content

Main features
Prince of Orange on working visit to ITC 2
Interview departing SAB President 6
Refresher courses 8

Events
SELPER symposium 14

Staff news
Niek Rengers IAEG President 17
Ian Masser receives award 17
Henk Scholten Award 18

Announcements
AARSE conference 19
GIS in the Hindu Kush-Himalayas 20
MoU ICIMOD 21

Visiting ITC
Japanese Cabinet Secretariat 22
Ministry of Land Resources, China 22

Project News
Contract with Government of Bhutan 23
Asia-Link project 24

Research News
MoU APERI, Iran 24
Graduation Laurent Sedogo 25

Obituary
HRH Prince Claus 27
Prof. Jan Visser 27
Ir. Henk Gelens 27

Life after ITC
Alumni reception China 28
Alumni reception Nepal 28
Alumni reception Nigeria 29

2002 number 4

introduction

The whole country was saddened last October to learn of the death, following a long period of illness, of His Royal Highness Prince Claus of the Netherlands. The strength of emotion that gripped the nation was quite remarkable, and ITC too felt the loss deeply - the loss of its Honorary Fellow and loyal supporter (page 27). This issue of *ITC News* also carries a report of the visit to ITC of His Royal Highness Crown Prince Willem Alexander (page 2). All who met the prince on this occasion were greatly impressed by his considerable knowledge concerning environmental issues, with water resources being the focus of his particular attention. In fact he is now generally recognised as a worldwide ambassador for water management, and his obvious enjoyment in discussing the subject with the students set the tone for the day. The baton has been passed on, and finds itself in a very safe pair of hands.

The important role played by our alumni in the work and mission of the Institute has been frequently emphasised. But each one too has his or her own individual story to tell. No doubt many alumni who meet again during ITC alumni receptions (page 28) and/or refresher courses (page 8) will identify with each other when talking about their life after completing studies at ITC. Or then again they may have experiences of a completely different nature to share.

And what of the students currently studying at ITC? Peter Minang, departing SAB president, takes us behind the scenes for a glimpse of the work carried out by the Student Association Board, and in so doing prepares any prospective candidates for what may lie in store.

Water, yes; and polders and windmills too. You could be forgiven for thinking this issue has a peculiarly Dutch slant to it, but you'd be mightily mistaken. That's just the tip of the iceberg. And although icebergs don't actually feature in this issue, river basins, mountains, new technologies and new challenges in the area of cooperation most definitely do … as you will see.

Janneke Kalf
Acting Managing Editor

colofon

ITC NEWS is published quarterly, by ITC, Enschede, the Netherlands

Acting Managing Editor:	Janneke Kalf	Correspondence to:	Managing Editor ITC NEWS
Editing:	Janice Collins		P.O.Box 6
Design&PrePress:	Henk Scharrenborg *(Composer DTP service)* Andries Menning		7500 AA Enschede
		Phone:	+31 (0)53 487 42 11
		Fax:	+31 (0)53 487 42 00
Printing:	PlantijnCasparie Zwolle	E-mail:	itcnews@itc.nl

The views expressed by the contributors do not necessarily reflect those of ITC

Prince of Orange on Working Visit to ITC

ITC News itcnews@itc.nl

Water is the life-blood of humanity and through the ages has always been a source of prosperity, power and political strife.

With an ever-increasing world population this very important resource is growing scarce in some areas and a possible climate change may have serious effects on the water situation throughout the world. Improved water management is a help in facing the numerous problems. The Crown Prince of the Netherlands, Willem Alexander, Prince of Orange, has always shown a particular concern for water issues and has become a worldwide ambassador for water management.[1)] He has heard ITC mentioned on more than one occasion and during his travels has actually met ITC students and alumni.

On 29 October Prince Willem Alexander paid a working visit to ITC. The specific subjects of study presented by the students were selected beforehand and the prince made a very attentive and knowledgeable audience, displaying a special interest in the opportunities afforded by remote sensing in the context of water management.

1) Contribution of HRH the Prince of Orange to the Panel of the UN Secretary General in preparation for the Johannesburg Summit (World Summit on Sustainable Development, Johannesburg, 2002): *No water No future, A Water Focus for Johannesburg.*

HRH the Prince of Orange was welcomed by the Rector and Dr Chris Mannaerts, Chairman of the Department of Water Resources

The Unique Opportunities of Remote Sensing in Water Management of River Basins

Presentation by Mr Fouad Al-Khaier from Syria

Mr Fouad Al-Khaier, who has taken water management in river basins as his particular field of study, explained to the prince the importance of remote sensing in managing water resources. The purpose of his study is to calculate how much water is used for irrigation, since the irrigation sector uses a significant part of the water in the river basin context, and the subject of his presentation was the situation in the densely populated Nile Delta.

Remote sensing is being used to evaluate how much water is being used per crop type. Combining this information with the diversion from the river Nile provides the opportunity to compute irrigation efficiencies. The images sent back to Earth by various international satellites form the basis of this knowledge. Images of relatively low resolution, which are available on the Internet free of charge, are being used for water management purposes. A prerequisite for water professionals is the availability of images on a regular basis.

Mr Al-Khaier: "The images of the Terra-MODIS and NOAA-AVHRR satellites come every day, which is good for monitoring where the water is flowing to. After interpreting the raw satellite data with sound physics of earth surface exchange processes, thematic maps on "ground" temperature, crop production and water productivity can be prepared. We showed Prince Willem Alexander various maps and he was most intrigued that we can see throughout the river basins how many kilos of food we can harvest from a litre of water."

The red spots on the map of ground temperature represent very hot areas, with minimum moisture in the soil. The blue patches on the same map represent rice fields with open stomata and significant evapotranspiration. Evapotranspiration represents the total soil evaporation and plant transpiration. This is the amount of water that goes into the atmosphere and is no longer available for other uses such as drinking or bathing. Combining the images of evapotranspiration and crop production provides a way to compute water productivity - or in more popular terms the "crop per drop". In the case of this particular presentation of rice grown in the Nile Delta, it was concluded that 1000 litres of water are consumed to produce 1 kg of rice. Areas of successful farming and adequate water management can thus be detected from space. In this way successful farming areas and cases of mismanagement are literally put on the map.

Unbiased measurements from space can be used to diagnose and evaluate water management, e.g. operation and rehabilitation of irrigation and drainage systems. But also in a political sense these data are of the utmost importance, being the basis for mutual trust. All neighbouring countries share the same water source. In the case presented, Sudan and Ethiopia can see how much water Egypt is consuming, and vice versa. Partners involved in one resource can now negotiate on the basis of exact information instead of assumptions.

The opportunities offered by remote sensing in water management are unique: water use and agricultural production can be monitored from space, water-saving programmes can be evaluated, and, since it is everyone's business, the consumption of water can be checked. Unfortunately, in the rest of the world there is still a gap between remote sensing and water management. But at least the first step has been made … here at ITC.

Mr Al-Khaier: "The knowledge gained from the Nile basin can be applied to all other similar areas, one being the Euphrates river basin in my home country. All these dry and intensively irrigated areas run a great risk of soil salinisation. Full attention should be given to an equilibrium between water inflow through irrigation and water outflow through crop evapotranspiration and drainage systems. Lack of rain, poor-quality surface water and water logging are among the causes of this serious problem, which may cause fertile land to become wasteland. We obviously do not want that to happen to one of the areas where thousands of years ago the agricultural adventure of mankind started, an area once full of olive trees but now for the larger part just desert. But man is not the only cause of this. Climate change has also played a part - it is much drier and hotter now."

Conflicting Interests: A Study at Lake Naivasha, Kenya

Presentation by Mr Arlan Lukman from Indonesia, seconded by Ms Amani Alfarra from Gaza

Mr Arlan Lukman has used the Naivasha area to study climate change (the subject of his thesis) because of the availability of 100 years of data. His thesis will deal with the possible scenarios for the water level of this particular lake if the climate were to change, as well as the consequences for the community.

In addition to being a source of data on climate change, the Naivasha area has attracted the attention of researchers because of the conflicting interests involved. There are many farms around the lake, earning approximately US$ 100 million annually and giving employment to many, making this part of the country the most prosperous of all Kenya. But it is also a wetland conservation area, and the farmers drawing water from the lake pose a threat to the wetlands.

Ms Amani Alfarra from Gaza is a first-year student. It is her firm intention to become an expert on water management, since the situation in her country is already critical and by the look of it things are not improving. Climate change - meaning less rainfall in this case - adds to the political problem. Ms Alfarra was present at Mr Lukman's presentation and also talked with Prince Willem Alexander.

Mr Lukman: "I had to watch my step with the prince because it soon became clear to me that he knows the area of Lake Naivasha well. Apparently he was a pilot for the Flying Doctors there. The conflicting interests in this particular area have become a subject of study over the past five years. The most important stakeholders are the farmers' association, Kenya Wild Life Service, the government and Kengen, the power company of Kenya."

The farmers are aware that the lake is their life support. Because of this they have made the conservation of the lake their concern as well, and are making an active contribution by financially supporting the studies on water management and by providing data. The World Wildlife Fund contributes financially and so does Shell, probably to support - while keeping a very low profile - the company's green image. There is an exchange of information with Kengen, and Rural Focal and PANAFCON in the area provide the equipment for fieldwork. The study results are shared with everyone involved. Summary reports are distributed and there is a yearly presentation for local stakeholders. Information and opinions are e-mailed on request, while rural consultants give out hydrological reports prepared by ITC. This all demonstrates a strong will to conserve the lake, which makes the Naivasha area an El Dorado for MSc students too. Nowhere do they have such ready access to the information needed for their studies. Most of the issues in this area are or have been covered by ITC students.

In future, conflicts in the world will be about water. And unlike in the Naivasha area, not everywhere are the parties prepared to work together towards sharing equally an increasingly limited resource. In the Middle East, with diminishing rainfall and rising average temperatures, this is the cause of continuous political strife.
Ms Alfarra: "The opinion of His Royal Highness was that the solution to the shortage of water in our area lies with Turkey, a potential water exporter. I noticed how involved the prince is in water management; he is very aware of all related international hot spots. Over lunch he mentioned many areas where the situation is critical."

Mr Lukman tried to convince the prince that water management is not purely political. "Too much" and "too little" are subjective criteria. Hard information is a better basis for negotiation. For the first time in history solid data are available through monitoring by satellites and GIS.

Ms Alfarra: "The very good quality drinking water in the Gaza strip is under the control of Israel and the Israeli settlements. It is being depleted at an alarming rate. If, at the end of my studies, I'm able to contribute to the best possible management of the very little water we have, I'll be a happy person."

A Study into Climate Change

Presentation by Ms Diana Chavarro from Colombia and Mr Carlos Saavedra from Bolivia

Ms Diana Chavarro presented an example of one of the projects in her department: the Adapt project[2)] concerned with climate change affecting water availability, food production and ecosystems. This is a cooperative research project and ITC is one of the partners. Seven river basins, including the Rhine, Mekong, Sacramento, Volta and Syr Darya river basins, were selected to represent all possible situations in the world, contrasting environments with regard to size, climate and the socio-economic situation.

Ms Chavarro: "The aim of the project is firstly to analyse climate changes and variability and their respective impacts, and secondly to develop adaptation strategies. ITC's

[2)] Water, Climate, Food and Environment under Climate Change. An Assessment of Global and Regional Impacts and the Formulation of Adaptation Strategies for River Basins.

contribution to this project was to gather all the information and organise the geodata by preparing dynamic maps showing global free access data sets, satellite images and outputs from general circulation models for each river basin. We wanted to present this project to His Royal Highness as an example of remote sensing and GIS applications in water resources management."

Mr Saavedra: "The underlying principle of remote sensing is that every substance on Earth has its own spectral reflectance characteristics, in other words a unique way of reflecting the sunlight. Thus we can tell whether a white spot on the satellite image is snow, a cloud, a patch of smoke or something completely different. GIS, on the other hand, is an information system specially designed for handling spatial (or geographical) data."

The data collected at ITC have only just (1 October 2002) been sent to the team of modellers. These participants in the project are responsible for modelling and predicting the impact of future planet change on each river basin representing several environments. The result of the study can then be applied to similar areas.

Mr Saavedra: "The prince was very interested in the results, not least because of his personal interest in the areas he has visited - the river Volta, for instance, where they are having management problems with the big reservoir but still want to build another dam. There are no results as yet. The project has been handed over for the next step and will be finished in June 2003, with a presentation at the conference in Kyoto in the same year."

Prince Willem Alexander also wanted to know whether the political situation in a country affects the availability of satellite images, since the free images on the Internet are not always sufficient for specific studies. These have a very low resolution and do not give the same detail as high-resolution images.

Ms Chavarro: "Availability is not a problem; we have never been refused an image yet. Occasionally, however, the political interests of the satellite owner do influence decisions regarding which parts of a country are being sensed - as can be inferred from the Aster images of Colombia, which show the problem areas only. So the prince may have a point after all."

Mr Carlos Saavedra is a PhD student; Ms Chavarro is preparing her PhD proposal.

Paving the Way towards Unbiased Information for Decision Makers

"When we received word that the visit was considered a success, I didn't think it was simply politeness," says Dr Chris Mannaerts, chairman of the ITC Department of Water Resources and one of the organisers of the royal visit. "It was clear that the prince enjoyed the direct contact with the students, which was perhaps the main objective of the visit, and that he was genuinely surprised about the opportunities afforded by remote sensing and GIS. We must not forget that this is all relatively new; a mere 15 to 20 years ago satellite images were accessible to specialist scientists only. These days we are able to supply unbiased information on the various aspects of the water situation to policy makers. It is not common practice as yet but here at ITC, in training tomorrow's experts, we are paving the way."

HRH the Prince of Orange together with the ITC students and staff involved in the visit

Interview with Departing SAB President Peter Minang

"... rewarding to serve the people and the organisation"

ITC News itcnews@itc.nl

Mr Peter Minang from Cameroon has been at ITC for 15 months now, doing his Geo-information Science and Earth Observation MSc, with a speciality in planning and coordination, within the National Resource Management Programme.

He has been president of the Student Association Board (SAB) for about a year and is now handing over to his successor, Mr Martin Sekeleti from Zambia. Mr Minang looks back on a term of office that has been rewarding for the students, for ITC *and* for himself.

How and when do the students elect the Student Association Board?
"The board members are elected every year. The new students start in September and four to five weeks after the two-week introductory period when students get to know one another they elect a class representative to the board. There are 12 representatives from the 12 groups that go beyond a nine-month course. Two class representatives are elected per programme, one for the 12-month Master's programme and a representative for the 18-month students. Besides the president, the board consists of a secretary general, an assistant secretary general / communication commissioner, a social commissioner, a finance commissioner, a sports commissioner, an academic commissioner plus a residence commissioner. The president oversees all activities. During my term of office we were able to bring in a representative for the 50 to 60 PhD students as well. They hadn't been represented before."

Why were you elected?
"I'm from Cameroon but studied at the University of Sierra Leone, where I was president of the foreign students. I think that more or less convinced my fellow students that I would be suitable."

What was your job as president of the SAB?
"The SAB has an academic and a social perspective. Suggestions for improving the academic programme, if any, go through the SAB first. That doesn't happen very often; the programmes here are pretty well organised. One thing we worked on when I came to office was the assessment of ITC teaching staff. That was an issue we took over from the outgoing executive. There is an assessment aspect within the course evaluation but to our mind the specific teaching skills of the teacher ought to be evaluated separately from the evaluation of the course itself. These are two different issues. So we set about developing an evaluation framework and a proposal was submitted to Educational Affairs. There has been no outcome as yet, however, because ITC is going

to review the programmes and hopefully our particular point will be included."

Isn't a teacher evaluation rather subjective?
"In educational methods there are certain measurement parameters. You can measure the overall opinion of all the students, so it's not necessarily subjective. Besides, we 're confident that Educational Affairs is sufficiently competent to understand the procedures for this kind of evaluation."

What about the social aspect of the SAB?
"That also has two sides to it. On one hand we have an annual programme and on the other we run the activities in the Schermerhorn Lounge at the Dish Hotel. As far as our annual programme is concerned, we work closely with the dean of students, Mr Jan de Ruiter, who attends to the administrative matters involved, asks for quotes, and contacts travel agencies and things like that. This year we arranged excursions to Paris, Vienna and the zoo. The Schermerhorn Lounge is basically managed by the SAB. There are various games, there's pool, and there's a bar that's open on Fridays and Saturdays. We also have a party every three weeks, at the end of a module. Our evenings and parties are very well attended."

What was the main issue during your term as SAB president?
"Undoubtedly the rise in rent. This year we were presented with an 8% rent increase, which we thought much too high. Unfortunately the outcome in this respect was not positive, but we did achieve something important: now the management of ITC and Dish Hotel also see the need for the SAB to be part of the Hotel Management Team. One of the alleged reasons for the rent increase was the energy consumption of some students who leave heaters and lights on when they go out. We suggested individual metering; this would prevent all students being penalised for the behaviour of some. We also suggested improvements in the facilities, such as a 24-hour telephone at the reception desk, since students come from all over the world. The hotel is currently looking into the possibilities. Hopefully they will find a solution soon, since this has been going on for more than two years now.

"We did not succeed in reducing the rent increase, but as a result of this issue we are now in a position to negotiate directly with the hotel and have established a good working relationship with ITC's Employees Council."

Did you enjoy being the SAB's president?
"Yes, I did enjoy it, and I learned a lot as well. ITC is a unique environment. There are people from more than 70 and up to 100 countries here. It's very interesting to be able to work with people from very different backgrounds and to get to know them better. We had a very good team and that made it enjoyable too.

"I also got to understand a little bit more about the organisation of ITC than the average student does, and I came into contact with more people from outside ITC. Staff from Twente University, for instance, who also wanted to offer their foreign PhD students some social facilities. So they approached us and now, based on a permit costing the equivalent of the fee paid by our own PhD students, we can accommodate them as associate members, with the benefit of all our social activities.

"I think it is a commendable thing that the students at ITC are represented on all sorts of committees. This is a very effective means of keeping in contact with the students, and in this way the SAB is important not only for the students but for the Institute as well. It's very rewarding to be able to serve the people *and* the organisation."

Did your SAB activities interfere with your own studies?
"Yes, as they did for every member of the Student Association Board. It's voluntary work; you receive no extra advantage. It takes time to be on the SAB, time you cannot dedicate to your studies. But still, it has been a very interesting experience."

Refresher Courses: Nepal, South-Africa, Nigeria and Vietnam

Kathmandu, Nepal

Cees van Westen vanwesten@itc.nl

From 11 to 22 November 2002 in Kathmandu a refresher course was organised entitled "Earthquake Vulnerability Reduction for Cities" (EVRC).

The course was jointly organised by ITC of the Netherlands, the International Centre for Integrated Mountain Development (ICIMOD) of Nepal, the National Society for Earthquake Technology-Nepal (NSET-Nepal) and the Asian Disaster Preparedness Centre (ADPC) of Thailand. The websites of the participating organisations are as follows:
ITC: http://www.itc.nl
ICIMOD: http://www.icimod.org/
NSET: http://www.nset.org.np/home.htm
ADPC: http://www.adpc.ait.ac.th

The course was held in the Greenwich Village Hotel in Kathmandu. It was attended by 30 participants from Bhutan, China, India, Iran, Malaysia, Nepal, Pakistan, Philippines and Thailand. Thirteen participants were from Nepal and 17 came from abroad. Twenty of the participants were ITC alumni, while others came from strategic organisations dealing with disaster management in Nepal. The participants included seismologists, geographers, geomorphologists, geologists, GIS specialists, urban planners, and staff from the Nepalese army and police, who are responsible for disaster relief. The varied backgrounds of the participants are illustrative of the multidisciplinary nature of disaster management.

This course was linked to previous initiatives in the field of EVRC. The first EVRC course was held in Kathmandu in May 2002, and was funded by USAID/OFDA. The courses form part of both the ADPC Asian Urban Disaster Management Project and the refresher courses for ITC alumni on latest developments in the application of geographical information systems (GIS) and remote sensing.

The objective of the course was to give the participants an overview of the methods that can be implemented to reduce vulnerability to earthquakes. The course dealt with the assessment of earthquake hazards, the vulnerability of buildings, transportation lifelines and people, as well as the use of GIS for risk assessment. The participants also learned how to map buildings from aerial photographs and high-resolution satellite images, and how to collect information related to the vulnerability of buildings to earthquakes. They also received training in techniques to reduce building vulnerability (e.g. by reinforcing existing buildings) and designed an action plan for earthquake vulnerability reduction. Towards the end of the course they received training on the visualisation of risk data, making an interactive presentation, and on policy and the implementation of seismic vulnerability reduction in Kathmandu. The course comprised lectures, a field visit to an urban area in Kathmandu, group discussions, extensive hands-on digital exercises using ILWIS 3.11

Cover of the CD-ROM handed out to participants and containing all course information

(software for GIS, remote sensing and digital photo interpretation), FlashMX, HAZUS and RADIUS. Using PowerPoint, the participants presented experiences from their own country in the field of disaster management. All course materials were provided to the course participants in digital form on a CD-ROM, together with other useful information.

The partner organisations in this course have wide experience in giving training in the field of disaster management. NSET is an NGO specialised in earthquake vulnerability reduction and has carried out several projects in this field, such as the Kathmandu Valley Earthquake Management Project. ADPC is a nodal point for disaster management in Asia. ICIMOD, in partnership with ITC, has organised several training courses/workshops in the past, and the two institutes are planning closer collaboration in the field of GIS training and such GIS applications as disaster management, watershed management, land use planning and multimedia.

The course was logistically organised by ICIMOD and the following people from ICIMOD participated as resource persons: Mr Pradeep Mool, Mr Samjwal Bajracharya, Mr Birendra Bajracharya and Mr Sushil Pradhan (MENRIS/ICIMOD). The resource persons from ITC in this course were Cees van Westen, Siefko Slob and Jeroen van der Worm. Dr Buddhi Weerasinghe participated as ADPC resource person. The following NSET staff participated in lectures and field training: Dr Amod Mani Dixit (secretary), Dr Barun Prasad Shrestha, Mr Ramesh Guragain (structural engineer), Mr Ram Chandra Kandel (structural engineer), Mr B.H. Pandey (structural engineer), Mr Surya Narajan Shrestha (civil engineer), Mr Surya Acharya (civil engineer) and Mahesh Nakarmi (project manager).

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

Participants conducting an interview during the field day

The course was evaluated very positively by both participants and the staff of the organisations concerned. Several aspects of future collaboration and support from ITC were identified with various ITC alumni.

In the week following the course, the ITC Directorate visited Nepal on the occasion of the Asian Conference on Remote Sensing, and signed a Memorandum of Understanding with ICIMOD. Two ICIMOD staff members will visit ITC in the month of December 2002 in order to work out detailed plans for cooperation. Further, a proposal has been submitted to the Dutch government to organise a follow-up refresher course in Nepal in 2003 entitled: "Institutionalisation of Geo-information for Urban Disaster Management".

Participants working on GIS systems

Durban, South Africa

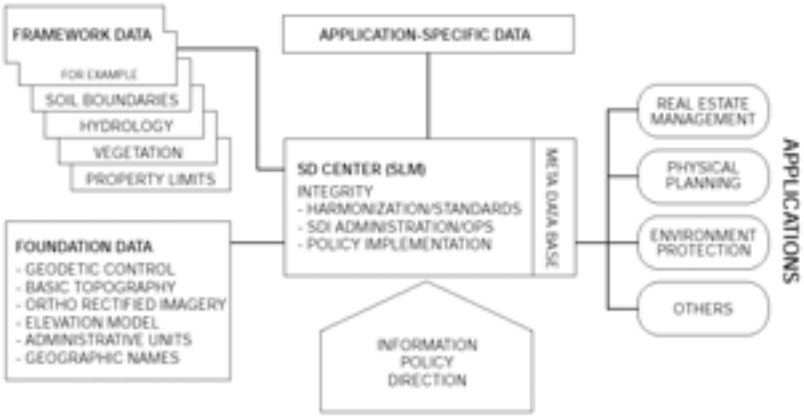
Walter de Vries devries@itc.nl
Rob Lemmens lemmens@itc.nl

From 20 October to 2 November 2002 in Natal a refresher course on Geospatial Data Infrastructure in Southern Afica was held in Durban, South Africa.

20 Senior managers and researchers from seven Southern African / SADC countries gathered at the University of Natal to learn about and exchange experiences on the development and improvement of a geospatial data infrastructure (GDI) in their respective countries. The course was organised jointly by ITC and the Department of Surveying and Geomatics of the Faculty of Civil Engineering and Construction at the University of Natal, and the United Nations Economic Commission of Africa (UNECA), based in Addis Ababa, Ethiopia. Besides sessions conducted by the organisers, the course included contributions from the South African Spatial Information Framework (NSIF).

One of the key challenges for public agencies involved in spatial decision making in Southern Africa is to rely on accessible and sharable information at national, regional and local levels. An adequately functioning GDI should cater for such spatial information sharing and exchange. Such GDIs have captured the attention of all sorts of organisations globally. They involve not only the technical concepts of (geospatial) data sharing and exchange via the Internet, but also the more institutional and economic questions that are determining the rules of the game under which spatial data can be exchanged. The latter are obviously closely related to the objectives of public administration. The need for efficient and transparent government requires clear implementation strategies to recover cost and/or to acquire funding for example, and to set up good coordination mechanisms between public and private organisations. Senior managers in the custodian agencies of public spatial data are therefore increasingly challenged to develop and implement strategies to do this, and are thus playing a key role in the development and maintenance of GDI at national or local level.

To respond to this challenge the course addressed the currently available technical, institutional and economic tools and mechanisms, and initiated a discussion and research network linking senior managers and academics to one another and to the University of Natal and ITC. This should enhance and further develop knowledge and tools to deal with the specific Southern African objectives with regard to GDI development and its societal expectations - this with the aim of improving the effectiveness and efficiency of the implementation of current and future public policies and administration, and ultimately the widespread, appropriate and affordable use of geospatial information for civil society.



Concept of Geospatial Data Infrastructure


GDI is gaining attention in southern Africa

Discussion sessions that took place during the course confirmed the feasibility of basic technical implementations in Southern Africa. Yet, it was also acknowledged that there is still the need for measures that support structured procedures for data sharing - such as metadata maintenance and dissemination - and for the general recognition of these issues by policy makers.

The course has drawn partly on the GDI modules at ITC, but also on the results of the GDI expert meetings of the Economic Commission of Africa organised by the Development Information Services Division (DISD) and on the experiences of the NSIF, for example in South Africa. The University of Natal is enjoying a long-standing relationship with ITC, among other organisations, in the development of the currently running LIM programme at the CEAD.

For further information on this course: Walter de Vries (devries@itc.nl)

Negotiation remains one of the key success factor of GDI

Internet can play an important role

Refresher Course participants and staff

Ile-Ife, Nigeria

Tsehaie Woldai woldai@itc.nl

From 1 to 11 October 2002, an ITC refresher course on Novel Approaches in Earth Observation in Geo-information Science for Earth System Analysis was held in Ile-Ife, Nigeria.

The refresher course was designed to retool ITC graduates to take on new and more complicated challenges in their working environment. The underlying idea was that former training and experience gained by course participants at ITC and RECTAS, and in their subsequent work environment, constituted the proper basis for introducing new approaches to earth observation and geo-information science for earth systems analysis.

The course was organised jointly by ITC's Department of Earth System Analysis (ESA) and its sister institute, the Regional Center for Training in Aerospace Surveys (RECTAS), located at the Obafemi Awolowo University Campus, Ile-Ife, Osun State, Nigeria. The latter complex provided a stimulating working environment and ensured that the participants could concentrate fully on the course.

Eighteen participants (fully funded by ITC) were selected for the refresher course: seven from Benin (2), Burkina Faso, Ghana, Mali, Niger and Senegal; four from the host institute RECTAS; and seven from other organisations in Nigeria. Some candidates from outside Nigeria were unable to respond in time but it is important to note that applications to attend the course were also received from Argentina (1), the Bahamas (2), Costa Rica (1), India (1), Pakistan (2) and Vietnam (1). Of the seven participants from outside Nigeria, three were ITC alumni and two had followed an ITC/RECTAS course. Five Nigerian participants were ITC alumni, three had followed a joint ITC/RECTAS course, while the rest included direct superiors of

alumni or came from organisations in direct contact with ITC.

The refresher course centred on the state of the art in geological remote sensing, GIS and digital field data capture techniques, and predictive modelling and data integration approaches. It combined specialist knowledge in the earth science fields with the latest insights in the fields of geo-information management and earth observation methods. Course objectives were implemented by means of a series of formal lectures complemented by hands-on practice in the interpretation and analysis of imagery, the application of various remotely sensed data in earth science-related surveying and mapping, digital image processing, geo-information management and data integration, predictive modelling (data-driven, knowledge-driven and model-driven) and monitoring change detection. Fieldwork, which increased relevance, was organised by the RECTAS staff. The course and fieldwork exercise were considered to be an excellent vehicle to achieve the goals of the refresher course.

The overall impression of the teaching staff is that the course met with a very favourable response from the participants. All the participants were exceedingly enthusiastic and motivated throughout the course. As most of them held senior or high-level positions in their respective organisations, they were in a position to make significant contributions. No doubt the course helped to strengthen the existing ITC network.

From 14 to 19 October 2002 all participants of the refresher course were obliged to attend the 4th African Association of Remote Sensing of the Environment (AARSE) conference on "Geoinformation for Sustainable Development in Africa" - a well advised strategy. An important selection criterion for the refresher course was presentation a research paper (related to research work at home) or any other scientific paper related to the themes of the AARSE Abuja conference. As such, 18 good quality papers were delivered and presented by the participants during the conference. All participants were funded by ITC.

Participants of the refresher course and some staff of RECTAS immediately after the opening ceremony

Hanoi,Vietnam

Dick van der Zee vanderzee@itc.nl

From 28 October to 8 November in Hanoi a refresher course was organised entitled "Resolving Conflicting Claims on Land Vietnam". The course was jointly organised by ITC and the General Department of Land Administration (GDLA). The course was held at the premises of the Vietnam Research Institute of Land Administration (VIRILA).

"Where am I?", reading GPS in the field

Some 20 people, of whom half were ITC alumni, came from a range of different institutions to participate in this course.

The objective of the course was to bring together participants from different institutions and from different disciplines who all shared a common professional interest in resolving conflicting claims on land, and let them discuss and learn from one other to arrive at mutual understanding. As such, the objectives were achieved to the satisfaction of all parties concerned.

The course was given mainly in the form of workshops and discussion sessions, with only a few short lectures to introduce the topics and some exercises to acquire hands-on experience with modern techniques. The level of participation and interactivity was high and because of this the group could influence the choice of topics and the degree of emphasis.

The programme started with a series of presentations by participants on their experiences with conflicting claims on land. It appeared that many of them interpreted the topic as being related to cadastral and land registration issues. However, all readily agreed on the relevance of using a more land use planning oriented approach to the subject, supported by case studies.

After short introductions to conflict analysis, stakeholder analysis and problem analysis, the group divided into different teams to discuss these topics as applied to a number of case studies. This resulted in the elaboration of scenarios under three major themes relating to the case study area, culminating in negotiations between representatives of the three themes in order to reach a final solution. The instruction on the use of GPS, with some practical training in the field, was highly appreciated - so much so that the participants even insisted on walking farther than envisaged!

A one-day study trip was organised to the Provincial Land Administration Office in the province of Hoa Binh, 80 km southwest of Hanoi. Several sites in and around the town were visited in order to discuss conflicting claims on land. The Hoa Binh hydropower plant - sixth largest in the world so they say - was also on the itinerary, but here there was a presentation of technical details rather than a discussion on the land use conflicts that had arisen.

A final report on the refresher course, a social event in the form of a dinner, and of course the presentation of certificates brought the course to a close. The course was evaluated quite positively by both participants and teachers (Dick van der Zee and Louise van Leeuwen).

Instructions on GPS use, at the city edge

Inspecting a "conflict" site in the field

events

10th Latin American Symposium of Remote Sensing and Space Information Systems

John Horn horn@itc.nl

Attended by nearly 500 delegates over the period 11 to 15 November 2002, ITC's affiliate centre CLAS (Centro de Levantamientos Aeroespaciales y Aplicaciones de SIG - the Centre of Aerospace Survey and GIS Applications for the Sustainable Development of Natural Resources) in Cochabamba, Bolivia, recently hosted the 10th SELPER conference and exhibition. Dr Carlos Valenzuela, ITC's international team leader at CLAS, acted as conference coordinator.

SELPER, the Latin American Society for Remote Sensing and Space Information Systems, is a forum of professionals, researchers, development institutions, space agencies, related businesses and students involved in all aspects of remote sensing and earth observation in South America.

At this event, strategies to optimise both technological and human resources were discussed, as well as the advancement of space sciences in Latin America and the scope of operational projects in the region. In the meetings, debates, plenaries and round tables, participants exchanged knowledge and experience on natural resources, space sciences, environmental sciences and geographical information systems (GIS).

With the specific theme *"Towards operational applications of systems of observation of the Earth and space information for users and decision makers"*, the objectives of this event were largely to:

- highlight the scientific and operational remote sensing activities ongoing in Latin America in the pursuit of sustainable development and its practical applications in different areas of natural resources
- promote and facilitate the interchange of ideas within the techno-scientific community that works and participates in projects in the field of remote sensing and GIS, for the purpose of exchanging experiences and ideas at an international level about the present and future working situation
- promote and share work experiences in the field of remote sensing, GIS and global positioning systems (GPS), related to the monitoring and handling of natural resources, economic development, the assessment of agricultural areas, natural disaster areas, risk assessment and management, environmental issues, cartography, urban planning, meteorology, archaeology, indigenous territorial demands, computer science applied to remote sensing and GIS, pest management, food safety and humanitarian programmes, among others
- provide a platform for the creation of opportunities, and the extension and updating of knowledge on the diverse applications of this space technology
- stimulate the development of co-operation and friendship among specialists, investigators and professionals from the different participant Institutions in order to enhance the use of these tools.

Technical Programme

- *Economic development*
  Agricultural production; farm production; fishing; drinking water; hydroelectricity; forest management; territorial planning; geological, mining and oil exploration; telecommunications; transport
- *Disasters, risk assessment and management*
  Earthquakes, landslides, forest fires, floods, frosts, droughts, volcanic activity, marine contamination, mining and oil contamination, erosion, deforestation

SELPER conference organiser Dr Carlos Valenzuela with Tatiana Zehl MSc and Blanca Vega

ITC's John Horn and Susana Reque of CLAS on the ITC exhibition stand at the SELPER conference

Marcelo Villaroel of CLAS explaining training programmes to conference delegate

Dr Carlos Valenzuela, Dr Lorena Montoya (ITC), members of the CLAS staff and short-course participants

- *Food security and humanitarian aid Environment*
  Monitoring of nationwide action programmes for the implementation of international agreements, environmental monitoring, international programmes, environmental impact assessment, desertification, planning for parks and protected areas
- *Pest control*
  Habitat detection and assessment of pest proliferation
- *Basic information production*
  Meteorology/weather prediction, topographic maps, national census, cadastre
- *Urban planning*
- *Archaeology*
- *Territorial demands by indigenous populations*
- *Role of local receiving stations in the development of operational applications*
- *Information applied to remote sensing and GIS*
  Hardware and software development, software for operational applications

Round Tables

- *Earth observation missions and navigation satellite systems*
  Role and activities of UN-OOSA and guidelines for the UNISPACE III conference; role of the CEOS coordinator and activities of the work groups. New and upcoming earth observation sensors: CONAE, INPE, CONIDA, ESA, CNES, AEC-CCRS-RADARSAT, NASA. Future constellations with emphasis on contributions from Latin American agencies.
- *Spatial agencies and international cooperation*
  Latin American space agencies; the need to develop a Latin American network for emergency situations; education; technological development; regional integration; international cooperation: what are the needs?
- *Participation in international programmes*
  LatinoSpot, GlobeSAR, integration in:
  - calibration/validation projects of the Committee on Earth Observation Satellites (CEOS)
  - the programme network for "Global Observation of Forest Cover" (GOFC) of CEOS
  - the FAO network on desertification.
- *Earth observation and education*
  Conclusions of the SELPER educational journal; educational programmes; what is missing? perspectives for international cooperation and partnerships.

Ing. Raúl Hernández of CLIRSEN, Ecuador, during his presentation on radar interferometry of the Galapagos Islands

XXI Plenary Reunion of SELPER

- *Its role, actions and future*

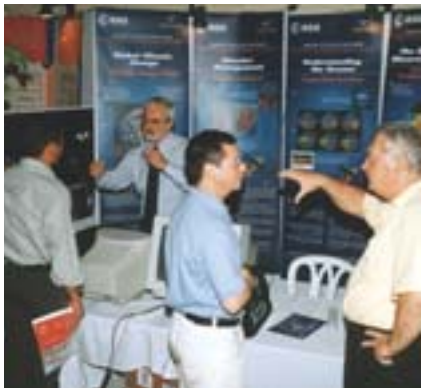
Organisation

The conference was hosted by CLAS, with the support of ITC and the University Mayor de San Simón, Cochabamba. It was organised in conjunction with the Bolivian Association of Remote Sensing for Environment, with the endorsement of the University Mayor de San Andrés-UMSA in La Paz, and was sponsored by the European Space Agency, the French Agency for Space, the Canadian Center of Remote Sensing, the Brazilian National Institute of Spatial Queries, the Military Geographical Institute and the companies Geosystems and Lloyd Aereo Boliviano.

Center of Aerospace Survey and GIS Applications for the Sustainable Development of Natural Resources (CLAS)

Financed by the Dutch government's SAIL Project Bureau and coordinated by Dr Carlos Valenzuela of ITC, CLAS is an international educational centre at the University Mayor de San Simón in Cochabamba. Additional educational input is provided by the International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE) of the Netherlands.

Its main objective is to promote, develop and facilitate programmes and



The European Space Agency stand attracted a lot of visitors; Maurizio Fea and Livio Marelli explaining new developments

postgraduate courses of advanced academic level in the national and international arena, using GIS and remote sensing tools to execute research and consulting projects on the sustainable management of natural resources.

In addition to a variety of short courses on GIS, remote sensing and various earth sciences, CLAS presently offers three Professional Master's courses:

- Soil Information for Natural Resource Management
- Hydrological Resource Surveys
- Irrigation and Drainage

The courses are run along similar lines to their equivalents at ITC. These courses are modular in nature and in 2003 commence on 17 February and conclude on 19 December. The structure of these courses is given in the table below.

ITC and IHE staff regularly visit CLAS both to support the regular ongoing programmes and to provide short courses. The short courses that have been run by ITC staff in recent months are given below.

New Development at CLAS

As part of ITC's policy of decentralising education, plans are currently being considered to offer a "sandwich type" MSc programme run jointly by CLAS and ITC. In the proposed model, CLAS graduates from the regular PM programmes would attend ITC for a group of advanced modules, returning to CLAS to complete their chosen research project and write their MSc thesis.

CLAS is also keen to add new specialisations and topics to their regular programme. High on the list of possibilities are new specialisations in urban planning and management, as well as land use planning and cadastral modules.

Further information on CLAS training programmes can be found on its website (http://www.clas.umss.edu.bo/).

Duration in Weeks	Module	Soil Information for Natural Resource Management	Hydrological Resource Surveys	Irrigation and Drainage
2	1	Natural Resource Management		
3	2	Statistics and Computer Science		
3	3	Data Acquisition and Remote Sensing 1		
3	4	Data Acquisition and Remote Sensing 2		
3	5	Geomorphology		Introduction to Irrigation and Drainage
3	6	Basic Soil Science	Basic Hydrology	
3	7	Geomorphology 2 and Landscape Ecology	Agro-hydrology and Hydrogeology	
3	8	Soil Survey	Applied Hydrology	Hydraulics and Water Measurement
3	9	Land Use Planning	Hydrological Modelling	Irrigation and Foundation Methods
3	10	GIS-RS Applications		
3	11	Land Degradation		Hydrological Works
3	12	Fieldwork	Water Quality	Irrigation and Drainage Design
2	13	Fieldwork		
6	14	Final Assignment		

Period	Topic	Staff
October	Theoretical aspects of disaster management as well as the application of GIS for risk assessment	Dr Lorena Montoya
November	Refresher course on geo-information science applications for water and environmental management	Dr Chris Mannaerts Dr Maciek Lubczynski Mr Gabriel Parodi MSc Drs Emile Dopheide
November	Workshop on land use planning in Bolivia	Drs Emile Dopheide

staff news

Niek Rengers IAEG President

On 15 September 2002, during the Nineth International Congress of the International Association for Engineering Geology and the Environment (IAEG), which was held in Durban, South Africa, Niek Rengers was elected president of the IAEG for the period 2003 to 2006.

The IAEG, established in 1964, is a worldwide scientific organisation with more than 5200 members and 59 national groups. The following are the official objectives defined in the IAEG statutes:

- to promote and encourage the advancement of engineering geology through technological activities and research
- to improve teaching and training in engineering geology
- to collect, evaluate and disseminate the results of engineering geological activities on a worldwide basis.

Niek Rengers Associate Professor Engineering Geology at ITC and former Vice-rector

Prof. Ian Masser Awarded the UK Association for Geographic Information Past President's Award

On 14 November Prof. Dr Ian Masser received the UK Association for Geographic Information Past President's Award for lifelong achievement in the field of geographical information.

When presenting the award, Past President Robert Barr paid tribute to Prof. Masser's key roles in managing the Economic and Social Research Council's ground-breaking Regional Research Laboratory initiative from 1987 to 1991 and in leading the European Science Foundation's highly successful GISDATA scientific programme from 1992 to 1997. He also drew attention to the part that Prof. Masser had played in establishing the Association of Geographic Information Laboratories in Europe between 1997 and 1999, and to the immense contribution he had made over the last four years as president of the European Umbrella Organisation for Geographic Information. Past President Barr wished Prof. Masser every success in his new position as the first president of the Global Spatial Data Infrastructure Association and then presented him with a brass clock and barometer mounted on an inscribed wooden plaque. The award came as a complete surprise to Prof. Masser, who - for once almost lost for words - could only say: "Thank you very much!"

Past President Robert Barr presenting Prof. Ian Masser with a brass clock and barometer

Frans Gollenbeek: winner of the Henk Scholten Award 2002

Corné van Elzakker elzakker@itc.nl

In ITC News 2002-2 we had the sad duty to inform you about the early death of Henk Scholten, who passed away, after a short illness, on 27 May 2002. At ITC, his memory as a good team-builder is kept alive, however, by the Award that is named after him and that is presented every year since 1997 to remind us all of the importance of doing our work in teams of staff and students alike.

In the first 5 years of its existence, the Award was actually presented by Henk Scholten himself, but this year this function had to be taken over by ITC Rector Prof. Martien Molenaar. On 17 December 2002 he very ably took care of this duty at the closing of the ITC Dies Natalis seminar by linking the theme of the seminar (network approaches) to the Award's criteria:

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

Prof. Molenaar presented the Henk Scholten Award 2003 to Frans Gollenbeek of ITC's Bureau Project Services.

Frans has been a member of the board of the Personnel Association InTerContact for almost 30 years. For many years he is also the Financial Administrator of the Student Association. In these capacities he provided background support and was involved in the organization of many activities for ITC staff and students alike.
The highlights of Frans' activities are most clearly visible in the month of December. For many years, he has been involved -sometimes disguised as "Zwarte Piet"- in the Sinterklaas parties organized for the children of staff and students and in the Christmas celebrations. He is also one of the motors in fostering the relationships with retired ITC staff.
Last but not least: he belongs to the important and indispensable group of ITC volunteers we all hope we never need - the first-aiders and people who take care of us in case of emergencies in the ITC building.

Presentation of the Henk Scholten Award 2002 by Prof. Martien Molenaar to Frans Gollenbeek

The winner of the Henk Scholten Award was selected from a list of 17 candidates nominated by staff or students. All staff and students were invited to submit nominations by a committee that also selected the winner. This Henk Scholten Award Committee is composed of a representative of the SAB (this year: Past SAB President Peter Minang), a representative of the PhD-students (Javier Morales), a representative of the Directorate (Marja Verburg), a representative of the ITC staff (Corné van Elzakker) and a representative of the personnel association InTerContact (Ellen Steur). The Committee itself provided a good example of the importance of teamwork -and networking- in all of our activities.

Welcome to ITC	Elena Rodriquez Tormo	Scientific Assistant, department of Natural Resources (per 1 October 2002), e-mail: rodriqueztormo@itc.nl
	Ruben Vargas Franco	Scientific Assistant, department of Water Resources (per 21 October 2002), e-mail: vargasfranco@itc.nl
	Corrie van Wijngaarden	Staff Member Archive, Directorate (per 1 January 2003), e-mail: vanwijngaarden@itc.nl
Staff leaving	Mathias Spaliviero	Scientific Assistant, department of Water Resources (per 31 August 2002)
	Huria Al Malih	Staff Member, Support and Administration (per 30 September 2002)
	Dr. Lalit Kumar	Assistant Professor, department of Natural Resources (per 31 December 2002)
	Dr. Xiangmin Zhang	Post Doc Scientist, department of Earth Systems Analysis (per 31 December 2002)
	Emke Smit	Secretary, Facility Management department (per 14 January 2003)

announcements

Fourth African Association of Remote Sensing of the Environment Conference (AARSE), Abuja, Nigeria

Tsehaie Woldai woldai@itc.nl

The conference "Geo-information for Sustainable Development in Africa", held from 14 to 18 October 2002 at the Sheraton Hotel, Abuja, Nigeria, was organised by the African Association of Remote Sensing of the Environment (AARSE). Some 201 participants from 25 countries attended the conference, with 180 participants coming from Africa and the rest from Europe, the Middle East and North America.

Among the conference sponsors from outside Nigeria were ITC, UNESCO and Space Imaging. Logistics and funding to support the conference also came from a number of Nigerian ministries, universities, federal schools, organisations, agencies, Chevron, the Nigerian National Petroleum Corporation and Aero Geomatics Surveys.

The conference was officially opened by Ing. Alhaji Yahja Mohammed, director of Abuja City EPA (the host city), representing the Minister of Federal Capital Territory, and by Dr J. Akinyede, director of the Department of Space Application, on behalf of Prof. Turner T. Isoun, Minister of Science and Technology. Their speeches indeed underscored the importance of the meeting and the significance attached by the Nigerian government to remote sensing and GIS technologies. A highlight of Prof. Isoun's message referred to the signing (on 7 November 2000) of a contract with the UK firm Surrey Satellite Technology for the development of a micro-satellite as part of a constellation of six West African countries. The remote sensing micro-satellite NIGERIASAT1, with a resolution of 30 m, would be launch-ready by mid-2003.

The conference format included an opening session, 14 invited keynote papers in four plenary sessions, and 80 papers from 69 authors from 20 countries in eight technical sessions. The conference focused not only on assessing the current sustainable development problems in Africa, but also on determining how the benefits of geo-information technology, such as remote sensing, global positioning systems and geographical information systems (GIS), as well as the improved communications technology, could be harnessed to provide the fundamental basis for sustainable development in Africa. Several papers covering topics on geology, land use, groundwater, vegetation, collaborative capacity building, education and training, technology transfer, mapping and spatial data infrastructure, ecosystems protection and resource management, not forgetting Internet applications, were discussed.

All but seven of the submitted abstracts were presented. Presentation time was short, focusing on the main points of each paper, with discussion at the end of the sessions. With very few exceptions, the presentations were mature in many aspects, giving valuable and detailed information. The abstract proceedings, which included some of the invited papers, were distributed during the conference.

During the conference, meetings of the AARSE Council, the AARSE General Assembly and the Geoinformation Society of Nigeria were conducted, and the AARSE Presidential Award for best paper submitted by an African and the Local Organising Committee Award for best paper submitted by secondary school and university students were presented. Despite the long day (lasting sometimes till 7:30 in the evening), attendance was consistently high right through to the final workshop, and discussions were lively. The technical programmes were accom-

The official opening ceremony: Prof. Dr Ayeni (Chairman, Local Organising Committee), Ing. Alhaji Yahja Mohammed (Director of Abuja City Environmental Protection Agency), Prof. Dr Peter Adeniyi (AARSE President), representative accompanying Ing. Alhaji Yahja Mohammed, Dr Joseph Akinyede (Director of the Space Application, NASRDA), Dr Tsehaie Woldai (Secretary General, AARSE), Dr Evelyne Mbede (AARSE Treasurer), Dr Mamadou Fofana (AARSE Vice-President for West Africa) and Dr Justin Ahanhanzo (Unesco)

panied by visits to various exhibition stands (Space Imaging, Trimble, Maps Geosystems, Leica, Aerospace Geomatics Surveys-Hughin GmbH) and social events (welcoming party, technical presentation and cocktail reception by Space Imaging, gala dinner by Raytheon (USA), the AARSE 10th anniversary dinner and the ITC alumni party), which offered opportunities for better social interaction and fruitful discussions.

Some of the participants present during the conference

Announcement

On 4 November 2002 the section Engineering Geology moved to a new location:

Mijnbouwstraat 120, 2628 RX Delft, The Netherlands

Phone: +31 (015) 2781636 (secretary) Fax: +31 (015) 2789676

GIS in the Hindu Kush-Himalayas

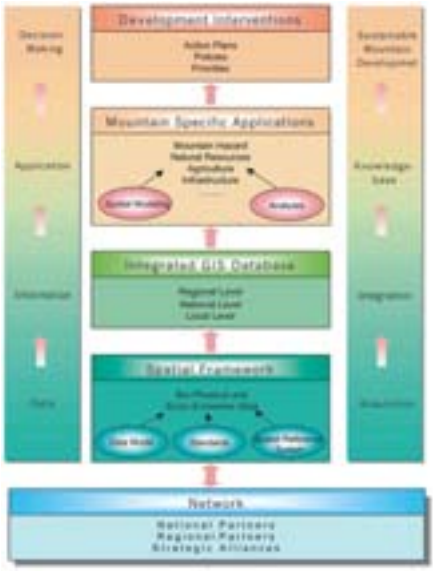
Basanta Shrestha bshrestha@icimod.org.np
International Centre for Integrated Mountain Development (ICIMOD)

The International Center for Integrated Mountain Development (ICIMOD), with its headquarters in Nepal, has been working as a "mountain learning and knowledge centre" for the sustainable development in the Hindu Kush-Himalayan (HKH) region.

Through its programme Mountain Environment and Natural Resources Information Systems (MENRIS), ICIMOD has been promoting the use of GIS and remote sensing and their applications in the region. It has been working on developing methodologies for applying the technologies to portraying people's livelihoods in relation to the resource base and infrastructure, thus stimulating better understanding for the planning and implementation of development programmes. MENRIS focuses primarily on bridging the geographical information and knowledge divide in mountain regions. It is developing a regional geographical information infrastructure through its four major strategic components - capacity building and networking, GIS data management, development of applications, and decision support systems - and works as a clearinghouse for GIS resources.

Its close contacts and collaboration with partner and research institutions, space agencies, universities and the private sector have fostered the establishment of a strong GIS network serving this vast and diverse region. To this end, nearly 800 people from more than 100 partner institutions have been trained by ICIMOD in the use of GIS technologies specific to mountain areas. Several partner institutions have in turn become nodal agencies that train professionals and students from many varied disciplines.

ICIMOD has carried out a number of GIS applications in collaboration with its partner institutions in the field of natural resources management, biodiversity management, agricultural plan-



Framework for utilization of Geo-Information Technology

ning, infrastructure planning and hazard assessment. Its recent work on the *Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods in Nepal and Bhutan* has drawn wide international attention. ICIMOD is also working on developing a mountain GIS portal to serve as a platform for the exchange of geographical data and resources via the Internet. The prestigious ESRI President's Award was presented to ICIMOD in 2001 in recognition of its work on the capacity building of mountain communities in the HKH region.

ICIMOD has enjoyed a relationship with ITC since 1994 - conducting joint training programmes, developing training materials and involving

MENRIS: Operational Strategy

other capacity building activities. The two institutions have now formally entered into joint collaboration in the common areas of interest for the sustainable development of the mountain regions, signing a Memorandum of Understanding on 28 November 2002 during the 23rd Asian Conference on Remote Sensing (ACRS) held in Kathmandu, Nepal *(visit www.icimod.org for details).*

Mountain GIS Portal

ITC Signs Memorandum of Understanding with ICIMOD

Sjaak Beerens beerens@itc.nl

On 28 November 2002, ITC signed a Memorandum of Understanding with the International Centre for Integrated Mountain Development (ICIMOD) in Kathmandu, Nepal, for collaboration in the development and implementation of mutually beneficial initiatives.

Over the last decade ICIMOD has been promoting the use of geo-information technology and its applications to integrated mountain development through its Mountain Environment and Natural Resources Information Systems (MENRIS) programme. Both ICIMOD and ITC are concerned with a number of common subject areas, for which they use the same methodologies and techniques, such as geographical information systems (GIS) and remote sensing. The agreement is viewed as an enabling vehicle, stimulating the two organisations to embark jointly on activities within the context of collaborative efforts seen to be mutually beneficial. The areas of common interest include: capacity building and institutional strengthening in the field of geo-information; earth observation and its application to sustainable mountain development; development of an integrated spatial data infrastructure at local, national and regional levels in the Hindu Kush-Himalayan region; and development of a mountain GIS portal for the dissemination of GIS and remote sensing knowledge, with free access to spatial data.

The MoU was signed by Prof. Martien Molenaar, rector of ITC, and Dr J. Gabriel Campbell, director general of ICIMOD, at the 23rd Asian Conference on Remote Sensing (ACRS) in Kathmandu, Nepal.

Prof. Martien Molenaar (left) and Dr J. Gabriel Campbell signing the Memorandum of Understanding between ICIMOD and ITC

visiting itc

Visit of Mr Yoshikazu Fukushima of the Japanese Cabinet Secretariat

John Horn horn@itc.nl

On 19 September 2002, ITC was delighted to welcome Mr Yoshikazu Fukushima of the Japanese Cabinet Secretariat. Mr Fukushima is responsible for providing the Japanese cabinet with timely advice on matters related to natural disasters and specifically on the use of remotely sensed data for disaster management.

ITC has recently been awarded a contract by the Remote Sensing Technology Center of Japan (RESTEC) to provide the training course Geo-information for Urban Disaster Management in Japan. This will be carried out by a multidisciplinary team of ITC experts in February to March 2003 in Tokyo.

RESTEC plans to utilise modern high spatial resolution remotely sensed data, as well as geographical information systems, in a new programme of natural disaster monitoring and mitigation.

Hosted by Drs Sjaak Beerens, ITC's director of external affairs, Mr Fukushima's programme included a series of short presentations by various ITC staff on their research and teaching activities related to disaster management issues.

Under the watchful gaze of ITC's founder, Prof. Schermerhorn, Mr Yoshikazu Fukushima and Drs Sjaak Beerens exchange gifts

Ir Mark Noort, Mr Yoshikazu Fukushima, Drs Sjaak Beerens, Dr Lorena Montoya, Ir Mark Brussel and Dr Ben Maathuis

Visitors from the Ministry of Land Resources, China

Dick van der Zee vanderzee@itc.nl

During their study tour of Europe, a group of 22 representatives from the Ministry of Land Resources of China, who hailed from the provinces of Hubei and Ningxia, stopped by to visit ITC on 3 October 2002.
After a short introduction to what ITC actually is and does, the group were taken on a trip through the polders so they could view at first hand certain aspects of planning in the Netherlands. A walk along the canals of the quaint village of Dwarsgracht gave the visitors a good idea of an old peat polder and a "water" village, while the Northeast Polder and East Flevoland served as examples of the newer types of polder. The visit to the former island of Schokland, with a walk "on the bottom of the sea", made a considerable impression and the visitors were also very interested in the large cluster of modern windmills generating electricity on the dike near Lelystad. The assistance of Cheng Jianquan and Huang Zhendong as interpreters was essential to the success of the visit, and consequently highly appreciated.

Rector Martien Molenaar addressing the group of visitors

Rector Martien Molenaar receiving a gift to ITC

The group of visitors at the entrance of ITC

project news

ITC Signs Contract with Government of Bhutan

Robert Hack hack@itc.nl
Niek Rengers rengers@itc.nl

On Friday 20 December 2002, ITC concluded a contract for collaboration with the government of the Kingdom of Bhutan to enhance the capacity on slope stability and environmental analysis in the Himalayan environment. The contract, financed under the Netherlands sustainable development support to Bhutan, was signed at ITC in Enschede by Mr Dorji Wangda, director general of the Department of Geology and Mines, on behalf of the government of Bhutan and by Prof. Martien Molenaar for ITC.

The Earth's surface is always moving. This phenomenon is particularly evident on steep slopes such as those found in the Himalayas. High in the Himalayas lies the Kingdom of Bhutan. The rising of the Himalayas and the continuous incision by rivers raise the mountain landscape of Bhutan a few millimetres each year. This creates risks for people and for the environment, as well as problems with foundations, for example of monasteries and infrastructure such as roads. ITC is going to collaborate with the Geological Service of Bhutan with a view to structurally solving these problems.

The Kingdom of Bhutan, with a surface area of 45,000 km^2, is somewhat larger than the Netherlands and has approximately 900,000 inhabitants. Bhutan has a rich history and culture and this finds one form of expression, among others, in the many cultural and religious monuments. These monuments, as well as the roads and other civil infrastructure are in danger. The slopes occupied by Bhutan are unstable. Entire pieces of slope can shift owing to the movements of the Earth's surface. Erosion too plays a role, especially where human activities have altered the natural landscape. The government of Bhutan assigns particularly high value to sustainable development. Quality of life and the happiness of the people are the central objectives in the country's development philosophy. Indentity, unity, harmony, stability, self-confidence, sustainability and flexibility are the key terms used by the government. The king of Bhutan also favours the expression "gross national happiness" rather than "gross national product". The sustainable development of roads and other civil infrastructure fits comfortably into this philosophy.

To protect the natural environment and to save costs when laying or extending roads or preserving monasteries, a good analysis of the geological and geotechnical characteristics of the slopes is important. Bhutan's government has approached the Netherlands with a view to collaborating on such an analysis. ITC is going to cooperate with the Geological Service of Bhutan. The director general of the Department of Geology and Mines visited ITC in Enschede on 20 December 2002 to sign a collaboration agreement for a period of four years. This institutional cooperation will be carried out within the framework of the Sustainable Development Treaty between the governments of the Netherlands and Bhutan. Experts from both ITC and Delft Technical University will travel to Bhutan to strengthen the capacity of the Geological Service of Bhutan. They will organise training courses and provide advice on infrastructural and civil engineering work. Bhutanese engineers and geologists will travel to the Netherlands and, by following educational programmes at ITC and Delft Technical University, expand their knowledge on geo-information sciences and earth observation. These educational programmes will focus on the use of remote sensing techniques for collecting spatial information.

Mr Dorji Wangda and Prof. Martien Molenaar exchanging signed contracts

Successful Kick-Off of the Asia-Link Project

Lyande Eelderink eelderink@itc.nl

The Asia-Link programme was launched at the beginning of 2002 as an initiative by the European Union (EU) to foster regional and multilateral networking between higher education institutions in EU member states and South Asia, Southeast Asia and China.
This five-year programme, which has a total budget of EUR 40 million, aims to provide support to European and Asian higher education institutions in the areas of human resource development, curriculum development, and institutional and systems development.

The aim of the project initiated by ITC is to jointly develop new training and teaching material in the field of urban/regional planning and management, with the focus on poverty alleviation. This will be achieved through cross-linking a number of existing relationships between universities in the Netherlands (ITC), Germany (Faculty of Spatial Planning, University of Dortmund), China (School of Urban Studies (SUS), Wuhan University) and the Philippines (National College of Public Administration and Governance (NCPAG) / School of Urban and Regional Planning (SURP)). The course material to be developed will be suitable for incorporation into the ongoing courses of each partner institution. By improving the level of professionalism and awareness among future urban planners and managers, the project will indirectly benefit the urban and rural poor.

A workshop was held at ITC in the week 9 to 13 December 2002 to kick off the Asia-Link project. This workshop defined the content of the five educational packages that will be developed, and assigned responsibility for developing one of these packages to each partner institution. A detailed work plan for the next three years was also agreed.

Participants of the workshop

research news

ITC Signs Memorandum of Understanding with APERI from Iran

Sjaak Beerens beerens@itc.nl

On 20 December ITC concluded a Memorandum of Understanding (MoU) for collaboration in research and education with the Agricultural Planning and Economic Research Institute (APERI) of the Ministry of Jihad-e-Agriculture of Iran.
The MoU was signed at ITC in Enschede by Prof. Martien Molenaar on behalf of ITC and APERI Director Mr Seyyed Hassan Kazemi.

This MoU was the result of a two-day workshop held at ITC on developing a collaborative spatial planning support system for food security and agricultural development, with specific reference to Iran. This workshop was carried out within the framework of ITC's new research programme, with the participation of representatives not only from Iran and ITC but also from Wageningen University and the Center for Development Studies of Groningen University. It is intended that three to five PhD researchers will explore the development of methodologies related to goal, policy and plan formulation for agricultural development at national and regional levels.

Mr Seyyed Hassan Kazemi (APERI, left) and Prof. Martien Molenaar exchanging the signed MoU

PhD Graduation: Laurent G. Sedogo

Friday, 22 November 2002, ITC Enschede

Martin Hale research@itc.nl

Laurent Gouinde Sedogo was born on the 15 March 1956 in Arbinda, Province of Soum, Burkina Faso. Between 1969 and 1976 he attended a secondary technical high school in Côte d'Ivoire. Between 1976 and 1978 he studied mathematics and physics at the University Mohamed V in Rabat, Morocco, and then from 1978 to 1980 specialised in land surveying and mapping in Morocco and France.

He became employed as a land surveyor and as a teacher of topography and cartography for the national army of Burkina Faso in September 1980. From 1984 to 1987 he occupied several high administrative and political positions, and was among the pioneers who set up the national committee for desertification control in Burkina Faso. From 1988 to 1990 he held the appointment of Minister of Farmers' Cooperatives. From 1991 to 1993 he was the manager of the desertification control programme (LUCODEB) at the Ministry of Environment.

In 1993 he joined ITC, where in 1995 he obtained his MSc degree in GIS for Rural Applications (GIR), which was awarded jointly by Wageningen Agricultural University. Back in his own country he worked as a GIS expert for the Ministry of Environment and the National Land Use Planning Programme (PNGT). From August to December 1996 he attended a short course on Digital Image Processing (DIP5) at ITC and started his PhD studies in participatory land use planning and sustainable land management at ITC in September 1998.

Integration of Local Participatory and Regional Planning for Resources Management Using Remote Sensing and GIS

In Burkina Faso, participatory approaches to planning and natural resources management have become a central issue from national level to local village level. With the introduction of these participatory approaches in development programmes, it has become essential for planners to build and implement land use strategies based on the objectives, perceptions and knowledge of local people. The principle of participation has led to great upheaval in the development approach, by changing the role and responsibilities of actors and by affecting the means and tools to achieve the goals. The strategies to achieve the main goal of sustainable development are based on the definition of new relationships between the biophysical properties of the land and its users.

Much has been done to conceptualise the problem of participation and the redistribution of roles among the different actors (decision makers, development agents and local population). For instance, adapted tools such as PRA (participatory rural appraisal) and enlarged aerial photographs are increasingly used as decision-making tools by local people to design and implement their own land management plans.

However, the implementation of participatory land use planning reveals new bottlenecks and challenges, generating conflicts in decision making, management and the sharing of benefits from actions. More specifically, the perceptions, needs and development goals as conceived at local to regional level have not yet been translated and integrated into harmonious plans. Despite the richness of information used in the planning process, efficient geographical information gathering and relevant spatial analytical tools necessary to support the negotiations among the stakeholders are lacking. Besides, methods are needed to allow harmonious integration between local participatory and regional planning, so as to stimulate a bottom-up land use planning process. Geographical Information can con-

tribute to a better integration of planning at local and regional levels, with the ultimate purpose of improving the environment of the decision makers (local people and their leaders at different levels).

It was the aim of this study to develop a method for the rational integration of local participatory land use planning and regional planning for sustainable resources management. It combined participatory land use planning methods based on PRA, with technical methods using GIS and remote sensing. It was based on a case study of participatory land use planning implemented in the province of Houet in southwestern Burkina Faso.

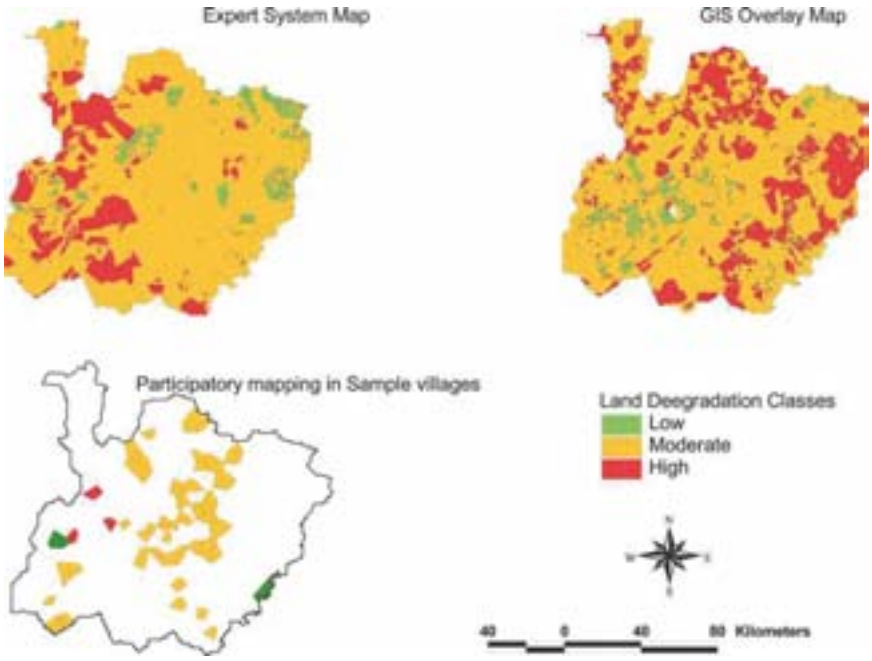
In this context the study has:

- proposed a method for defining and mapping the land management units relevant to all stakeholders and suitable for systematic storage in a GIS environment
- developed appropriate methods for integrating local knowledge and regional planning information for bottom-up regional planning purposes, using GIS and expert systems
- proposed methods for addressing some critical issues in sustainable land management, such as sustainability assessment and conflict management at regional level, using both local knowledge and regional planning information.

With these methods, the study showed that:

- hybrid methods combining soft system methodologies (SSM) based on the use of PRA and structured systems methodologies are a rational basis for building P-GIS to support participatory local land management planning
- local knowledge and perceptions collected from PRA can be used in spatial analysis in GIS, to support participatory land use planning
- PRA data can be used in spatial methods based on geographical data abstraction procedures for harmoniously integrating the local participatory and the regional levels of planning for sustainable resource management
- (subjective) local knowledge collected from PRA can be integrated in objective methods by means of expert systems and GIS to support bottom-up regional planning for sustainable natural resources management
- linking PRA and other conventional data with GIS is a relevant method for conflict risk mapping.

Copies of *Integration of Local Participatory and Regional Planning for Resources Management Using Remote Sensing and GIS* by Laurent G. Sedogo are available from the ITC Bookshop:
P.O. Box 6, 7500 AA Enschede,
The Netherlands
E-mail: bunk@itc.nl,
Fax +31-(0)53-487 44 00
Price € 13.61, DIS092



Land degradation maps produced by conventional GIS and an expert system using local knowledge collected by PRA methods

Obituary

His Royal Highness Prince Claus of the Netherlands (1926-2002)

Martien Molenaar molenaar@itc.nl

On 6 October 2002 ITC lost one of its fellows: His Royal Highness Prince Claus of the Netherlands.

Prince Claus was appointed Honorary Fellow of ITC and received the award in person from former rector Prof. Klaas Jan Beek at the ITC Dies Natalis celebration on 17 December 1993. Prince Claus was held in very high esteem in the international development cooperation community, partly because of his considerable insight and understanding of the problems involved, and partly because of his exceptional gift for expressing the hopes and anxieties felt by all.

There were earlier connections between ITC and Prince Claus too. In 1971 he officially opened the ITC building on Boulevard 1945 in Enschede. ITC also had the honour to welcome him to the anniversary celebration in 1981, as well as on a working visit in 1984.

The ITC community will miss the sincere commitment of Prince Claus to the developing countries, as well as his loyal support for the mission of our Institute.

Obituary

Prof. Ir. Jan Visser (1922-2002)

It is with much sadness that that we learned of the death, on 23 October 2002, of Prof. Ir. Jan Visser, our friend, former colleague and past Secretary-General of the OEEPE.

Jan started his career at Dutch Ministry of Public Works where he became Head of the Survey Department. He then moved to the Photogrammetry Department of the ITC in 1954, where he held the position of Professor in Photogrammetry and Head of Department until his retirement in 1985.

He was for all of us, and stays in our memory, as a very much appreciated colleague.

Obituary

Ir. Henk Gelens (1925-2002)

We received the sad news that on 11 November 2002 our former colleague Ir. Henk Gelens passed away.

After his graduation at Wageningen University Henk started his career at the Canadian International Paper Company at Maniwaki, Canada where he worked as a Forester. In 1959 he moved to ITC were he worked in the Soils Division till his retirement in 1986.

We are grateful for all he has meant for ITC, we will remember him as an amiable person and a driven scientist.

life after itc

Alumni Receptions

A picture galleries can be found on ITC's website (http://www.itc.nl/news_events/archive/alumni/default.asp).

Beijing, Xi'an and Wuhan, China

On the occasion of the October visit of Director External Affairs Sjaak J.J. Beerens and Paul E. Schoonackers, project officer with ITC's Bureau Project Services, to the People's Republic of China, the popular tradition of organising a gathering for alumni was continued, with alumni receptions held in Beijing, Xi'an and Wuhan.

These events were organised by ITC's resident representative in China, Ms Marjan S. Kreijns, in collaboration with locally based alumni. In total some 65 alumni and representatives of client organisations attended these successful events.

Kathmandu, Nepal

On 25 November a reception for alumni was organised at the Hotel Yak & Yeti in Kathmandu, Nepal. This reception, hosted by ITC's rector, Prof. Martien Molenaar, and Director External Affairs Sjaak Beerens, was held in conjunction with the 23rd Asian Conference on Remote Sensing (ACRS), which took place from 25 to 29 November 2002 in Kathmandu.

The reception owed its great success mainly to the preparation and organisation by Mr Raja Ram Chhatkuli, president of the ITC Alumni Association of Nepal, and his fellow board members. Some 150 ITC alumni attended the reception and, while the majority came from Nepal, there was also a sizable number of participants from other countries who were attending the ACRS, including such alumni celebrities as ISPRS President Dr John Trinder, Prof. Dr Gottfried Konecny, and Dr Wicha Jiwalai of GISTDA, Thailand.

A special word of thanks was expressed to Ms Patricia Chettri, fellowship officer at the Dutch consulate in Nepal, who has been guiding the way to the Netherlands for some 14 years now.

Prof. Martien Molenaar and Mr Raja Ram Chhatkuli, president of the ITC Alumni Association of Nepal

Ms Patricia Chettri, fellowship officer at the Dutch consulate in Nepal, flanked by ITC's Jeroen van der Worm and Edwin Keizer

Prof. Molenaar, flanked on his left by ITC alumni Dr Wicha Jiwalai from Thailand and Dr John Trinder from Australia, and Prof. Dr Konecny on the left of Director External Affairs Sjaak Beerens

Abuja, Nigeria

Tsehai Woldai woldai@itc.nl

On 16 November 2002, ITC alumni gathered together at the Savanah Suit Hotel in Abuja, Nigeria, for the presentation of the joint ITC/RECTAS certificates for the refresher course Novel Approaches in Earth Observation and Geo-Information Science for Earth Systems Analysis.

The occasion was marked by the presence of important visitors from the Nigerian ministries and the Dutch embassy, as well as former ITC alumni and important dignitaries from various Nigerian institutions and from abroad who were attending the conference and had also received invitations. Mr Michel Deelen (Dutch First Councillor in Nigeria) and Ms Eugénie Baldé (Assistent Second Secretary) were there to represent the Dutch ambassador, while the Minister for Cooperation and Integration in Africa and the Minister of Works and Housing were represented by Director for Planning and Project Management Dr Sule Yakubu Bassi and Deputy Surveyor General A.P.C. Njepuome of the Federation.

Before the opening ceremony, four invited guests were treated to a short introduction to the use of remotely sensed data for resource mapping. A demonstration was given using 1 m resolution IKONOS data of Abuja City, showing various aspects of the city's infrastructure and some environmental problems currently being faced. The demonstration proved something of an eye-opener and was greatly appreciated.

After the demonstration, the guests were taken to the reception hall, where the refresher course participants, former ITC alumni and other invited guests were waiting. In an introductory speech, Dr Woldai expounded on the new educational system and the various modular courses given at ITC. Dr Kufoniyi talked on the role of RECTAS, and was followed by Dr Sule Yakubu Bassi and Mr Njepuome, who read their protocol messages thanking, among others, ITC and the Dutch government for supporting the refresher course and the conference. Dr Rolf Becker, technical director of Maps Geosystems and a 1962 ITC alumnus, gave a short talk on his training experience at ITC. Mr Michel Deelen, on behalf of the Dutch ambassador, explained Dutch policy on development cooperation. He reiterated the importance of the Dutch government in supporting education and training for sustainable development in Africa and in promoting refresher courses of this kind to enable participants to keep abreast of new developments in satellite remote sensing and GIS within the context of environmental issues. He also expressed his appreciation of the short remote sensing lesson given just prior to the reception, and found the demonstration on the use of the IKONOS data most instructive. With this, he handed the certificates to the participants of the refresher course.

Around 60 people attended the reception. The speeches generated discussions among the alumni and the various invited guests, who were duly fortified by drinks and snacks.

Michel Deelen handing certificates to refresher course participants

Presentation of certificates during the ITC alumni reception. Mr Njepuome (Deputy Surveyor General of the Federation) addressing invited guests and refresher course participants. From left to right: Ms Eugénie Baldé (Assistent Second Secretary), Michel Deelen (First Councillor), Dr Sule Yakubu Bassi (Director for Planning and Project Management) and Mr Njepuome (Deputy Surveyor General of the Federation)