainable Development
    - BSc Urban Planning and Land Administration
    - GIS short courses
  (3) upgrade of didactical skills and methodologies
- Organisation of physical infrastructure for (GIS) training and education
- Promotion of the GIS educational and research expertise of CGIS within the university, at national and regional levels
- Improvement of CGIS management capacity.

The project will be implemented by a consortium of partners:
- Main partners
  - Centre for Geographic Information Systems and Remote Sensing (CGIS), National University of Rwanda (NUR), Butare, Rwanda
  - International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, the Netherlands
- Project consortium
  - University of Utrecht (UU), Utrecht, the Netherlands
  - Maastricht School of Management (MSM), Maastricht, the Netherlands
  - University of KwaZulu – Natal / Centre for Environment and Development (CEAD), Pietermaritzburg, South Africa
  - University College of Lands and Architectural Studies (UCLAS), University of Dar es Salaam, Dar es Salaam, Tanzania
  - Regional Centre for Mapping of Resources for Development (RCMRD), Nairobi, Kenya.

Some of the main interventions and events scheduled for the near future are as follows:
- March 2005
  Inception workshop: start of project at NUR in Butare
- March-May 2005
  Selection of PhD and MSc candidates
- May 2005
  Stakeholders workshop for new curricula (BSc and MSc), Kigali
- May-December 2005
  Development and approval curriculum BSc Urban Planning and Land Administration
- May-October 2005
  Purchase and installation of equipment and infrastructure
- September 2005
  Start of PhD and MSc studies
- January 2006
  Start of BSc programme Urban Planning and Land Administration

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Scenery of Rwanda


National University of Rwanda


An inception workshop embarked the official opening of the project

education news

February Study Tour to Zwolle

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On 17 February 2005, the groups from Planning and Coordination in Natural Resources Management and from Urban Planning and Administration joined in a study tour of the province Overijssel.

On the way to Zwolle, a photo stop was made at the windmill near Windesheim. At Province House in Zwolle we were welcomed in the nicely decorated lounge with coffee and a typical local treat. Then Mr Arjen Ottens gave a presentation on the regional planning carried out by the province and on policy changes in this respect, finally zooming in on the special plans for the IJssel delta, our afternoon destination. A lively discussion followed.

Owing to renovation activities, we could not visit the GIS section, but instead were allowed a glance around the meeting hall of the provincial council. After enjoying lunch, we expressed our thanks to our hosts.

In the afternoon we were guided by a representative of the municipality of Zwolle to the newest town extension. This was followed by a tour of the adjoining polder landscape, where many of the participants not only saw a real dyke for the first time but also walked on it. A stop at the old and new pumping stations of the Mastenbroek polder served to illustrate the amount of planning and coordination needed to create and maintain a polder. A last stop was made at the village of Wilsum for a short explanation of the system of winter and summer dykes along the river IJssel, and other aspects of nature management. Thanks to our guide for the afternoon, it was a fruitful and educational day – but also tiring.

On the way to Zwolle a photo stop was made at the windmill near Windesheim

A last stop was made at Wilsum for a short explanation of the system of winter and summer dykes along the river IJssel

MSc Day 2005

Joost Teuben teuben@itc.nl

The eighth annual MSc Day took place on 26 January, and this event has become both a tradition and a structural part of the MSc course calendar at ITC. As in other years, the MSc Day is meant to be a day by and for MSc students, a day when they can present their research results and receive critical feedback from the audience.

The MSc Day is organised in the context of the MSc award granted annually to the best MSc thesis. This award was presented for the very first time during the Opening of the Academic Year in September 2001 and has been made possible by a gift from former rector Professor Klaas Jan Beek to the Schermerhorn Fund.

This year the programme consisted of 19 excellent presentations, representing the six educational programmes. The presentations were grouped into four sessions (*Natural disasters, Biodiversity and wetlands, Geo-information and earth sciences, Urban environment and transportation*) and organised in accordance with ITC's research spearheads. All presentations were chaired and judged by PhD students.

As a result of our efforts regarding joint education with our partners and distance support to our students, the MSc Day started with a remote presentation from a student in Nepal (Mr Dev Raj Paudyal). Also all presentations were recorded, and as streamlining video offered to our alumni and other students studying remotely (see article elsewhere in this *ITC News*).

Again, the MSc Day was very successful, and we hope to include more improvements in the near future.

Engineering a New Master Course in Geoinformatics

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Since 1997, ITC has offered a successful Professional Master's (PM) course in geoinformatics, alongside an MSc and a Diploma course in the same field. The first part of this course (seven modules, which is more than 50% of the taught component) has been followed jointly with the MSc course participants. In addition, participants of the PM course in geoinformatics (GFM.3) could choose two elective modules from those offered by all ITC departments. In the remaining three modules, they could specialise in either digital photogrammetry and remote sensing, GIS, or cartography and geovisualisation, with the course finally brought to a conclusion by a nine-week individual assignment.

Triggered by:
- technological and societal developments leading towards the desired creation of spatial data infrastructures (SDI) everywhere in the world
- the growing integration of the former specialisations in geo-information production
- the different education and training needs of professionals and those involved in research in geoinformatics
- the reduction in NFP fellowships

it was decided in autumn 2004 to adapt the GFM.3 curriculum and give it a clear SDI and engineering flavour.

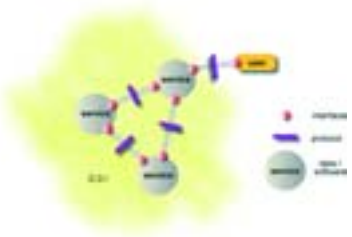
The new Master's course in geoinformatics (GFM.3) now aims at "producing" geoinformatics engineers who will really be able to work in geo-information production and give support to the design and set-up of the technological components of a SDI. The course participants are introduced to modern integrated geo-information production technology, including methods and techniques of geospatial data acquisition and geo-information modelling, storage, analysis, processing, dissemination and visualisation.

In the new GFM.3 course, only the first four modules (introduction to geoinformatics, principles of databases, GIS, and remote sensing) are taken jointly with the MSc (GFM.2) course participants. After these four modules, all the GFM.3 course participants take six SDI-flavoured modules that expose them to the main technical aspects of creating an SDI:
- generating framework data
- spatial data modelling
- SDI technical design
- SDI technical implementation
- spatial data analysis
- visualisation and dissemination.

The integration is effected through practical work in a major case study that runs throughout all modules. In this case study they work on building a coherent system for spatial data acquisition, storage, access, analysis and dissemination which complies with SDI quality standards.

For the new GFM.3 course participants, there is still the possibility to specialise and deepen their knowledge in various fields through the individual final assignment and two programme electives offered by the departments Earth Observation Science (EOS) and Geo-Information Processing (GIP).

The new curriculum has already been partly implemented in the GFM.3 course that started in September 2004 and will be fully in place for the September 2005 course. We expect many applications.



EU Funding for New MSc Course Environmental Modelling

Andre Kooiman kooiman@itc.nl

The European Union (EU) is funding a major new scholarship scheme known as the Erasmus Mundus programme. This is even more valuable than the Fullbright, Rhodes and Rotary International scholarships, and enables the best students from all over the world to study in Europe.

To date, ITC in Enschede is one of only two Dutch universities that coordinate a prestigious Erasmus Mundus course, being part of a consortium with Southampton University of the UK, Lund University of Sweden, and Warsaw University of Poland. The courses are chosen to demonstrate European excellence in emerging topics of importance for the 21st century.

ITC's Professor Andrew Skidmore, who is a programme coordinator, says that the new course is a boost for the environment as well as for space and GIS technology. The world is faced with a plethora of critical environmental problems, and the course deals with local hazards in the fields of geology (volcanoes, landslides, earthquakes, tsunamis), hydrology (river and coastal flooding), agriculture and forestry (famine, forest fires), and health (disease, whether seasonal, epidemic or endemic). Such local hazards are of immediate concern to local populations, causing deaths from famine and disease on an enormous scale (e.g. the WHO reports that 1.4 million deaths (mainly children) occur in Africa each year from malaria). Other serious local environmental concerns include pollution (air, water, land) and inadequate water resources, particularly in developing countries but also in other parts of the world, such as the Mediterranean. Over and above these local environmental concerns, there are global environmental issues that have massive consequences not only for our own generation, but more importantly for our children's generation and the generations to come. Such issues centre on global warming, encompassing, for example, loss of the polar ice caps, sea-level rise, ozone depletion, CO_2 increases, deforestation and loss of biodiversity.

Within the discipline of geo-information science, a set of tools is used that includes earth observation, GIS, and more general spatial analysis techniques. Earth observation provides unique opportunities for measuring and monitoring the Earth's surface. Large areas can be measured synoptically, using a wide range of spatial resolutions and sufficient repeat coverage to provide outstanding monitoring capabilities. Moreover, earth observation is the only way in which sufficient data on the Earth's surface processes can be acquired to meet the challenge of dealing with many of the environmental problems outlined above.

There will be 26 Erasmus Mundus scholarships offered for the course in September 2005, as well as funding for eight visiting professors to assist in teaching various aspects of the course. In addition, full-fee-paying students are also welcome.

Graduates will emerge with a critical understanding of technical and scientific tools, together with excellent management abilities and personal skills. Upon completion of the course, they will have acquired:

- understanding of the scientific process and the ability to undertake scientific research

Professor Peter Atkinson (Southampton University, UK), Professor Petter Pilesjo (University of Lund, Sweden) and Professor Andrew Skidmore (ITC, the Netherlands) designing the new course

Class of 2004!

- thorough awareness of European and global environmental problems and an understanding of the complexity of factors involved
- understanding of geographical information management and the ability to apply GIS, remote sensing and related tools
- familiarity with project and programme management
- leadership, negotiation and communication skills.

The total duration of the course is 18 months, corresponding to 120 ECTS credits. The course is organised in 15 modules, all linked through the common geo-information and environment theme. The course will be taught in English. Successful completion of the course will lead to the award of a joint degree in Geo-information Science and Earth Observation for Environmental Modelling and Management. It is anticipated that 20 students will register for the 2005/2006 course.

The course is unique in that it follows a sequential pattern, with students residing in the UK, Sweden and the Netherlands, and with fieldwork conducted in the Czech Republic and Poland. Students and scholars have ample opportunity to experience the European cultural diversity, and will have the chance to become familiar with several European languages. The GEM course involves two EU priority thematic research areas – information society technologies and sustainable development, global change, ecosystems – and highlights the European value added to these priority areas.

The Erasmus Mundus programme is a cooperation and mobility programme in the field of higher education, which promotes the European Union as a centre of excellence in learning around the world. It supports European top-quality Masters Courses and enhances the visibility and attractiveness of European higher education in third countries. It also provides EU-funded scholarships for third country nationals participating in these Masters Courses, as well as scholarships for EU nationals studying in third countries.

For more information, visit our website http://www.gem-msc.org or e-mail us at info@gem-msc.org

Flevoland Snow Tour

Dick van der Zee

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On 3 March 2005 the group from Planning and Coordination in Natural Resources Management, reinforced by some Urban Planning and Land Administration participants, went on a study tour to Lelystad, in the province of Flevoland, to learn about the province's experiences with regard to the Rapid Assessment Programme. After the presentations and discussions, and after lunch, a tour was arranged through the polder to visit a special newly-built environmentally friendly residential quarter and a park of modern windmills that satisfy part of the provincial energy demand in an environmentally friendly way.

The study tour happened to coincide with the only week of heavy snow in the Netherlands – injecting the field visit with an exotic flavour as far as many of the participants were concerned.

research news

Advanced Spatial Statistics for Geodata

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The ITC graduate programme is introducing a flexible education curriculum aimed at giving promovendi (PhD students) the opportunity to both deepen and broaden the skills needed to carry out efficient and relevant research. The first course was offered recently.

This first course, which dealt with the topic Advanced Spatial Statistics for Geodata, presented the tools and concepts of advanced spatial statistics to a small but interested group of PhD students. The course focused on the probabilistic background of modern spatial tools, in such a way that the backgrounds of Bayesian statistics and distributional inference could be better understood and appreciated. Statistical methods were presented to enable spatial data to be analysed in the best possible way. Furthermore, PhD students discussed their own research in as far as it could benefit from a quantitative, statistical approach. The course included theory, applications, software, scientific papers and demos, as well as some self work.

After an introduction to Bayesian theory, a refresher on geostatistics was given, followed by an expansion on model-based geostatistics. Model-based procedures are much more suitable for analysing count data or for taking spatial uncertainty fully into account. Markov-Chain Monte Carlo procedures were included as well. This was followed by inference methods for other types of spatial data, in particular spatial point data and lattice data, including spatial regression. Examples from ITC studies were used for illustrative purposes. Fractals were included and viewed with regard to their mathematical background as well as from an applied perspective ("How should I model a fractal pattern from images?"). The course concluded with some analysis procedures for multivariate data.

Software in this course consisted of generally available public domain packages such as R, WinBugs and 1stBayes, while excursions towards SPlus and SPSS were also made. It is foreseen that in the near future, when the course is repeated, attention will also be given to space-time statistics, to monitoring and – if there is particular interest – to spatial and temporal sampling.

announcements

Heilongjiang Bureau of Surveying and Mapping hosts International Conference in Harbin, N.E. China

Mrs. Tang Yanli (ITC Msc EREG 2) tyangli@yahoo.com

From 2-5 February 2005, the Heilongjiang Bureau of Surveying and Mapping (HLJBSM) hosted the "International Conference on Land Cover and Land Use Change Processes" in the North East Asian Region.

The conference was sponsored by the HLJBSM, as well as several other ITC partners in China such as the Institute of Geographical Science and Natural Resources Research (IGSNRR) and the Institute of Remote Sensing Application (IRSA), both institutes of the Academy of Science. There were about 130 participants including a very large delegation from the U.S.A., Russia and Japan, as well from some European countries.

The conference was very well organised by a number of ITC alumni and other staff of the HLJBSM. ITC was

represented at the conference by professor John van Genderen, of the department of Earth Observation Science. Professor Van Genderen is a frequent visitor to China, and to the Heilongjiang Bureau of Surveying and Mapping. Which has sent many of its staff to ITC for both short and long term training programmes.

In addition to the well attended and interesting scientific sessions, several technical and social tours were organised for the participants. These included a visit to the National Digital Surveying and Mapping production building, a six stories modern building, with five floors full of the latest digital mapping facilities, one of the largest and most advanced mapping centres in China.

The social tours included an afternoon visit to the famous Harbin "Snow sculpture exhibition", and an evening visit to the impressive "Ice and Snow Festival", world famous for its enormous array of buildings, completely made of blocks of ice.
The CD-Rom with the proceedings of the international conference has been placed in the ITC Library.

Conference participants, well wrapped up against the cold, in front of the main building of HLJBSM

Some of the ITC alumni from Harbin. From left to right: Xing Yanqin, NRM.3-2003, Professor John van Genderen, ITC staff, Tang Yanli, EREG.2- 2002, Chi Xiaoming, GFM.3-2002 and Tan Jiqiang, WREM.3-2003

Snow sculpture of the "Year of the Cock" heralding the Chinese lunar New Year, which started on the 9th of February

ITC Appointed Associated Institution of the United Nations University

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On 4 April 2005 the United Nations University (UNU), represented by its rector Professor Hans van Ginkel, and ITC, represented by its rector Professor Martien Molenaar, entered into an agreement appointing ITC as an Associated Institution.

The UNU mission, which is "to contribute, through research and capacity building, to efforts to resolve the pressing global problems that are the concern of the United Nations, its Peoples and Member States" (http://www.unu.edu/unu.html), is essentially identical to the mission of ITC.

With this agreement, ITC has secured a prestigious position in the network of academic institutes and scholars that forms a think-tank for the United

Nations system and which pursues the building of capacities, particularly in developing countries.

The agreement was signed during the Conference of Directors of UNU Research and Training Centres and Programmes that took place at the UNU Institute for Environment and Human Security in Bonn, Germany. It has an initial duration of five years and is directed at developing and carrying out a joint programme on capacity building in disaster management and in land administration, and at disseminating knowledge on these and directly related issues.

Professor Hans van Ginkel (UNU rector) and Professor Martien Molenaar (ITC rector) signing the agreement

Holland Education Fair in Indonesia

Tom Loran

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From 29 January until 6 February, the Holland Education Fair (HEF) took place in Indonesia. The event was organised by the Netherlands Education Centre in Jakarta, and was held in five different cities: Surabaya, Yogyakarta, Semarang, Bandung and Jakarta. It turned out to be a very well organised and well visited event.

This was the first time for a number of years that ITC again took part in the education fair, and the Institute was represented in all five cities by Anneke Nikijuluw and Tom Loran. Many people visited the ITC booth to enquire about the programmes on offer. The interest in short courses was especially noticeable. The number of short courses has increased, and the practical focus on issues such as environmental concerns, hazard and disaster management, and decision support systems in support of governance attracted many questions.
In addition to the ITC staff manning the booth in the five HEF cities, a large number of ITC alumni were highly active. The photographs show alumni busy explaining to HEF visitors the programmes that can be followed at ITC, and what it is like to be in the Netherlands.

Because the timing of the HEF is a little unfortunate – being so close to the deadline for fellowship applications – the Netherlands Education Centre is shifting the HEF to another date. The new date is still under debate but it is likely that the next fair will be held earlier in the year.

Information on ITC's education and training programmes can be found on the ITC website (www.itc.nl/education) or through the office of Atlas Education & Services:
Ms. L. Malonda,
Atlas Education & Services
Jl. Otista 3, Komp. 2 No. 8
Jakarta 13340, INDONESIA
Phone/Fax: +62 21 8195458
E-mail: lisa@atlas-edu.com

Indonesian participants can apply to several fellowship programmes to study at ITC. Besides the Netherlands Fellowship Program (NFP), the STUNED programme also provides financial support for study in the Netherlands. Information about the fellowship programmes can be obtained from the Netherlands Education Centre (www.nec.or.id):
Gedung Citra Graha, 7th Floor (Room 702)
Jln. Jend. Gatot Subroto kav. 35-36
Jakarta 12950, INDONESIA

How to produce a topographic relief map

Following the article "Maps of Bhutan" in ITC News 2004-4 (p6) the practical guide explaining and illustrating the whole production procedure for a topographic relief map is now available online http://www.itc.nl/library/SRTM.asp

The step-by-step explanation starts by describing how to download the SRTM DEM images from the World Wide Web, and then moves through the processing steps with the software used until the final cartographic representation is obtained. A PowerPoint presentation on SRTM and the hillshading model are also found online.

ITC 55 years 1950 ITC 2005

We would welcome your contributions for the special jubilee issue of ITC News.

At congresses, conferences and seminars the world over - in fact wherever those with past or present associations with ITC come together - we hear the cry for more news of ITC alumni. The readership is out there but it's you we need. Could you help us to meet this demand? … and maybe, at the same time, take the opportunity to renew old friendships.

In issue 2005-3, we publish stories of ITC alumni (max. 1000 words) reflecting on 55 years of ITC and/or writing about their present work experience, the effects of their study at ITC, their current interests and their suggestions for changes.

Please do not forget to:
- include at least one (high-resolution 300 dpi) photograph of yourself
- mention your course and study year and - to stimulate interaction -
- how you can be contacted.

Your article could be another step towards making ITC News a lively forum for the exchange of news and views from around the globe.

So why wait?

If you would like to contribute to this special issue please write to or preferably e-mail (itcnews@itc.nl) Janneke Kalf, Managing Editor: ITC, P.O. Box 6, 7500 AA Enschede, The Netherlands.
Deadline for submission is 14 October 2005.

partnership news

New MSc Programme Geo-Information for Disaster Management, in Yogyakarta, Indonesia

Tom Loran loran@itc.nl

A new cooperation programme is due to start later this year between the Faculty of Geography, Gadjah Mada University (UGM), Yogyakarta, Indonesia, and the department Applied Earth Sciences at ITC.
As of September 2005, the Geography Department at UGM will be offering a new MSc degree programme on natural hazard and disaster management, and ITC staff members have been invited to provide input in a number of course modules.

UGM and ITC are no strangers to each other, and their history of cooperation goes back a long way. The two institutes have worked together on many occasions. For example, ITC staff were involved in a large institutional cooperation programme in the 1970s, when the UGM Geography Department was the main counterpart. Again in the '80s, ITC was involved, together with Bakosurtanal in Indonesia, in a cooperation programme that saw the establishment of PUSPICS (the Training Centre for Remote Sensing and Integrated Surveys). Needless to say, some of ITC's professors, such as Professor Verstappen and Professor Meijerink, have always maintained strong ties with UGM. More recently, UGM and ITC have been working together in an EU-sponsored cooperation programme on hazard and risk management for local authorities (the CASITA and CASITA II projects).

In September this year, a new MSc programme that aims to attract participants from the Southeast Asian region will take off.

Using a multidisciplinary approach with an emphasis on the use of GIS and remote sensing, the objective of the programme is to develop academic and professional skills for the management of disasters. This new programme, lasting 18 months and taught in English, will be open to students from Indonesia as well as from the Southeast Asian region.

Discussions are ongoing between UGM and ITC, with a view to extending the cooperation still further and achieving a full joint educational programme on geo-information for disaster management in the near future, and possibly also covering other subject areas.

Information on the new programme can be obtained from:
Secretariat Postgraduate Studies (Sekretariat S2)
Faculty of Geography, Gadjah Mada University
Sekip Utara, Yogyakarta 55281
Phone: +62-274-902348; Fax: +62-274-902348/589595
E-mail: sekret-s-2@geo.ugm.ac.id

RECTAS and ITC Go "Francophone"

Sjaak Beerens beerens@itc.nl

ITC has collaborated with the Regional Centre for Training in Aerospace Surveys (RECTAS) since its establishment in 1972.
Located on the Obafemi Awolowo University Campus, Ile-Ife, Osun State, Nigeria, RECTAS (www.rectas.org) operates under the auspices of the UN Economic Commission for Africa, with a mandate for training, research, consultancy and advisory services in geoinformatics. The Centre is a joint project of several African countries (Benin, Burkina, Cameroon, Ghana, Mali, Niger, Nigeria and Senegal) and has traditionally offered training and education at technician, technologist and diploma levels in both English and French.

Apart from collaboration in joint education, RECTAS and ITC have recently started to share complementary resources to provide advisory services to geo-information organisations, particularly in Francophone West Africa.

Institute of Geography of Burkina in Ouagedougou

Over the past couple of years, geo-information organisations in Francophone (West) Africa have increasing approached ITC with requests for support. Some decades ago, ITC decided to discontinue its practice of offering a limited number of courses in French. Traditionally, GDTA (Groupement pour le Développement de la Télédétection Aérospatiale) of France has catered for the Francophone countries of Africa, but this organisation terminated its activities on 1 January 2005 – which seems to explain the renewed interest in ITC from Francophone Africa.

Rather than developing its own French language capacity in this respect, ITC has decided to enter into association with its partner RECTAS, which not only has the technical, professional and scientific capacities, but also traditionally has the requisite English and French language capabilities in house.

After contemplating such collaboration for some time, it was decided to put intention in practice by jointly undertaking advisory missions. A first mission was carried out at the end of January this year to the Institute of Geography (Topographical Survey) in Burkina Faso, and a second mission in March to Benin at the request of UNESCO, Paris.

Burkina Faso

The Institute of Geography of Burkina (Institut Geographique de Burkina: IGB) (www.igb.bf) was established in 1976 with the support of ITC and funded by the Dutch government. Since then, it has catered for the topographic mapping needs of Burkina Faso, making use of its own facilities, including aeroplane, photography and printing facilities, for that purpose. In spite of difficult economic conditions, IGB has been able to continue servicing the country, gradually shifting from traditional analogue technology to modern digital systems. With the rapidly emerging requirement for a national spatial data infrastructure (NSDI) in Burkina Faso, IGB is facing the challenge of finding itself a position in such an NSDI, defining its role, task and required capacities.

At the request of IGB Director-General Clause Obin Tapsoba, Massaer Mbaye, RECTAS departmental director, and Sjaak Beerens, ITC director external affairs, paid a visit to IGB in Ouagedougou to discuss ways of assisting IGB in defining its role in an NSDI. In close consultation with IGB staff, a work programme was drawn up, consisting of three workshops scheduled for 2005, whereby RECTAS and ITC will facilitate in the process of formulating a strategic development plan for IGB. The support of the UN-ECA (United Nations Economic Commission for Africa) under CODI-GEO will be sought to strengthen this initiative still further.

Benin

Within the same framework of collaboration between RECTAS and ITC, Massaer Mbaye and Sjaak Beerens visited Benin last March to meet with Professor Norbert Hounkonnou, International Chair in Mathematical Physics and Applications (Chaire Internationale en Physique Mathématique et Applications (CIPMA)) at the Université d'Abomey-Calavi in Cotonou. This initiative was in response to a specific request from

RECTAS and ITC visitors with CIPMA staff and students

IGB: Moving from analogue to digital

UNESCO: Dr Justin Ahanhanzo, UNESCO Paris coordinator, and the project management of the GOOS-Africa Programme and the UNESCO Crosscutting Project on the Application of Remote Sensing for Integrated Management of Ecosystem and Water Resources in Africa.

In 2004, CIPMA embarked on an international MSc programme in geoinformatics for water and ecosystem management (with 11 students) and a doctoral programme in water and ecosystems sciences (with 10 PhD candidates). In a series of meetings with Professor Hounkonnou and his staff, as well as courtesy visits at presidential office level, it was agreed to pursue collaboration, starting with software support and guest lectures, in preparation for exploring the possibilities for funding collaboration in order to further strengthen the MSc and PhD programmes.

RECTAS and ITC Sign Agreement for Joint Educational Programme

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On 15 March 2005, the Regional Centre for Training in Aerospace Surveys (RECTAS) and ITC signed an agreement relating to a joint educational programme in geoinformatics. The agreement was signed at the RECTAS headquarters in Ile Ife, Nigeria, by Dr Olajide Kufoniyi, executive director of RECTAS, and Sjaak Beerens, director external affairs of ITC.

RECTAS (www.rectas.org), located on the Obafemi Awolowo University Campus, was established in 1972 under the auspices of the UN Economic Commission for Africa, with a mandate for training, research, consultancy and advisory services in geoinformatics. The Centre is a joint project of several African countries, the participating countries at the moment being Benin, Burkina, Cameroon, Ghana, Mali, Niger, Nigeria and Senegal.

The collaboration between RECTAS and ITC dates back to the establishment of RECTAS in 1972. Since that time ITC has supported RECTAS in strengthening its capacity in organising training courses at technician, technologist and diploma levels in both English and French. Over the years, the collaboration has evolved into a partnership that provides a proper basis for a joint educational programme, comprising a joint postgraduate diploma programme in geoinformatics carried out entirely at RECTAS, and a joint MSc programme in geoinformatics, leading to an ITC MSc degree, which is carried out at both RECTAS (seven months) and ITC (11 months).

Actually, a first group of 17 candidates enrolled for the joint programme in September 2004. Five candidates from this group – two from Ghana and one each from Benin, Burkina Faso and Nigeria – will continue their MSc studies at ITC, starting in May 2005.

Dr Olajide Kufoniyi (executive director of RECTAS) and Sjaak Beerens (director external affairs of ITC)

EREG MSc Graduation Ceremony at Indian Institute of Remote Sensing, Dehradun

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On Friday, 11 February 2005, the first MSc graduation ceremony of the Earth Resources and Environmental Geosciences (EREG) course was held at the Indian Institute of Remote Sensing (IIRS) (NRSA), India.

Seven students who had completed the first joint MSc course run by IIRS and ITC in Environmental Assessment and Disaster Management received their MSc degrees in the presence of Professor Freek van der Meer and Dr Cees van Westen of ITC and Dr B.R. Arora, director of the Wadia Institute of Himalayan Geology, India, who was the chief guest.

This MSc course is the first course of the Earth Resources and Environmental Geosciences educational programme (to be renamed Applied Earth Sciences in October 2005) to be conducted outside the Netherlands. The joint course was introduced at IIRS in India as a result of the joint collaborative GEONEDIS project between IIRS and ITC during the period 2000-2004. The course started on 7 July 2003 and lasted 18 months. The first nine months, covering 12 modules, were spent at IIRS; three of these modules were supported by ITC faculty in India. Afterwards the students visited ITC for three months (29 March to 22 June 2004) to follow four modules and also to write and defend their proposals. The necessary funds were provided by the GEONEDIS project. After their return to India, the students spent about six months working towards an MSc research thesis at IIRS, Dehradun, supported by ITC faculty via e-mail. The MSc thesis was reviewed midway by Dr van Westen in October 2004. Finally, the MSc thesis was defended on 10 February 2005 in front of an examination board chaired by Professor van der Meer. The research topics reflect the diverse applications of geoinformatics technology in various disaster-related fields:

- Seismic response analysis of Dehradun city
- Urban multi-hazard risk assessment using remote sensing and GIS: a case study of landslide, earthquake and fire in a part of Kohima town, Nagaland, India
- Impact of coal mining on vegetation: a case study in Jaintia Hills district of Meghalaya (India)
- Analysis of uncertainties in digital elevation models in flood (hydraulic) modelling
- Salinity mapping in coastal areas using GIS and remote sensing
- Spatial modelling of *Hoplocerambyx spinicornis* infestation for hazard prediction, management and control in Sal forests of Uttaranchal
- Generation of geological database for seismic microzonation of Dehradun.

The ceremony opened with the presentation of floral bouquets to the chief guest and visiting ITC faculty. A speech of welcome was made by Dr V.K. Dadhwal, dean of IIRS. Programme Coordinator Dr V. Hari Prasad of the Water Resources Division explained the course contents to the gathering. In addition, Dr van Westen gave a report on the part of the course held at ITC, and Professor van der Meer spoke about the joint MSc course in general. The students were awarded the ITC MSc degrees by Dr Arora. This was followed by a ceremonial address, and then a vote of thanks from Dr Hari Prasad brought the ceremony to a close.

Clearly, the joint efforts in conducting this course of IIRS and ITC – and of their faculty staff in particular – went very well, and, furthermore, the experimental remote supervision of the students by ITC faculty, relying on the regular and skilful use of Internet and e-mail facilities, proved successful. Once again it is evident that IIRS is a natural partner for ITC, and in the years to come the challenge will be to secure and expand the relationship and further true capacity building.

MSc graduates with the chief guest, ITC faculty, dean of IIRS, and IIRS programme coordinator

staff news

Symposium "New Developments in Geospatial Information Handling for Engineering Geology": Farewell Niek Rengers

Robert Hack hack@itc.nl

Niek Rengers retired on 1 December 2004. On this occasion the symposium "New Developments in Geospatial Information Handling for Engineering Geology" was organised to commemorate his work for ITC and his engineering geology activities in the Netherlands and around the world.

A series of distinguished speakers came to Enschede and gave presentations on the different subjects in which Niek had been involved throughout his career. Under the chairmanship of Klaas Jan Beek and Theo van Asch, the day was opened by Paul Marinos, former president of the International Association for Engineering Geology and the Environment (IAEG). He discussed the recent developments in rock mechanics and the importance of engineering geology in the design of roads and road routing. Helmut Bock talked on the common ground in soil and rock mechanics and engineering geology, and Keith Turner gave a presentation on the benefits of modern computer facilities for engineering geology. The morning was concluded by a speech by Jacob Fokkema, Rector Magnificus of the Technical University of Delft, who commemorated the excellent cooperation between the Technical University of Delft and ITC in the field of engineering geology, and the role of Niek in this cooperation.

After lunch, your reporter continued the scientific programme, speaking on the importance of accuracy and likelihood quantification in digital data in engineering geology. Martin Culshaw, director of the British Geological Survey, continued on the topic of the use of digital data in geological surveys and, in particular, the benefits and drawbacks for engineering geology and geotechnical engineering. The scientific part of the day concluded with two presentations on hazard studies and hazard management by Cees van Westen and Sergio Mora. A last-minute change in the programme was caused by the arrival of Joseph Akinyede, Niek's first PhD student, who had been able to come over from Nigeria especially for this day. He presented the options and applications of remotely sensed data obtained by the first Nigerian satellite.

Niek Rengers, his wife Muck and ITC's rector Martien Molenaar

After the scientific programme, Joost van der Schrier (Haskoning) thanked Niek on behalf of the Ingeokring (the Dutch Association for Engineering Geology) and the former Dutch students of Niek; your reporter on behalf of the Section Engineering Geology; and ITC's rector Martien Molenaar on behalf of ITC. As one of the last speakers, Chris Bremmer, president of the Ingeokring, announced that the Ingeokring had decided to award Niek the status of Honorary Member of the Association for his exceptional contribution to the science of engineering geology at large and to the development of the Ingeokring.

Not everything presented during the day brought pleasure. The troubles experienced at the Technical University of Delft in attracting and keeping a professor, as well as the declining number of students, both Dutch and international, have led engineering geology education and research in the Netherlands into serious problems. Those involved in engineer-

ing geology in the Netherlands know that some 30 years of very successful collaboration in education and research between the Technical University of Delft and ITC recently ended owing to various political developments in the Dutch universities and ITC. In the future, two quite similar educational sections will exist, which will basically work in competition. Whether this is beneficial or simply an enormous waste of resources remains to be seen, but the general feeling is that two educational sections in a small country such as the Netherlands may well be too many. On the other hand, the fact that engineering geology education exists in the Netherlands is largely due to the efforts of Niek Rengers, and not many in the world can boast a legacy of two sections of engineering geology. Niek is still president of the worldwide International Association for Engineering Geology and the Environment, and in that function he will be active in the years to come. Thereafter, he has announced, he will quietly retire to his house in France – however, your reporter expects that we will hear a lot more of him. After such a busy life, it is unlikely that he will be found quietly sitting in his garden in France with his lovely wife Muck and a bunch of children and grandchildren.

Robert Hack speaking on the importance of accuracy and likelihood quantification in digital data in engineering geology

STAFF NEWS

Welcome to ITC	Prof.dr. Z. Su	Professor of Spatial Hydrology and Water Resources Management department of Water Resources (per 1 October 2004)
	Dr.-Ing. S.R.K.B. Heuel	Assistant Professor department of Earth Observation Science (per 1 March 2005)
	J. Timmermans	Promovendus department of Water Resources (per 1 March 2005)
Staff leaving	Dr. T.W.H.J. Hobma	Assistant Professor department of Water Resources (per 15 November 2004)
	Ing. W.A. Hugens	Lecturer department of Earth Systems Analysis General (per 1 December 2004)
	Dr. N. Rengers	Associate Professor department of Earth Systems Analysis (per 1 December 2004)
	Prof.dr. C.V. Reeves	Professor in Exploration Geophysics department of Earth Systems Analysis (per 1 December 2004)
	Dr. M.C. Ellis	Assistant Professor department of Geo-Information Processing (per 1 February 2005)
	D.F. Jager	Research Assistant department of Water Resources (per 1 February 2005)
	W. Kramer	Staffmember Maintenance and Service department Facility Management (per 1 March 2005)
	Ir. M. Huisman	Assistant Professor Department of Earth Systems Analysis (per 1 March 2005)
	Drs. G.W. van Dorp	Director Internal Affairs (per 1 March 2005)

life after itc

ITC Alumni Association of Mongolia Formally Established as NGO

Professor Bayasgalan bayas@must.edu.mn

On 24 December 2004 the ITC Alumni Association of Mongolia received its official government licence as an NGO. Its main role is to promote the use of remote sensing and GIS for the socio-economic development of Mongolia.
The executive director of the alumni association is Ms Davaa Narantuya (itc_alumni@mongol.net).

To celebrate the formal establishment of this alumni association, a national workshop on GIS/RS applications for sustainable development in Mongolia was organised on 21 January 2005. This workshop, which was held in the prestigious Chingis Khaan Hotel in Ulaanbaatar, attracted some 100 participants. Among these participants were many high-level decision makers from international organisations such as the World Bank, UN agencies and GTZ, as well as representatives from government agencies, research institutes, universities and the private sector (mainly mapping and mining companies). An opening plenary keynote address was given by Dr Narantsatsralt, former prime minister of Mongolia and current Member of Parliament. Ms Oyundar, director of strategic planning and policy coordination at the Ministry of Nature and Environment, also addressed the workshop participants.

The workshop consisted of four sessions:

- *Session 1*: RS/GIS Education in Mongolia, chaired by Professor John van Genderen of ITC's Department of Earth Observation Science, who has been a frequent visitor to Mongolia since 1992
- *Session 2*: RS/GIS Application in Research, chaired by Ms D. Odonchimeg (GIR.3, 1995), now working as national project coordinator for UNDP and the Global Environment Facility
- *Session 3*: RS/GIS in Business, chaired by Dr Amarsaikhan (in 1989 the first Mongolian to study at ITC), now working at the Institute of Informatics and Remote Sensing at the Mongolian Academy of Sciences (which has sent many of its staff to study at ITC)
- *Session 4*: GIS/RS in Natural Resource Management, chaired by Professor Bayasgalan (GEO.2, 1995) of the Mongolian University of Science and Technology.

Three or four presentations by ITC alumni were given in each of these sessions. Ms Altantsetseg (MEX.3, 1994) acted as mistress of ceremonies during the day, and introduced the various speakers. In addition, Professor Bayasgalan gave an opening and a closing speech, while a summary of the main issues dealt with during the day was given by Professor John van Genderen just before the closing ceremony.

The workshop was sponsored by organisations such as ITC, UNDP and Eurosense, as well as by several local companies and organisations such as

Some of the ITC alumni at the workshop

Participants at the workshop

Professor Bayasgalan giving his opening speech at the workshop (seated from left to right: Ms Altantsetseg, Professor John van Genderen and Dr Narantsatsralt)

Geomon. Dr Jack Dangermond of ESRI in the USA, and a fellow of ITC, kindly sponsored the wonderful reception and workshop banquet held in the Chingis Khaan Hotel at the end of the workshop. This gave all the participants the opportunity to mingle informally with the ITC alumni. Not all alumni were able to attend this most successful workshop. For example, Ms Tsolomongerel (GFM.2, 2004) is currently doing an ITC internship at ESRI, and various others were also on international missions.

The alumni association has plans for several more activities and events later this year, and is also involved in helping to host and organise the 27th Asian Conference in Ulaanbaatar in October 2006.

For more details on the ITC Alumni Association or on RS/GIS activities in Mongolia, please contact Ms Narantuya (association-mongolia@alumni.itc.nl)

First Meeting of Vietnamese ITC Alumni Association

Dick van der Zee vanderzee@itc.nl

A large number of ITC alumni participated in the 1st Scientific Conference on Geodesy, Cartography and Land Management (13 to 14 December 2004), which was organised by the Vietnam Research Institute of Land Administration (VIRILA) on the occasion of the 45th anniversary of the Vietnam Survey and Mapping Department.

The recently installed alumni coordinator for Vietnam, Tran Nhu Trung, saw the presence in Hanoi of Paul Schoonackers and Dick van der Zee, who were also attending the conference, as a good opportunity to organise the first formal meeting of the Vietnamese ITC Alumni Association on 16 December 2004. Business and pleasure – this initial meeting was highly successful on both counts. Ms Dang Thi Lien was selected to be the association's financial, budget and sponsors manager, and some 15 alumni enjoyed a very pleasant dinner with the two guests. For the want of Grolsch, substantial quantities of Heineken were imbibed!

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Indonesian ITC Alumni Association (IIAA) Launched

Tom Loran loran@itc.nl

On 7 February a group of ITC alumni took the initiative to launch the Indonesian ITC Alumni Association (IIAA).
This alumni association was officially established during a seminar held at the Indonesian Agency for the Assessment and Application of Technology (Badan Pengkajian dan Penerapan Teknologi, BPPT). Alumni attending the first meeting, which was held in Jakarta, gave presentations reflecting on what it was like to study at ITC and live in the Netherlands. The oldest alumnus present was at ITC in 1977, whereas the alumni who took the initiative to establish the association were at the Institute more recently, between 2000 and 2002.

With a total of almost 1,500 people, Indonesia has by far the largest contingent of alumni within the global network of ITC graduates. Mr Riadika Mastra, who studied cartography at ITC in 1977, and Dr Ridwan Djamaludin, who studied mass movement hazard assessment in 1993, addressed the meeting to show their support for the association. They expressed the hope that the association, through its widespread network of contacts within Indonesia (both geographically and in organisations and institutes across the country), would contribute to the development of the nation.

All alumni present formally voted in favour of the proposal to officially establish the association, which was accepted by acclamation. The initiative to establish the IIAA was taken by Mr Hartanto Sanjaya (BPPT), Mr Syarif Budhiman (LAPAN) and Mr Iwan Setiawan (SEAMEO Biotrop), and they also constitute the daily board of the association.

ITC congratulates the alumni in Indonesia and is happy to welcome this youngest alumni association into the ITC family.

All ITC alumni in Indonesia are encouraged to contact the board and join the association. Contact details for the IIAA Secretariat are:

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ITC alumni during the first meeting of the Indonesian ITC Alumni Association in Jakarta

ITC Alumni: A Worldwide Network

Forging links, forging friendships

Since its foundation in 1950, ITC has built up an extensive network of international contacts with former students – a network that today numbers more than 17,000 alumni spread over 165 countries. ITC's mission stresses the vital importance of its alumni relations, and accordingly the Institute provides ongoing services and benefits to support the alumni community in developing and strengthening their production, teaching and management capabilities.

Maybe you're interested in joining an ITC alumni association in your home country. ITC gives active support to those alumni who wish to establish national ITC alumni associations in their own countries. Quite a challenge, and perhaps one that attracts you. For more information, please contact the ITC alumni office (alumni@itc.nl).

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letter to the editor

Dear Editor,

I visited ITC Delft in 1975 for a 12-month diploma course in mining exploration while I was at the Geological Survey of India. I was young then and found life wonderful, especially because of the proximity to Rotterdam, the Hague and Amsterdam. Prior to visiting ITC I had done a one-year diploma course at IPI (sister institute of ITC). Professor Mekel and Professor van der Meer Mohr (best teacher, whose style I followed later at IIRS) visited IPI at that time to take special classes on microwaves and remote sensing, then new subjects. Professor Mekel therefore permitted me to follow advanced classes in structural geology at Leiden University and in sedimentology in Enschede. Professors Dijkstra (director), Botman and Ketlaar were wonderful teachers.

I also remember the nice company of friends from Thailand, Vietnam, Ghana, the Philippines, Nepal and of course India. I could attend only four Dutch language classes by Ms Malegrom, the student affairs officer, and still remember counting up to 100, niets te danken, kheboren, jufrau – mefrau, weltrusten etc. I loved to eat a dish in the canteen with bread and ham and cheese and omelette, but with a complicated name (red. uitsmijter), biscuits with honey in the Hema store, and even raw fish at the Sunday market (not tasty). Sometimes I felt I knew more about the Netherlands than the Dutch did, since none of those I met had ever read or heard the story of a Dutch boy who put his finger in a dyke to stop leakage! The Keukenhof is a paradise that no visitor to the Netherlands should miss.


V.K. Jha, 2005

I felt I was an unfortunate Dutchman born in India. It meant I desperately required more air-water-food from the Netherlands for sustenance. As lady luck was smiling then, I joined IPI (now IIRS) in 1980 and was promptly dispatched in 1983 to ITC, this time in Enschede, but alas only for a six-week course on remote sensing – and that in the peak of winter, which meant it was always dark outside, whether you were entering or leaving the classrooms. I remember that period for its good associations with Professors Rengers, Soeters and Koopman. The rector of ITC, Professor Beek, always impressed me very much.

Later in 1993 I was supposed to visit Canada for a seminar, but my Dutch links were pulling me like a magnet and Professor S.K. Bhan, the then dean, made me a member of a team that visited ITC regarding collaboration on introducing GIS into the IIRS course curriculum. Alas, that was again for 15 days only, but stay and interaction – everything was perfect. Subsequently, I was involved in many IIRS-ITC workshops organised in Dehradun, including an international course on neotectonics where I got to know a very tall Dutchman, Professor Diederix, and Dr Woldai – very nice people.


V.K. Jha, 1975

After having a great time teaching at IIRS for 24 years, I am now with the Regional Remote Sensing Service Center, Department of Space, working on remote sensing and GIS projects and Rand D.

I could go on writing like this …. Sometimes I wonder if I really did visit ITC and the Netherlands, a beautiful country with nice people, or was it merely a dream? Memories linger on, maybe until my last breath.

Sincerely,
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