

ITC News



- Opening Academic Programme
- Group Decision Room
- Inter-Faculty Programme
- Thai Princess Visits ITC



GEOInformatics

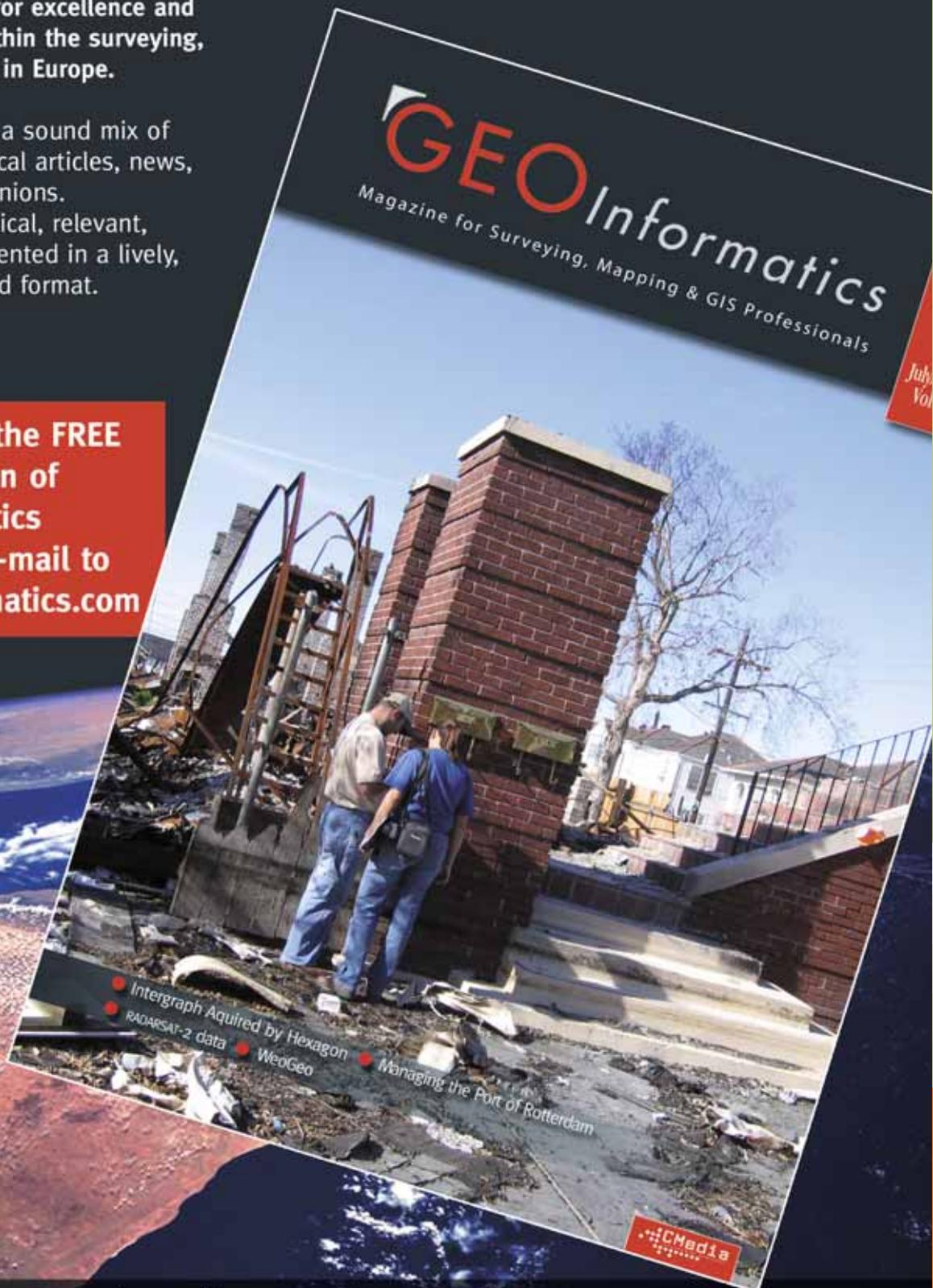
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introduction

Faithful followers of *ITC News* are accustomed to reading about a distinctive opening ceremony in the third issue of the year, a ceremony that brings together academics in their gowns and new students in colourful national dress. Nor will they be disappointed this time round. True, certain changes have been effected in keeping with ITC's new status as the sixth faculty of the University of Twente, but much has remained the same, as the report on pages 2-11 clearly shows. In particular, Prof. Tom Veldkamp was very pleased and highly honoured to welcome Prof. Michael Goodchild of the University of California, Santa Barbara, who was to deliver the Schermerhorn Lecture, the lecture bearing the name of the founder of ITC and the first lecture of the new academic programme. His distinguished reputation in the world of GIScience had preceded him, and he found a keen and highly attentive audience in the Grote Kerk, Enschede.

One regular item was missing that afternoon: the ITC MSc Award for best MSc thesis – missing but not forgotten. This has been superseded by the *scriptieprijs* (see page 22), which was presented by the Rector Magnificus of UT to the six faculty winners at the Opening of the UT Academic Year on 6 September.

ITC welcomed another distinguished visitor in the month of October, HRH Princess Maha Chakri Sirindhorn from Thailand. A programme consisting of four lectures had been specially prepared for the occasion (page 27).

Pages 14-15 report on a new inter-faculty training programme, which has met with an enthusiastic response from the participants. Evidently the organizational and administrative changes of the past months are already bearing fruit in various directions. Nevertheless, this is the real world we are living in, which means that the work of adaptation and fine-tuning is still going on.

Actually, this issue is a veritable mine of information so it's difficult to single out articles for special mention. Still, now comes the time to see whether you share this opinion ...

Virtually yours, **Janneke Kalf** **Jorien Terlouw**
Managing Editor *Editor*

colofon

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Opening Academic Programme 2010-2011

ITC News

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The clue was in the invitation itself – a new design, a new colour scheme, a title adjustment. Of course, this was the year that ITC had become the sixth faculty of the University of Twente, so changes were only to be expected.

But at the Opening of the Academic Programme 2010-2011 on 23 September 2010, as people streamed in and took their places in the magnificent Grote Kerk in Enschede's old market place to be greeted by the organ music of Gijs van Schoonhoven, a feeling of anticipation was coupled with a feeling of reassurance. As in years gone by, many of the new students could be identified by their colourful national costumes, adding that touch of distinction that characterizes the official ITC opening ceremony. In fact, such was the atmosphere that one interested passer-by in the square enquired if a wedding was being celebrated.

Taking the floor, Prof. Tom Veldkamp, rector/dean of the new faculty, welcomed those present to the Opening of the Academic Programme 2010-2011, saying that this was actually the first time it had been held. Indeed, the Opening of the UT Academic Year had taken place some two weeks or more earlier. He extended a special welcome to UT's Rector Magnificus, Ed Brinksma; His Excellency the Ambassador of Ghana; the Councillor of the Embassy of Kenya; and most of all to the new students. Some 200 new students of many nationalities had arrived that week, bringing the current number of students studying at the faculty to more than 500. A particularly warm welcome was reserved for Prof. Michael Goodchild of the University of California, Santa Barbara, who was to deliver the first lecture of the academic programme, the Schermerhorn Lecture. "If you pick up a textbook on GIS," said Prof. Veldkamp, "his name is usually on it. And if you go to the Website of Scholars, you will find 800 papers and books bearing his name. Moreover, his work has been cited no less than 11,000

times – and to cite work you have to have read it and actually know what you cite. Prof. Goodchild has supervised many MSc and PhD students, and has made outstanding contributions to the domain of geo-information science. We are really honoured to have him with us today."

And so the scene was set for the afternoon, with a programme that included an address by Mr Nesru Hassen Koroso, general secretary of the Student Association Board, and the presentation of the ITC Research Award for the best scientific paper by a PhD student. A musical interlude, in which Gijs van Schoonhoven on the organ accompanied violinist Emma van Schoonhoven, provided time for reflection. The two pieces selected were *Symphonie espagnole, Opus 21 part 1 Allegro non troppo* by Edouard Lalo, and *Banjo and Fiddle* by William Kroll. The audience thoroughly enjoyed the performance and demonstrated their appreciation in the customary way. Now they were ready for that first lecture!



Many of the new students could be identified by their colourful of distinction that characterizes the official ITC opening ceremony



Prof. Tom Veldkamp

Opening Speech

Prof. Tom Veldkamp, Rector/Dean

Following a proposal by the UN Secretary-General, the General Assembly had decided to convene an important summit in New York from 20 to 22 September, with the primary objective of accelerating progress towards all the Millennium Development Goals (MDGs). The goals in question are to: (1) eradicate extreme poverty and hunger, (2) achieve universal primary education, (3) promote gender equality and empower women, (4) reduce child mortality, (5) improve maternal health, (6) combat HIV/AIDS, malaria and other diseases, (7) ensure environmental sustainability, and (8) develop a global partnership for development. As Prof. Veldkamp explained, "These goals were set several years ago and should be met by 2015. But the question is are we going to meet them. As usual money enters the frame, but they were talking about the progress made. So how do we measure

this? How do we know if anything has actually been achieved in the last years?"

"If you look at these goals," the rector continued, "for ITC some are more relevant than others. With our expertise in geo-information systems and remote sensing, a lot of our research is related to food security and environmental sustainability. Also the way in which we operate our capacity building contributes to goal 8. But what is actually the target? The whole thing about the MDGs is the emphasis on the poorer countries – on Africa, Southeast Asia, and to a lesser extent Latin America. The problem with the approach is that the countries themselves are expected to achieve this."

Generally speaking, this is not considered feasible, especially in the case of African countries, and progress reports tend to support this view. Indeed, if the predictions prove correct, little or nothing will be achieved in Africa by 2015, at least in Sub-Saharan Africa, although Southeast Asia will fare a little better. "But," asked Prof. Veldkamp, "is this a fair indication of the real achievements. What is actually measured to monitor progress? If you look again at the MDGs, you can see that goals 1 to 6 relate to humans: human well-being, human health, human education, human nutrition. So humans are the unit of analysis. But what do we know about humans? Well, the typical data source is the census, and census data are typically collected once every decade. Rather difficult, then, to measure progress over 15 years based on possibly just one census. The World Bank data are usually depicted in a global map, highlighting countries suffering from extreme poverty in red. Looking at Africa, many countries in this continent are indeed shown in red, but yet another problem can be identified: the problem of no data at all. Furthermore, if you look at the country units, people don't live uniformly distributed in a landscape." This problem can be compounded by the variety in census units: whereas one may represent three-quarters of the country, another may represent only a few square kilometres. "So how do we treat these data. Are we going to average them by number of people? by square kilometres? by administrative unit?" asked Prof. Veldkamp. "Well, you can take your pick, but you'll get different results.



national costumes, adding that touch

Moreover, the MDGs are targeted at the poorest people, and the poorest people are refugees, landless people who are not in the census. So what are we really monitoring?"

Now turning to Brazil and the Amazonian forest, the rector moved on to the benefits of remote sensing data in detecting deforestation. But even here the story is complicated, with discrepancies between the interpretations of remote sensing data and the hotspots of deforestation delineated on maps by a panel of experts. Add to the mix census data and the complexity increases. And then there's the question of perspective. Is deforestation good or bad? The Indians living in the forest want to maintain their living environment, the forest, whereas those living in cities such as São Paulo want to have food, preferably cheap food, and consequently land needs to be cleared for agriculture. And of course the MDGs are all about people. "Census data are based on interviewing local people, so apparently people do live in these areas and they report deforestation. But experts tell us it's not happening; remote sensing data tell us it's not happening. So again, if we consider deforestation as a measure of achieving MDGs, we already have a problem ... or maybe a solution. Here politics enters the arena: you can choose those data that suit your purpose." And this is not a situation confined to Brazil and Africa. There is huge disagreement in data even in Europe, which is supposed to have good data sources. Environmental sustainability, sustainable

food – tradeoffs have to be discussed and considered, and choices made. Moving from the MDGs to the goals of ITC, Prof. Veldkamp went on to say that the spatial dimension of sustainable development was often forgotten, even by the UN, but it was an integral part of the work at the Faculty. He also emphasized the need for collaboration and took ITC's joint education programmes as an illustration. "We have joint education programmes all across the world but, if we want to make a difference, we should focus on those countries where the human development index is low, because we have to make choices as well. We are only a limited faculty and unfortunately we cannot serve the whole world. But we can at least serve those countries where we can make difference."

So uncertainty needs to be addressed in order to make sense of data acquired from different sources, and this is the challenge facing ITC students. "You will learn to be critical," said the rector, "and will develop the skills to present the data in a better way. You could say we have a problem in terms of MDGs. There is a huge gap between the target units (humans) and the chosen unit of impact or evaluation (usually countries), and consequently there is considerable potential for data misuse. I hope you will learn to be your government's conscience. We are only a step in your long career; I hope you will learn a lot here and use it wisely in the future."



We are only a step in your long career; I hope you will learn a lot here and use it wisely in the future.



Speaking on behalf of the Student Association Board, Mr Nesru Hassen Koroso

Student Association Board

Speaking on behalf of the Student Association Board, Mr Nesru Hassen Koroso, the general secretary, welcomed the new students to ITC and to Enschede, explaining that, since 1950, their new home for the coming months had been home to more than 20,000 young, energetic and multicultural mid-career professionals from developing countries. He said that "Education in general needs commitment and dedication, energy and motivation. As we all know, ITC is a centre of academic excellence, but success and excellence come at a price. Both demand hard work – but hard work pays and is rewarding. Those students who adhered to these basic principles completed their studies successfully, and the success re-defined their future. They moved on, and some are now at the top of the ladder in their professional and scientific pursuits. This is why we are here: we are going to follow the route charted by our predecessors and sail until we reach the same point – or even move beyond in order to make new discoveries. It is possible. Let us dream big."

Mr Koroso went on to say that ITC had made an enormous contribution towards

capacity building in developing nations. The skills acquired by ITC students had helped them to play a part in developing their respective countries and empowering their societies, as well as play prominent roles on the international stage. Nevertheless, Mr Koroso did not deny that the new students, particularly those who had left their country for the first time to study abroad, might encounter challenges and difficulties. Still, "I can bear witness that here at ITC, in the middle of fellow students from all over the world and lecturers and staff members of more than 20 nationalities, you will feel warm, comfortable and relaxed. ITC is a home away from home."

Turning to the study aspect, he continued, "The nature of the courses is very demanding. They will tax your strength but they cannot break you. Rather they will build you both physically and morally. What is interesting is that you will all emerge stronger. Simply look at the leaders and prominent figures around you, and those who are making a big impact in the areas of geo-information and earth observation: you will find ITC graduates. When things become tougher, you will find yourselves growing stronger, and eventually you will emerge as the winners. Keep this in mind!" And, as Mr Koroso stressed, it was not all work at ITC. There were also great opportunities to learn about different countries and cultures, to visit various places in the Netherlands and other European countries, and to benefit from the many extracurricular (sports and social) activities that make the stay both enjoyable and memorable.

As he brought his speech to a close, Mr Koroso said, "Following the merger with UT, the level at ITC has even moved several steps higher. The resource base we can access and use has become broader; the excellent services are becoming even more comprehensive; the student and alumni networks are growing even bigger. This is a happy and historic moment for all of us – a wonderful opportunity. Let me say welcome to the new students once again. I wish you success in your study and personal life, and I would like to thank ITC and UT for making the dream of so many of us come true."

ITC Research Award 2010

It was now the pleasant duty of Prof. Veldkamp to present the ITC Research Award for 2010. This award is presented annually to the best ISI publication by a PhD candidate at ITC. This year 13 papers were nominated and, based on the abstracts, a shortlist of four papers was drawn up by a panel comprising one Academic Board member per department. The shortlisted papers were then assessed by a jury consisting of Prof. Tom Veldkamp (chair), Prof. Freek van der Meer, Prof. Martien Molenaar, Prof. Martin van Maarseveen, Dr Sander Oude Elberink (winner of the Research Award 2009) and Dr Paul van Dijk (secretary to the jury). The main assessment criteria applied were innovation, scientific level, multidisciplinary and practical significance.

Prof. Veldkamp announced that the winner of this year's award was Ms Si Yali, for a paper entitled *Spatio-temporal dynamics of global H5NI outbreaks match bird migration patterns*. The paper, which had seven co-authors (Skidmore, Wang, de Boer, Debba, Toxopeus, Li and Prins), had been published in *Geospatial Health* in 2009. The jury reported that the paper was well written, good science, innovative, and with a quite balanced multidisciplinary approach. "This combination deserves a compliment be-

cause multidisciplinary research is quite often lacking in one way or another. The article is also inviting to read for relative outsiders, and it concerns a very interesting and relevant subject, with a global significance that transcends the division in developing/developed countries."

The jury had also made some critical remarks, observing that the innovation lay in the type of study, trying to link bird migration patterns to diseases¹, whereas in terms of methods and analysis, innovation was only limited. Together with the limited samples, this results in many qualitative conclusions. "Nevertheless," continued Prof. Veldkamp "the strength of the paper lies in the fact that a new approach to a very complicated spatial problem has been explored. In such a case, it is no mean feat to obtain reliable correlations, and the jury compliments you on the innovative and multidisciplinary approach that has brought you the ITC Research Award 2010."

With that, Prof. Veldkamp presented Ms Si Yali with a certificate, a cheque for €1,000 and an enormous bouquet of flowers, while the audience added their own congratulations with a warm round of applause.

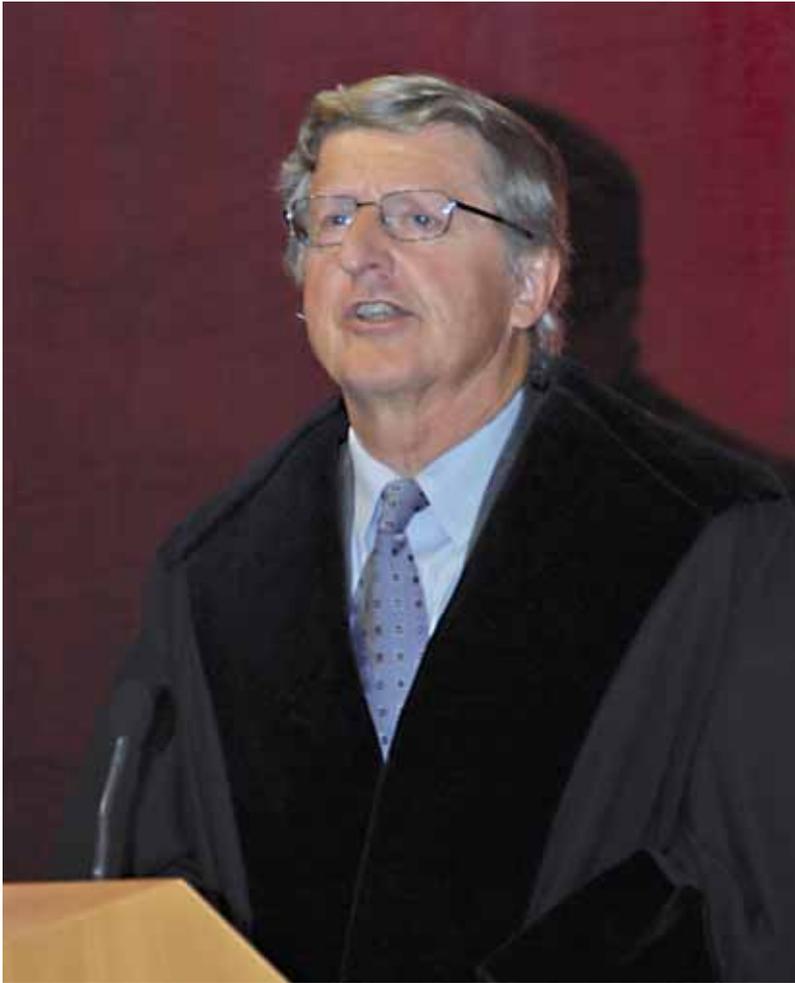
¹ Note: Web of Science has 60 hits for bird-migration-disease.



Ms Si Yali, 2010 Winner of the ITC Research Award



Prof. Veldkamp presented Ms. Si Yali with a certificate and a cheque.



Schermerhorn Lecture was given by Professor Michael Frank Goodchild

Schermerhorn Lecture

Professor Michael Frank Goodchild

"Twenty years of progress:
GIScience in 2010"

"I'd like to talk about the past 20 years," began Prof. Michael Goodchild, "because this term *geo-information science* was coined in Zurich in 1990 and in a paper in 1992. So this gives us an opportunity to look at some of the things we've discovered over this time and also to look forward. Let me start with the geo-information system, an idea dating back to 1965, which can be defined as a system to acquire, store, transform, analyse and share geographic information. It can do virtually anything that you can think of doing with geographic information, and is routinely used in the social and environmental sciences. Geographic information is information about specific characteristics of places, locations on the Earth's surface. So if I were to say that the temperature here today was 20°, this would

be a geographic statement. The one thing that we've often not considered is that geographic information can also refer to pairs of places – properties such as the distance between places, the interactions between places, the social networks and communications that exist between places. And this, I think, is where the power really lies."

Prof. Goodchild went on to present some interesting examples of work that illustrated this power. In the first case, the Los Angeles locations of industrial plants registered with the Environment Protection Agency because they emit above-threshold levels of toxic substances into the air had been mapped onto a city map indicating the locations of the dominant ethnic groups. This revealed that the principle of environmental equity or environmental justice (the principle that people should experience equal shares of environmental pollution) was clearly not being upheld, with a relative scarcity of environmental pollution in the areas dominated by the white community.

In the second example, Prof. Goodchild presented a map of the United States showing deaths due to cancers of the respiratory system among white males in the period 1950-1969. "And what you're immediately doing," he said, "is looking for patterns – asking yourself what do I know about the counties that are particularly high in respiratory cancers. It happens in Montana, in Butte, which happened at the time to be home to the world's largest copper mine. It was the breathing in of that dust in the copper mine that produced, years later, the rates of respiratory cancer seen on the map." The map further revealed high cancer mortality rates around ports – around San Francisco, around the Gulf coast, around the East coast – indicating the aftermath of the construction of liberty ships during World War II, when large amounts of asbestos were used in this work. The medical records identifying this link were literally the smoking gun that led eventually to the banning of asbestos as a construction material, because the breathing in of asbestos fibres produces, in the long term, cancers.

"And perhaps most famous of them all was the map made in London in 1854 by

Professor Michael F. Goodchild

Michael Goodchild is professor of Geography at the University of California, Santa Barbara, and director of spatial@ucsb. He received his BA degree in Physics from Cambridge University, Cambridge, England, in 1965 and his PhD in Geography from McMaster University, Hamilton, Ontario, in 1969.

After 19 years at the University of Western Ontario, he moved to Santa Barbara in 1988. He was director of the National Center for Geographic Information and Analysis from 1991 to 1997. He was elected member of the National Academy of Sciences and Foreign Fellow of the Royal Society of Canada in 2002, and member of the American Academy of Arts and Sciences in 2006. He has received honorary doctorates from Laval University, Keele University, McMaster University and Ryerson University. He has received the Canadian Association of Geographers Award for Scholarly Distinction, the Association of American Geographers Award for Outstanding Scholarship, the Canadian Cartographic Association Award of Distinction for Exceptional Contributions to Cartography, and the Educator of the Year Award from the University Consortium for Geographic Information Science. He has received Lifetime Achievement Awards from Environmental Systems Research Inc. and the Geospatial Information and Technology Association, and has been inducted into the GIS Hall of Fame of the Urban and Regional Information Systems Association. In 2007, he received the Prix Vautrin Lud.

He was editor of *Geographical Analysis* between 1987 and 1990 and editor of the *Methods, Models, and Geographic Information Sciences* section of the *Annals of the Association of American Geographers* from 2000 to 2006. He serves on the editorial boards of ten other journals and book series. His published books include *Accuracy of Spatial Databases*; *Geographical Information Systems: Principles and Applications*; *Environmental Modelling with GIS*; *Scale in Remote Sensing and GIS*; *Interoperating Geographic Information Systems*; *Geographic Information Systems and Science*; *Uncertainty in Geographical Information*; *Foundations of Geographic Information Science*; *Spatially Integrated Social Science*; *GIS, Spatial Analysis, and Modeling*; and *Geospatial Analysis: A Comprehensive Guide to Principles, Techniques and Software Tools*. In addition, he is author numerous scientific papers.

He was chair of the National Research Council's Mapping Science Committee from 1997 to 1999, and currently chairs the Advisory Committee on Social, Behavioral, and Economic Sciences of the National Science Foundation. His current research interests centre on geographical information science, spatial analysis, and uncertainty in geographical data.

Dr John Snow, who was interested in the mechanisms that caused cholera. At the time, he was of the radical opinion that it was drinking water that caused cholera and, mapping the deaths that occurred in the 1854 outbreak, he noticed that they were centred on a particular water supply, a pump in Broad Street. He was able to persuade the authorities to remove the pump handle, and then watch the infection die out. This was primary evidence that cholera was caused by drinking water."

Prof. Goodchild now turned his attention to his own particular field, geographic information science, which in brief is the systematic study of fundamental issues raised by GIS and implemented in GIS. "It's what we think about when we use GIS, so it asks questions such as how do we get these data? where do they come from? how can they be structured? how accurate are they? and how do we protect the privacy of the people involved?"

Ernest Shackleton took six chronometers on his expedition to the Antarctic in 1914; five failed and if the last one had failed too it is undoubtedly true that he would not have been able to navigate across the passage to South Georgia and rescue his team. Today there is GPS, which can be put into a wrist-watch, a PDA, a mobile phone, and which has changed the perception of geographic information from something found on a map made maybe 20 years ago to something live, real-time, fed through the internet. These days people can track a bus on the Web and go to the bus-stop when it's due to arrive. Or see when a flight is due to arrive at the airport. No need for unreliable timetables, real-time maps are available – personal maps for specific purposes.

"In southern California," continued Prof. Goodchild, "we have a problem with devastating fires. Last year a fire started roughly about 4 pm and within minutes a flood of information – tweets, blogs, images published not by experts, not by authority, but by individual people – started appearing on the Web. A group of students got together and were able to integrate – synthesize – all this information into a time map, and it became very true that the average citizen in

Santa Barbara relied on this map rather than on official information. So the message here is that the average citizen is becoming not only a consumer of geographic information but a producer. And in a case like this it is the community in effect that replaces authority. A very powerful and very exciting message for the future of this field."

Taking an amazing example supporting this message, Prof. Goodchild charted the path of the open street map project that started in 2004, the brainchild of a graduate student at University College London called Stephen Coast. He thought it would be a great idea to use the new technologies to produce a free, complete, open, digital map of the world that anyone could use. "The power of this became stunningly evident," he continued, "in Haiti this year, because prior to the Port-au-Prince earthquake in January coverage of the Haitian landscape was extremely poor. But, within hours of the earthquake, volunteers all over the world got together, ransacked the Web to find whatever information they could, and started to produce a street map. One of the difficulties was street names, because you can't see street names on images, so they recruited Haitian ex-patriots in their locality to tell them from memory what some of the street names were." Within three days a map was produced – "so, a stunning example of how the community is becoming an effective source of information, particularly geographic information."

Turning next to the digital globe, Prof. Goodchild said he thought that this was one of the most important areas that had developed recently. To represent the Earth not as a flat distorted map but as a solid rotating sphere, any one of five solids (cube, tetrahedron, octahedron, dodecahedron, icosahedron) could be used as the basis for the modelling process. Using a series of PowerPoint slides, he guided his audience through such a process using the octahedron. "And this takes us, of course, to Google Earth. But let me make a point here about one of the roles of the research community, and that is that we are in effect the police that try to keep the commercial world honest." Ask Google Earth to make a triangle of California–Spitzbergen–the Atlantic

and the Earth is first flattened to draw the triangle and the triangle is projected back onto the Earth. "Totally absurd, but something Google Earth has had as a feature ever since it came out in 2005. The research community has a very important role here: to point out where errors are made in order to ensure that the software we use, the developments we make, are good, honest and true."

But where does this take us in the scientific sense? What have we truly discovered about the world? "I want to talk about two specific discoveries. The first is what we call spatial dependence, which can be expressed as a very simple principle: nearby things are more similar than distant things. We sometimes refer to this as Tobler's First Law of Geography. The second is called spatial heterogeneity and this is the principle that different parts of the world are fundamentally different. It's very difficult to study, for example, a country in Africa and by doing so to discover something that is also true of a country in North America or Europe." To illustrate the importance of spatial dependence, Prof. Goodchild took a street map of an area of Santa Barbara and superimposed available digital maps of the same area. They were remarkably different; there were errors of position. This could have profound consequences if, say, the coordinates of a car accident were transmitted to the ambulance service but when matched to the ambulance database indicated the wrong street. "So a very significant problem arises because we are generally unable to define and measure location on the Earth's surface perfectly."

Now an example of the heterogeneity problem. "Every country in the world historically has created its own maps. And to do so it's had to make assumptions about the shape of the Earth. The Earth unfortunately is a pretty inconvenient shape. It doesn't fit any particular mathematical function well, and so different countries used different systems. It wasn't until the 1950s that there really became a need to use a single system – and of course once you opt for a single system you do not have the best system for any one country. You compromise. And so we have ended up with what is called the World Geodetic System."

Another issue that arises nowadays is privacy. The famous Google van has upset many a community that does not want pictures taken of their houses and streets. And what about disputed boundaries, as in the case of Kashmir? If you access Google IN in India, it shows Kashmir to be entirely Indian. If, however, you access Google CN, you get the Chinese version and a different delineation. "Unfortunately a few weeks ago the wrong tiles were loaded, and the Chinese got the Indian version and the Indians got the Chinese version. This caused an international incident, and of course it drove home just how political cartography can be. The idea that the world is uniformly divided into countries is absolutely unsustainable in case like this."

So what is the central challenge of GIScience? "As I see it," said Prof. Goodchild, "it is to create useful, comprehensive, digital representations of the enormous complexity of the Earth's surface in the limited space of a digital store, using a binary alphabet. Coupled to this is the challenge of understanding what we have left out, because any map, any digital database leaves something out, usually it's detail. Let me make a few suggestions for future study in this field:

- capturing the full 3D complexity of built structures and determining position within structures
- dealing with spatio-temporal information and modelling and predicting future geographies
- integrating data based on geographic location
- dealing with interactions, flows and networks on the Earth's surface
- dealing with the enormous promise of user-generated content (crowd-sourced geographic information)."

"What can we say about how the world will be in the next five to ten years? Because technology is changing very quickly; technology is driving us. First, I think we need to consider the possibility that in the future we will know where everything is at all times. We're already a long way towards this. We already know where every mobile phone is as long as it is turned on; where every vehicle is in many jurisdictions; where every

farm animal is in much of the European Community; where every item is in a Walmart store; where every construction beam is in every new building – all because of the new positioning technology. Imagine that in an emergency we knew where every asset was: every blanket, every bottle of water, every store of food ... particularly, where every potential victim was. These are very powerful ideas. Against these, of course, you have to balance privacy, because sometimes people don't want their location to be known."

"Second, let's think about the technology of dynamics, about real-time continuous monitoring. Instead of maps that were made about ten years ago, let's think about data that is always up to date. Think about the possibility of knowing the state of the world at all times: the state of the transportation network, where every train, every bus is in the Netherlands; the state of human health, where every instance of an infectious disease is in real time; the state of the environment in real time. All this could be enabled by sensor networks. It might be sensors that are static in the environment, that are carried on moving objects such as cars or bicycles, that are carried on humans – in fact, humans themselves might act as sensors."

"Third is the challenge of education in this field. Because as this technology becomes easier and easier to use, the old approach to education, which used to emphasize how to use the technology, is no longer as relevant. It's now possible for a child of ten to use Google Earth, so who needs a course in GIS? I think the question now is what does everyone need to know – about maps, about using Google Earth, about using geographic information. And I think the answer is critical spatial thinking, an understanding of the fundamental concepts behind the technology of geo-information science. I suggest that all of you students, by the time you leave ITC, will be what I call critical spatial thinkers."

"And finally," said Prof. Goodchild, as he neared the end of his lecture, "something very fundamental and profound has been happening in this field, and it is summarized in the word *neogeography*, a term largely

invented by Andrew Turner. Its basic premise is that the barriers between expert and non-expert are breaking down. We are entering an era when geographic information and technologies will be available and used by everyone. And that's a very profound change in the domain of mapping and geography. Another aspect of neogeography is that it emphasizes the personal. We now have the technology to make special-purpose maps that are relevant only to you. What it effectively represents is the engagement of thousands of individuals in the production and use of geographic information. That's a world that we are now entering, a world that is very different, and a world that I personally find extremely exciting."

Earlier, when Prof. Goodchild arrived at the lectern to deliver the Schermerhorn Lecture, he said, "I know it's difficult to talk to a very broad audience but I hope simply that there is something in what I have to say that resonates with each of you in some way." It is safe to say that he fully achieved his objective!

Conclusion

And so the official opening ceremony came to an end, with Prof. Veldkamp thanking Prof. Goodchild for a most inspirational lecture. New geography, new students, a new world with new challenges. But sometimes tradition still manages to have the last word and so it was today. In time-honoured fashion, the rector invited all those present to stretch their legs and attend the reception at the nearby Muziekcentrum, where they could interpret this afternoon's data while enjoying refreshments.



Opening Academic Programme 2010

education news

Advanced Interaction in Collaborative Decision Making: The New Group Decision Room at ITC

Johannes Flacke

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Since this summer, students at ITC have been able to benefit from an innovation in collaborative decision making made available within ITC's education spectrum: the ITC Group Decision Room (GDR). The GDR is a room equipped with cutting-edge technology of interactive surfaces and tangible user interfaces to facilitate hands-on education and research in the field of collaborative spatial planning and decision making. After approval of the concept by the ITC Directorate in 2009, the GDR was developed by a team from the PGM department. First experiences were acquired during this year's advanced modules 12/13 on scenario development and analysis, as well as during two tailor-made courses on environmental impact assessment. The aim is that the GDR will be used as an asset in education and also become a method as well as a subject of research.

Collaborative decision support procedures aim at involving stakeholders with conflicting objectives in decision-making processes. These processes can be structured into a sequence of converging and diverging steps that make use of various consensus-building methods: stakeholders develop alternative planning scenarios, brainstorm jointly on evaluation criteria for certain plans, sketch different plan alternatives, or assign individual priorities and criteria weights during an assessment.

These various steps are paired with a frequent change in working modes, from individual activities to large group collaborations, with the ulti-

mate aim of converging in a consensus decision. The GDR is set up in order to facilitate this process of convergence and divergence during collaborative decision making. Various hardware and software components can be utilized to support the different phases of spatial decision making.

Equipment

The GDR makes use of cutting-edge technology of interactive surfaces and tangible user interfaces. These are large touch-enabled screens and tables used to support stakeholder collaboration through common visualization and spatial information handling. The use of these interactive techniques was motivated by the need to move away from a solo conventional mouse/keyboard input and screen output setting towards a setting allowing multiple people to interact with one other using a single input/output interface and to interact more directly with the content. The

main advantage of interactive surfaces is that the surface is both the display and the input device, which improves the fluidity of the process and reduces the cognitive load of user/content interaction. Furthermore, gathering the people/stakeholders around a table for face-to-face interactions creates a positive collaborative working environment that can positively influence working styles and group dynamics.

Two different types of interactive surfaces are included in ITC's GDR: a large-scale (77 inch) digital whiteboard system mounted on the wall, which can be used for large group interactions, and three horizontal tabletops (32 and 42 inch touch tables) to be used for small group (up to six members) interactions. In addition, a separate computer network will be implemented in the GDR that facilitates the individual input of participants in a decision-making process.



The ITC Group Decision Room, at the foreground two touch tables



Three groups of students collaborating at the touch tables

The touch tables are equipped with recent GIS and planning support software such as ArcGIS® and CommunityViz PSS. Accord™ Enterprise Decision Management Software is running in the GDR for collaborative decision making. Further software included in the room supports group activities such as brainstorming, collaborative mind mapping, digital discussions and cooperative learning.

During the configuration of the GDR, it turned out that current GIS-based software inadequately supports the use with multi-touch surfaces in two aspects: first it allows only single touch input (as with a mouse) not

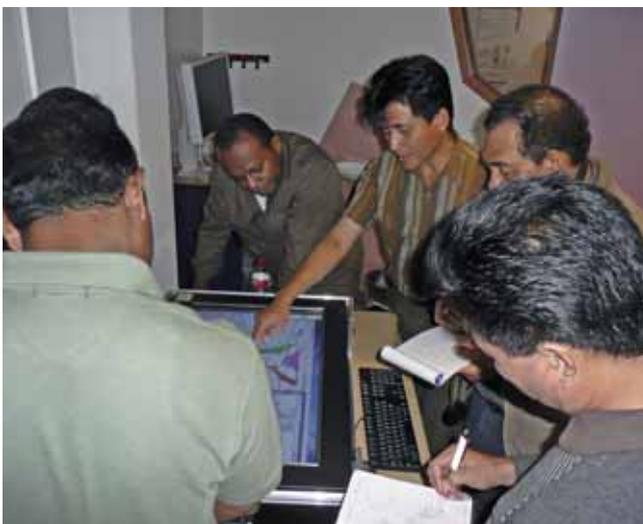
multi-touch, and second the interfaces are not developed to support the use of fingers or pens in terms of usability and sensitivity. The development of adequate interfaces and applications can therefore be seen as an important research need.

The room can host up to 18 students. For larger audiences, it can be enlarged by incorporating the adjacent lecture room. It is foreseen that parts of the GDR may be used at other locations, and even abroad, to form a mobile GDR. Therefore one of the touch tables has been implemented in a flight case as a portable version.

First Experiences and Further Activities

During two GDR sessions, students of two tailor-made courses (page 14) acquired initial experience of the room and its equipment. Taking a railroad redevelopment case in Central Java, Indonesia, the students came to a consensus decision as to which of the two existing but abandoned tracks between Yogyakarta and Semarang should be redeveloped and where to establish stations along the railroad track. The students first used the touch tables to analyse the current situation by visualizing various thematic data layers. By representing the different stakeholders involved in the decision-making process, they next developed a set of suitable assessment criteria, applying a sort of digital metaplan technique using the electronic whiteboard. Then the students went back to the touch tables and started developing different scenarios that they were going to assess afterwards. The entire process was moderated by a PGM staff member.

Feedback from both the students and the two lecturers involved from the NRM department was invariably positive. Students were able to adopt the new techniques quite intuitively. During the touch-table session, it be-



Analyzing the current situation along the tracks



Defining suitable station locations using CommunityViz PSS

came obvious that this form of collaboration around the horizontal tables stimulates the interaction between stakeholders immensely. For the future, it is also planned to record or videotape the (verbal) communication during the interactive sessions, as this information reveals the individual norms and motivations of stakeholders involved in the process.

We hope that the GDR will become a facility regularly employed in various ITC MSc programmes, for example within modules of (urban) planning courses or within the advanced modules. Short courses and further tailor-made courses can also make use of the GDR.

Besides use in education, the GDR will also be a method as well as a subject of research. The main research question is how do the GDR and decision-making processes shape each other? How does the new technique influence decision-making processes and how can decision-making processes be improved by using this kind of technique? Furthermore, the development of adequate decision support tools and software suitable to be used for interactive multi-touch surfaces will be a focus of the research.

The development team¹ recognizes that the GDR could not have been realized without the support of staff from different departments. To avoid the risk of forgetting someone, we want to thank all who, in one way or another, were involved in the process of establishing the room. It was a collaborative session in itself. Thanks!

¹ The team:
Dr Johannes Flacke, Dr Luc Boerboom,
Dr Ali Sharifi, Ing. Frans van den Bosch,
Ozgun Alan

The official opening of the GDR will be early December 2010. An announcement will be made in due course. If you would like to know more about the GDR and its facilities, and how to use them in education or research, please contact Johannes Flacke (flacke@itc.nl) or Luc Boerboom (boerboom@itc.nl) of the PGM department.

New Inter-Faculty Programme Trains Indonesians

Catherine Ann Lombard (UT News)

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Two UT professors recently joined forces to offer training on environmental assessment for spatial planning. This August, 20 Papuan academics spent three weeks of intensive training at ITC. The group of academics and professors travelled to Indonesia on 22 August to continue the training programme for two weeks.

Dr Karen Buchanan and drs Joan Looijen welcomed faculty members from the State University of Papua (UNIPA) to a tailor-made programme on Environmental Impact and Risk Assessment (EIRA). Most of the students were already professionals working in natural resource management. Looijen is an ecologist specializing in environmental impact assessment (EIA) and strategic environmental assessment (SEA) and has taught at ITC since 1985. "I'm almost part of the

furniture," she said. "And it's great that Karen is back."

Buchanan joined the Twente Centre for Studies in Technology and Sustainable Development (CSTM) at UT in December last year. She and Looijen also worked together when Buchanan was a lecturer at ITC from 1999 to 2003. "Our main purpose in providing this training is to teach good environmental assessment procedures, including risk management," said Buchanan. "We provide the students with methods, tools, and techniques available in the Netherlands and other European countries. We then have the students apply this acquired knowledge directly to their own experiences and area of expertise."

While at ITC, students took field trips once a week. They visited areas re-

lated to SEA for the Space for the River Plan and the Netherlands Commission on Environmental Assessment (NCEA) in Utrecht. Locally, they also paid a visit to the Twente Airport area to assess different scenarios for the regional airfield. "We arranged these trips so students could meet professionals and ask practical questions," said Buchanan, "but also so they could experience other parts of the Netherlands. For some, this is their first trip to Europe."

Saraswati Prabawardani from the UNIPA Department of Agriculture was impressed with the visit to NCEA. "They were so responsible, transparent, and independent when assessing the environment and the concerns of the local community. We could improve at home in this area," she said.



Visit to the Dutch Commission Environmental



Study trip SEA Twente airport

“ This programme has a nice balance,” said Vera Sabariah from the Department of Fisheries. “ We have an opportunity to understand factual cases and software models, visit local sites, and still have time left over to visit museums.”

“ The programme has been more than I expected,” said Yubelince Runtuboi from the Department of Forest Management. “ I am very much impressed with the approach to environmental assessment in the Netherlands.”

This training programme not only unites the Natural Resources Department of ITC with CSTM in the School of Management and Governance, but also brings in their respective Indonesian partners, including the State University of Indonesia, Gadjah Mada University, Unpad, and now UNIPA.

All 20 participants, as well as Looijen and Buchanan, left on 22 August to continue the training at the UNIPA campus based in Manokwari for an-

other two weeks. “ We are hopefully providing these academics with a set of tools and a very practical outcome,” said Buchanan.

Looijen was thrilled to be travelling to Papua as she was born there in 1954 and will be returning for the first time since she was six years old. “ It’s very exciting,” she said. “ I will return to my roots. I’ve been asking my parents about where we were living and have tried to plot their directions on a map. Hopefully, I will find where I grew up.”

This isn’t the first time that Looijen and Buchanan have collaborated. Last April they co-designed and conducted a training programme on SEA and spatial planning for 18 participants from the Indonesian Ministry of Home Affairs. One afternoon was spent bicycling to the Lonneker windmill. “ With all the preparation, you’d think we were going to the North Pole!” laughed Buchanan. “ It was a lovely experience and the students felt that they were really in the Netherlands once they rode their bicycles.”

“ The participants in April were mostly from Java and other western provinces. This is the first time participants from Papua are attending our EIRA course,” said Looijen.

Papua is the largest province of Indonesia, comprising most of the western half of the island shared with Papua New Guinea. Ecologically, Papua is mostly a tropical rainforest with vast biodiversity. Not only does it have the tallest tropical trees, but also the world’s longest lizards (Papua monitor lizard) and the world’s largest butterflies.

Risk assessment of natural resources is essential in this region as ecological threats include logging-induced deforestation, forest conversion for oil palm plantations, the extraction of gold and other minerals, and water pollution from oil and mining operations. Papua’s ancient rainforests have recently come under an even greater threat of deforestation after the Chinese government placed a \$1 billion order for 800,000 cubic metres of the threatened rainforest timbers (used in buildings for the 2008 Summer Olympics).

“ We need to figure out how to translate this knowledge into the reality we face at home,” said Alexander Yaku, entomologist from the Department of Plant Protection. “ Most of the time our concern is how to feed people. People can look



Group picture of the participants

at conservation when their stomachs are full. If you criticize a big company, they will try to buy your silence with a high-paying job. It's a challenge to apply this knowledge to our situation."

"Yes," agreed Runtuboi. "We must change our thinking. We must start with ourselves, our families. We must change or we'll lose everything."

"With the help of international attention and pressure, there is hope," smiled Yaku. "Recently, the Indonesian government passed a stricter environmental law. So things are slowly changing for the better. But much remains to be done."

The programme's goal is to have participants become capable trainers in the field so they can enhance education in their universities and local government. "We were informed that our April training programme was hugely successful," said Buchanan. "Many of those participants are already providing workshops in Indonesia."

Looijen is Dutch and received her degrees in Ecology and Ethnology at Groningen University. Specializing in EIA, SEA and the application of spatial decision support tools, Looijen has 25 years' experience in international training and consulting. She has designed and taught more than 50 courses throughout Asia and Africa on natural resource management, remote sensing, GIS and spatial multicriteria evaluation in a regional and spatial planning context.

Since 2009, Looijen has been involved in hazard- and risk-based environmental assessments for natural-disaster risk reduction in Georgia. "Working with professionals from all over the world is one of the major advantages of being at ITC," she said. A true ecologist, she rides her bicycle to work every day.



Intensive training at the Group Decision Room



Study trip Medco oil palm plantation

Buchanan, 41, is British and lived, studied and worked in places as diverse as Cincinnati, Oxford, Zurich and Exeter before first coming to Enschede in 1999. "The Netherlands has consistently provided me with opportunities that I wouldn't have had anywhere else in Europe," she said.

As a chartered spatial planner, Buchanan has worked for a wide range of international organizations and institutes on environmental planning and management projects. Her research area is the political ecology of development planning, where she specializes in socio-ecological conflicts between extractive industries and biodiversity conservation.

As someone who teaches environmental assessment, Buchanan had much to say about the BP oil leak in the Gulf of Mexico. "I am shocked at just how much damage has happened in such a short time. It's absolutely heartbreaking. Clearly risk management was lacking. This tragic event only highlights how proper procedures need to be followed and corners cannot be cut."

"It also shows the failings of the regulating bodies, the need to react quickly and effectively, and the government's responsibility." When asked who was ultimately responsible, she responded, "Of course, the oil companies and their sub-contractors. But there is also a collective re-

sponsibility. We all live in an oil-driven society. We all consume petroleum-based products and use non-renewable energy sources as we travel around the world."

Collective responsibility seems to be key for both Looijen and Buchanan in the development of their training programmes. "We hope to bridge the two faculties," said Buchanan, "and link the two campuses. This is our way of making the most out of ITC joining UT."

What is Environmental Assessment?

The central goal of environmental assessment is to ensure that environmental, social and economic information is incorporated in sound and well-balanced decision making. Environmental assessment is on two levels. It can be used for individual projects, such as building a new dam or motorway, as well as for strategic decisions, such as in the case of urban spatial planning.

The process involves analysing the likely effects and impact of decisions, organizing public participation, developing and comparing alternatives, reporting on the public's comments and alternatives, taking the report into account when making a final decision, and informing the public about that decision. Key aspects concerning this process are the quality of information, the transparency of the process, and stakeholder participation.

project news

IUCN Pan-African Freshwater Biodiversity Assessment Programme

Eduard Westinga

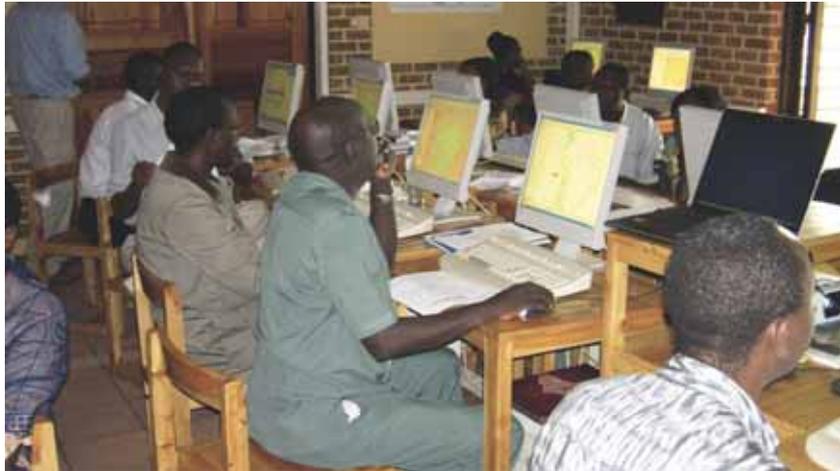
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Twenty-one percent of freshwater species in continental Africa are threatened with extinction, putting the livelihoods of millions of people at risk. With so much to lose, inland waters must be managed not just for their supply of freshwater but also to sustain the abundant life within.

In the most comprehensive assessment of its kind, 5,167 African freshwater species were evaluated by 200 scientists over a five-year period for the IUCN Red List of Threatened Species™, including all known freshwater fish, molluscs, crabs, dragonflies and damselflies, and selected families of aquatic plants. Some of the biggest threats to African freshwater species come from agriculture, water abstraction, dams and invasive alien species.

This study highlights the perilous state of our natural environment and will provide vital information for decision makers as they plan to greatly expand the use of Africa's inland water resources. The results are particularly important for resource managers as, for the first time, species have been mapped to individual river basins.

The International Union for Conservation of Nature (IUCN) helps the world to find pragmatic solutions to our most pressing environment and development challenges. IUCN works on biodiversity, climate change, energy, human livelihoods and greening the world economy by supporting scientific research, managing field projects all over the world, and bringing governments, NGOs, the



Exploring data in Rwanda



Data capture with mobile GIS in Senegal

UN and companies together to develop policy, laws and best practice.

As part of the project Integration of Freshwater Biodiversity in the Development Process throughout

Africa: Mobilizing Information and Site Demonstrations (EuropeAid/ENV/2004-81917), ITC's Hein van Gils and Eduard Westinga organized four regional courses in Africa:

Location	Partner	Demo site	Training lab
RSA	SAIAB	Total Area	Rhodes University
Rwanda	IUCN AERO	Rusizi	CGIS-NUR
Senegal	Wetland International	Gambia River	CSE
Tunisia	IUCN Med	Moulouya	Hotel

During the one-week courses, a total of 85 participants were trained:

- RSA: 14 participants from RSA, Mozambique, Angola, Zimbabwe, Botswana, Namibia, Zambia
- Rwanda: 18 participants from Rwanda, Burundi, DR Congo
- Senegal: 20 participants from Senegal, Gambia, Guinea, Guinea-Bissau
- Tunisia: 33 participants from Egypt, Libya, Tunisia, Algeria, Morocco.

The content of the GIS training consisted mostly of hands-on practical work in ArcGIS and ArcView, with short presentations on theory. The practical modules were customized using the regional database data and

demo area. The customized modules were Introduction to Arcmap, Visualization, Coordinate Systems and Map Projection, Mobile GIS and Exploring the IUCN Database. On request, additional training was given in attribute tables, DBMS, spatial analysis, protected area delineation and environmental impact assessment/larger urban zones.

The four regional courses were successfully executed and trainees acquired knowledge and skills in spatial operations and visualization with freshwater biodiversity data. These biodiversity data contained information on the location and vulnerability of fishes, amphibians, dragonflies, crabs, molluscs and plants.

For more about this project see:

www.iucnredlist.org/initiatives/freshwater/panafrica
www.iucn.org/media/materials/releases/

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partnership news

Expert Group Meeting on Building Capacity in Transparency in Land Administration in South and Southeast Asia

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On 20 and 21 July 2010, an Expert Group Meeting (EGM) on Transparency in Land Administration (TLA) in South and South East Asia was convened on the campus of Gadjah Mada University in Yogyakarta, Indonesia.

Transparency in Land Administration is the first and foremost training programme under the Global Land Tool Network (GLTN), which is implemented by the Training and Capacity Building Branch (TCBB) of the United Nations Human Settlements Programme (UN-HABITAT) and the United Nations University School for Land Administration Studies (UNU-LAS) of the Faculty ITC of the University of Twente.

In the period 2007-2008, UN-HABITAT and ITC/UNU-LAS, following an EGM with a global focus early in 2007 in Nairobi, developed a training programme comprising a training toolkit and trainer's guide. These were subsequently tailored to implement four training events in Sub-Saharan Africa, attracting on average 30 participants, all in all totalling 114 change agents from 19 different countries.

The EGM in Yogyakarta, hosted and outstandingly organized by Gadjah Mada University, brought together some 25 land experts representing academia, professional groups, civil society and government authorities from Indonesia, Nepal, Pakistan, Bangladesh, Sri Lanka, Laos, Cambodia, Philippines, Malaysia and Vietnam and representatives of UN-HABITAT and ITC/UNU-LAS. The main

objective of the EGM was to provide input for tailoring and fine-tuning the training programme on Transparency in Land Administration to the needs of the South and South-east Asian region.

The EGM programme comprised presentations on land governance and transparency in land administration, including possible tools and capacity building needs concerning the subject, as well as specific presentations on land transparency experiences, challenges and lessons learned within the region. Breakout group discussions allowed the participants to examine in detail the challenges,

ongoing interventions, lessons learned, and recommendations on possible areas of priority and focus for the region. Experts also provided suggestions for customizing the training programme in Asia as regards content, delivery method (including possible case studies), target groups/participants and critical next steps.

Using the EGM results, GLTN partners, UN-HABITAT/TCBB and ITC/UNU-LAS will be able to revise the training programmes to fit the regional context and incorporate the experts' recommendations.



Discussions during breakout sessions continued over coffee and tea



Participants of the Expert Group Meeting on Transparency in Land Administration in South and Southeast Asia

The two training events scheduled this year were:

- TLA training for Southeast Asia at Hanoi University of Science in Hanoi, Vietnam, from 27 September to 1 October, targeting participants from Vietnam, Laos, Cambodia, Philippines and Indonesia
- TLA training for South Asia at Kathmandu University in Kathmandu, Nepal, from 1 to 5 November, targeting Nepal, Pakistan, Bangladesh and Sri Lanka.

Each of these training events accommodated about 25 participants and the focus was on the training of trainers. It is envisaged that by targeting potential "trainers" the relevant follow-up actions after the training will be much easier to undertake, including re-echoing the training itself, the use and adoption of the training guides by individuals and organizations at country level, and mainstreaming in general.



Our Hope for
Humanity
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Human Sensor Web

Communication Department

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The Human Sensor Web (HSW) is pioneered by a consortium of three partners: the Faculty ITC of the University of Twente, the Twente Institute of Mobile Communications and 52°North for Geospatial Open Source Software GmbH. It was implemented in Zanzibar by the Zanzibar Water Authority (ZAWA) with two local partners: Zantel, the mobile telephone company partly owned by the Government of Zanzibar, and Inet, a local internet service provider. The HSW is part of the h2.0 initiative of Google.org and UN-Habitat.

The HSW objective is to provide continuous data on the quality of service provision (i.e. water availability and water quality) for selected water points. Data are collected primarily by the user and the water service provider. Traditional water-related surveys such as water point inventories do not capture this type of information. Furthermore, the HSW will serve as a community- and ZAWA-driven information provider on the functionality of public water points.

ZAWA personnel or dedicated community members can send a coded SMS reporting the functionality status of the water point, which invokes a mass SMS to registered community members.

Compliant with the paragraph above, the system continuously monitors water availability and quality at selected water points. At a number of selected monitoring locations, the flow through the tap is electronically monitored in 10-litre units. This is not formally part of the HSW but is to test the reliability of citizen response.

Two methods of data capture are used:

- anyone can report "no water" or "bad water" by sending a coded SMS to the HSW database
- special agents (e.g. ZAWA personnel or a water kiosk owner) can report the return of water.

Recording water meters are used to continuously monitor the water use at a few selected points.

Two types of database are created.

The HSW creates a database of timestamps when water failures and proper functioning are reported. The automatic water meter records the timestamps of every 10 litres of consumption. Unlike other systems, the data collectors are the water users themselves or automatic logging devices.

Since all data are available without restriction via the internet, key users have not been yet defined. In principle, the data are meant for end users, local communities and civil society, to enable them to advocate for better services if deemed necessary. The service provider can use these data to analyse and improve the water service provision, whereas the government can use the data for general planning and reporting on progress towards the water-related MDG targets.

In theory, the HSW can be easily up-scaled. However, there are some constraints:

- The technology may not have enough capacity for massive use.

- If the HSW user has to pay for the SMSs sent out, massive use may prove very expensive.
- The Zanzibar experience has shown that just making the system available is not enough for success.

Educating HSW users is an absolute necessity but is also time-consuming. Per water-point meetings with the users need to be organized, communicating the ideas behind the HSW. Whether this personal approach can be replaced by communications through mass media (newspaper, radio, TV) is not known. Technical

upscaling is foreseen in a later phase: the software will be transferred to an Android/Google environment, with a user-friendly interface that allows the system to be adapted to other requirements, such as health, education or environmental monitoring. Furthermore, the use of a voice-directed system is planned.

For more information on the human sensor web:
<http://geonetwork.itc.nl/zanzibar/>

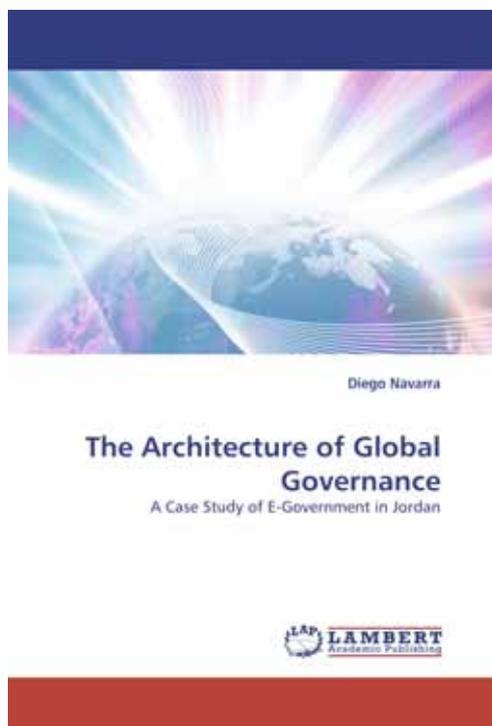
announcements

The Architecture of Global Governance: A Case Study of E-Government in Jordan

Diego Navarra

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This book offers a distinctive perspective on the role played by the transfer of the technology of e-government and international development policy, as it brings into being a new architecture of global governance and, in the broader context, of the interplay of technology, geography and politics in Jordan. Yet this study concerns not only the Jordanian government but also the world order at large, indicating how the transformations taking place in contemporary public sector governance are redefining the nature of the state and driving its globalization. We conceptualize these transformations as global ICT programmes, defined as new and universal modes of organization mediated by technology and enacted through a novel mix of policy instruments, international institutions, business interests and technological/managerial concepts.



About the Author

Dr Diego Navarra is assistant professor of Geo-Information and Governance in the Department of Urban and Regional Planning at the Faculty ITC of the University of Twente. His research and experience cover such topics as e-government, geo-ICT, land information systems, spatial data infrastructures and decision support systems, satellite systems, and 3D virtual globes

First ITC Student Wins Prize for Best Thesis

Robbin Engels (UT News)

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Even though the soil scientist couldn't understand many of the Dutch speeches at the Opening of the Academic Year on 6 September, Matthew Ofwono, one of the six winners of the *scriptieprijs*, listened to the praise in English from Rector Ed Brinksma: "The jury was particularly impressed by Mr Ofwono's thorough analysis of his results and by the uncertainty analysis which makes the thesis a very complete study."

The University of Twente rewards outstanding master students for their achievements by issuing an award (*scriptieprijs*). The UT Graduation Prize, consisting of the sum of €1,000 and a certificate, succeeds the ITC MSc Award for best MSc thesis. The six faculty winners received their awards during the Opening of the Academic Year

With his research conducted on the Tibetan Plateau, he is the first master student from the new UT faculty to be awarded the prestigious *scriptieprijs*. According to the 34-year-old researcher, who used to walk barefoot to his elementary school (a school that had no desks or electricity), winning the prize came by "the grace of God". His thesis topic falls in line with Brinksma's own keen interest in sustainable living and the study of climate change. From the age of eight, Ofwono helped his family with outdoor "domestic duties", so it comes as no surprise that he developed an early ambition to research the subject.

Ofwono says that, up to now, the school in his home city of Torono in Sub-Saharan Africa, hasn't really changed. He estimates that 90 percent of the people live as peasants, and the other 10 percent live an "average" life, where nobody is lauded as being rich. "Sometimes you wonder why you are there. You are not supposed to be there, but you can't do much about it. We are peasants. I ploughed my father's rice fields to earn money to attend school. It's not a nice job. It was paddy rice that was grown in water, so moving the oxen through the water was difficult. I wasn't a big person. I was a small kid."

Ofwono earned his bachelor's degree at Alexander University in Egypt.

"When I went to Egypt, I was amazed by the fact that it is mainly a desert yet they produce more food than in Sub-Saharan Africa where there is considerable rainfall." This sharpened his interest to study soil and water issues. He wondered, "How can a desert have plenty of food, yet back in Africa, if it is the dry season, the crops fail and people are hungry?" The difference, he learned, was due to a well-developed irrigation system that was not dependent on weather patterns.

Ofwono, together with his supervisor, Rogier van der Velde, derived land surface temperature and soil moisture data from sensor satellite images taken from space. The instruments measured the brightness temperature of the Earth's surface.

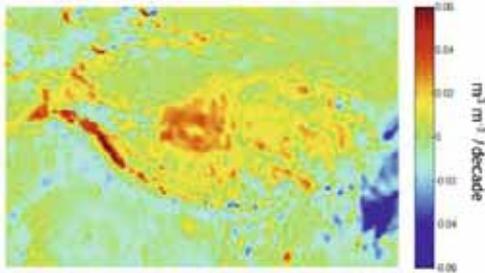
Later, by using algorithms, the data were converted to show the land surface temperature and the level of moisture in the soil through a software program called Interactive Data Language. "Once we had collected the data," explained Ofwono, "we performed a time series analysis. Basically, after you get the first images, you then layer all the other images on top. So, let's say, from 1998 to 2008 you can begin to notice cli-



Ed Brinksma, UT Rector Magnificus, presented the Graduation Prize to Matthew Ofwono during the ceremony marking the Opening of the Academic Year

mate changes in this area." "In 2006," interjected Van der Velde, "we buried devices in the soil to collect ground measurements of soil moisture and soil temperature." Both researchers showed graphs with the final results, which indicated that over the last 20 years significant climate changes had taken place in the central Tibet region. (See illustration below)

Soil moisture trend over Tibet from 1987 to 2008



The big question is, of course, whether the researcher can continue to study the causes behind climate changes on the Tibetan Plateau. "I want to find out what proportion of the increase in moisture is caused by precipitation and how much is caused by the melting of glaciers. I would like to study the melting rate of the glaciers," said Ofwono. "In fact, I could get my PhD at ITC, but there are no funds to support further study.'



The six faculty winners received their awards during the Opening of the Academic Year.

H2.0 Platform Launched: Monitoring Services to Inform and Empower

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The h2.0 platform was launched on 9 September 2010 during Stockholm World Water Week. The new, on-line, participatory multilevel monitoring platform was demonstrated by showcasing some of the striking findings emerging from the innovative monitoring methodologies piloted through the h2.0 initiative.

The Faculty ITC of the University of Twente has joined with 52°North and

the Twente Institute for Wireless and Mobile Communications as partners in h2.0 to address the pertinent need for empowering communities in East Africa to effectively obtain adequate provision of water services and sanitation. The h2.0 initiative is testing innovations in water and sanitation monitoring and seeking to put in place powerful and effective monitoring systems on a global scale. The vision guiding h2.0 is that access to

reliable, specific and well-presented visual information on water and sanitation services can improve sector advocacy and accountability between service providers and consumers. The vision is not only to provide tools that service providers can use to better manage services, but also to create a platform in the public domain through which citizens can access meaningful information on WSS service provision, and so enter into dia-

logue with service providers on its improvement.

The platform is a work in progress, and will continue to develop its functionality and data content. You are encouraged to come back regularly to see how it evolves, or connect to our RSS feed to be alerted about new content.



For more information on the h2.0 platform: www.h20initiative.org/

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Alumnus Receives Nepal Academic Award of the Year

ITC alumnus Ganesh Prasad Bhatta was presented with the Nepal Academic Award Medal 'B' by the Right Honourable President of Nepal on 8 September 2010.

Ganesh received an ITC master's degree in Geoinformatics in 2004 and graduated in March 2010 with an MSc in Land Administration with a thesis entitled "Assessing land reform approaches to benefit socially and economically disadvantaged (SED) people". After Ganesh returned back home, he was given the opportunity to contribute to land issues, especially policy issues, at the Ministry of Land Reform and Management. This opportunity has enabled him to use the skills and knowledge he gained at ITC.



Ganesh: "I am happy with the award and heartily acknowledge ITC for all the success I have achieved in my professional career."

visits to ITC

Lusaka Agreement Task Force Plans to Adopt the Wildlife Enforcement Monitoring System

Remi Chandran

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On 6 and 7 September 2010, the director of the Lusaka Agreement Task Force (LATF), Mr Bonaventure Ebayi, paid a visit to ITC. The purpose of the visit was to discuss a joint collaboration between LATF, the United Nations University and ITC in research and in the implementation of the Wildlife Enforcement Monitoring System (WEMS) in Africa.

The Lusaka Agreement is a multilateral agreement to which seven African countries (Kenya, Tanzania,



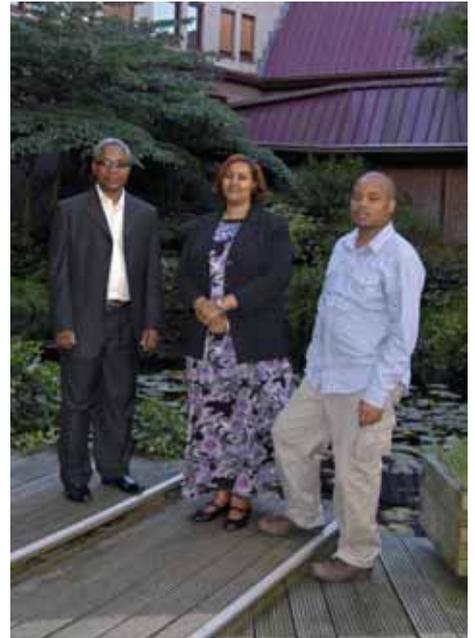
Group picture of the participants

Uganda, Republic of Congo, Lesotho, Liberia and Zambia) have signed up, and its main objective is to strengthen enforcement of, and compliance with, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Africa. The agreement involves a governing council that is composed of members from the seven countries and constitutes LATF.

With the burgeoning illegal trade in wild flora and fauna, LATF is now mandated with increased information sharing between the member countries. The current format of information collection and sharing has its constraints, as the system is based in the LATF headquarters in Nairobi, Kenya, and the parties send the information in the form of e-mails and paper documents. Recently, the LATF Governing Council decided to enhance the process of information sharing and plans to adopt the Wildlife Enforcement Monitoring System (WEMS) project.

Considering previous cases of failures in transboundary information systems, it will be important to research the WEMS adoption process within LATF regions and understand what other factors influence the flow of information, including technological, social, cultural and governing factors. The Department of Urban and Regional Planning and Geo-information Management at ITC will carry out research studies in this respect and will bring out peer-reviewed publications related to the study. The pilot research runs from September 2010 to December 2014 and has three phases:

- Phase I runs from September 2010 to December 2011 and involves only three countries: Kenya, Tanzania and Uganda.
- Phase II will involve three more countries (to be decided by LATF) and will run from January 2012 to January 2013.
- Phase III will involve all the LATF member countries and will run from January 2013 to December 2014.



Delegation of Lusaka Agreement Task Force



The LATF Governing Council plans to adopt the Wildlife Enforcement Monitoring System (WEMS) project

Director of LATF Mr Bonaventure Ebayi:

“The implementation of WEMS as a spatial data infrastructure for monitoring wildlife law enforcement is a key step forward in meeting the policy requirements mandated by the Lusaka Agreement. We hope ITC will be able to assist LATF and Africa through research and development with regard to the WEMS-Africa initiative.”

Thai Princess Visits ITC

On Tuesday, 5 October, HRH Princess Maha Chakri Sirindhorn from Thailand paid a working visit to ITC. It was the third time that Her Royal Highness had visited ITC. She was welcomed by Tom Veldkamp, rector/dean of the Faculty ITC, Kees van Ast, vice-chairman of the Executive Board of the University of Twente, and Martien Molenaar, former rector of ITC.

A tailor-made programme was presented to Her Royal Highness, comprising the following lectures:

- The increasing role of geo-information in agricultural studies (Kees de Bie)
- Model integration and landscape dynamics (Tom Veldkamp)
- Natural hazards and land degradation (Victor Jetten)
- Use of global earth observation and in situ data for enhanced forecasting and decision making in water management (Chris Mannaerts).

At the end of the visit, Ed Brinksma, rector magnificus of the University of Twente, and Tom Veldkamp presented a gift to the Princess.



HRH Princess Maha Chakri Sirindhorn arrives with her retinue at ITC



Phd student Ruamporn Moonjun had the honor to welcome HRH Princess Maha Chakri Sirindhorn by handing over flowers



HRH Princess was welcomed by Tom Veldkamp, rector/dean and ms. Erna Leurink, managing Director of the Faculty ITC



Prof. Veldkamp gave a lecture on "Model integration and landscape dynamics"



Former ITC rector Prof. Klaas Jan Beek was also present during the visit of HRH Princess of Thailand

events

International Students Get to Know Enschede and The Netherlands

Communication department
itcnews@itc.nl

On Saturday, 25 September, about 500 international students from three institutes for higher education in Enschede attended the event International Students Meet Enschede (ISME).

The Saxion premises and square was the venue for ISME 2010, an event organized for over 1,000 newly arrived international students who join more than 2,000 international students already studying in Enschede at ITC, Saxion and the University of Twente.

The international students have given the three institutes something to remember: the result of the workshop Painting on Canvas by Albert Bouhuis. It marks the multicultural environment of the international student community in Enschede. The 5x5m canvas will be on display at Saxion, ITC and the University of Twente.

For an impression of the event, let the pictures speak for themselves!



life after itc

IKANED Professional Seminar: Strategic Environmental Assessment: Views and Experiences in Indonesia

Stephan Widjaja

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More than 30 Dutch alumni participated in the 3rd IKANED Professional Seminar Series in Jakarta on 24 August 2010. The seminar was organized in cooperation with the Faculty ITC of the University of Twente, which already enjoys long-standing cooperation with Indonesian institutions.

The seminar was opened by Mr Marrik Bellen, director of Nuffic Neso Indonesia, and led by Dr Karen Buchanan (assistant professor at UT/CSTM) and drs Joan Looijen (senior lecturer at ITC). After the opening, which was followed by a short review of recent ITC courses for Indonesian students, three ITC alumni were invited to give presentations on their practical experiences in implementing strategic environmental assessment in different regions in Indonesia after returning from the Netherlands. Identifying what the alumni had achieved (impact), what the obstacles were, and what projects are still being planned/undertaken in the context of cooperation with Indonesian government institutions on strategic environmental assessment issues provided some valuable lessons.

Dutch alumni from different institutions, yet with related background/professional experience, responded positively to the interactive discussion held after the presentations and shared their perspectives on the subject of the seminar. There is obviously interest in, and need for, more training from, and/or cooperation with, Dutch institutions. This is one of the objectives of Nuffic Neso



Drs Joan Looijen



Dr Karen Buchanan



Presentation by an alumnus



Reaction by an alumnus from audience

Indonesia in organizing the IKANED Professional Seminar Series, i.e. to provide a platform for Dutch alumni to foster alumni networking, not only in the personal but especially in the professional/institutional context.

The enthusiasm of the participants was such that the discussions with the guest speakers and among the

participants themselves continued even after the Buka Puasa Bersama (breaking the fast) and the informal gathering after the event.

Studying at ITC: My Personal Experience

Moreblessing Shoko

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Three weeks before the end of my master's degree study, I found myself sitting quietly on the balcony in my Benthemstraat apartment and reflecting over the period at ITC. It was a bright midweek afternoon, with a touch of sunlight, and I was chewing over a fruit salad slowly, watching the scenario outside. I smiled to myself remembering the trip from Zimbabwe to Schiphol, filled with mixed feelings and fresh surprises. Then who could forget the train ride to Enschede, which brought my thoughts back to the pronunciation of "Enschede" and how fascinating it was to hear the correct version of the word. I smiled and stood to toggle over my laptop where the twinkling sound of a chat message had broken the flow of my memories. "ITC", I sighed. "It's been a year well spent."

Coming to the end of a phase in life always gets you thinking. You have the answers to a number of questions that boggled you at the beginning; perhaps there could be things you feel you would do differently given another day; but the greatest reality that hits you is that, however long the period may appear at the beginning, time flies.

And when packing time comes you don't want to pack a lot of wishes in those suitcases too. Like the "I should have gone to Paris", "Could have seen more of Enschede" or "Would have learnt to cycle and swim". With the tight weight restrictions on the airlines, your luggage would never have space to accommodate those unfulfilled wishes, so do it while you can!

For most people, getting to study abroad is a great opportunity, but the ITC experience is always greater because you get to visit the entire world in a few months through interactions with over 60 nationalities. It's more than just a study period, it's a cultural exchange too, and it's wise to break free from our comfort zones and embrace it if our hearts allow. I got to know countries and make friends with buddies from places and lands I never knew existed, to taste their food, to learn how they celebrate and dance, to understand what they value and what they fear, and to appreciate more than anything that we are all colourful like a rainbow but we are one world. It makes even more sense at ITC because we are learning about representing the real world anyway!

Personally, when I just arrived, the biggest change I had to deal with, apart from the culture shock of being in a new surrounding, was being homesick. I missed home so much I didn't know how to let go. Calling often made it easier but it was a process. Until I realized that if I allowed nostalgia to grow, I would fail to be the best person I can be and not enjoy my stay. But it's okay to miss home because it shows that you have roots and you are slowly adapting to the change of not being where you are familiar with. Country mates always make it easier, because initially we all find relief with our very own (to be able to speak our mother tongue, and know that we belong), so we keep to familiar circles. But as we split into different classes and modules, you soon make many friends and grow wings to fly.

Then came the modules. In my country, we have a semester-based higher education system and the three-week blocks were something absolutely new to me – let alone the multiple choice at university level, open-book exams and several aspects of the learning process. Because we want to do our best always, we don't realize how much we



Trip to Germany with friends



Trip to Germany with friends

can become “programmed robots” . It’s ITC ... ITC Hotel ... maybe Plus and the market on a weekend ... ITC ... then SAB party ... ITC. Sounds close to home right, and it’s a winning formula if you ask me, but it’s important to give yourself a break as well. Get to know more about our city, Enschede. Know what is happening around you, have a picnic in the park with friends, know why there is a celebration outside, go out for dinner and reward yourself for all the hard work in the modules. It may be hard to create time at first, but learning to relax and enjoy Holland while you are here gives you a feel-good feeling at the end of the day.

I will never forget the snow last winter. It was really my first time to feel snow falling softly on my hair and I loved it. The first time it snowed, I ran outside to take pictures in the snow. Sounds silly I know but you always get to re-live your teens at ITC, or so the joke goes. Though we miss our loved ones much, we get to take a break: no kids to cry “daddy ... homework” or “mummy, can’t find my shoe”, just you and your studies. Now how’s that for a break!



International Food Festival at ITC

There’s a lot to say but the biggest thing is be yourself and do the things you love the most. Then you can look back and say “I had a great experience at ITC” .

All the best with your studies and always!



Moreblessing Shoko (photo Nico Kloek)

ITC Alumni on LinkedIn

Alumni Office

alumni@itc.nl

ITC has built up an extensive network of international contacts with former students, which since the foundation of ITC in 1950 has grown to a community of more than 20,000 individuals spread over 171 countries. ITC’s mission stresses the vital importance of its relations with and consequently its ongoing services to its alumni in their efforts to develop and to strengthen their productive, teaching, and management capabilities.

LinkedIn is an interconnected network of experienced professionals from around the world. An ITC alumnus and the ITC alumni office have created a group community in which you as ITC alumnus/a, student or (former) staff member can share common experiences, passions, interests, affiliations or goals.

At the moment the ITC alumni group has over 700 members and we hope to grow even more. Discussions, news items and job postings are updated regularly by the alumni office or other members. Feel free to join and post interesting topics, job opportunities or connect with fellow group members.



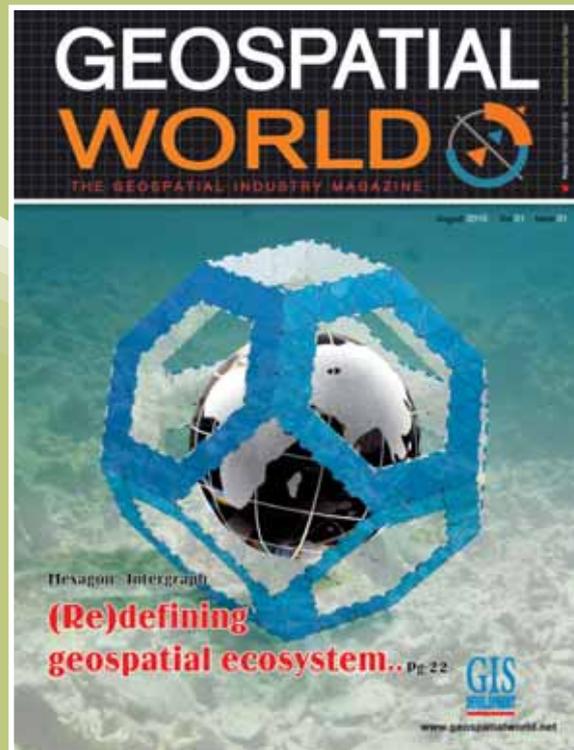
Join the ITC Alumni community at:

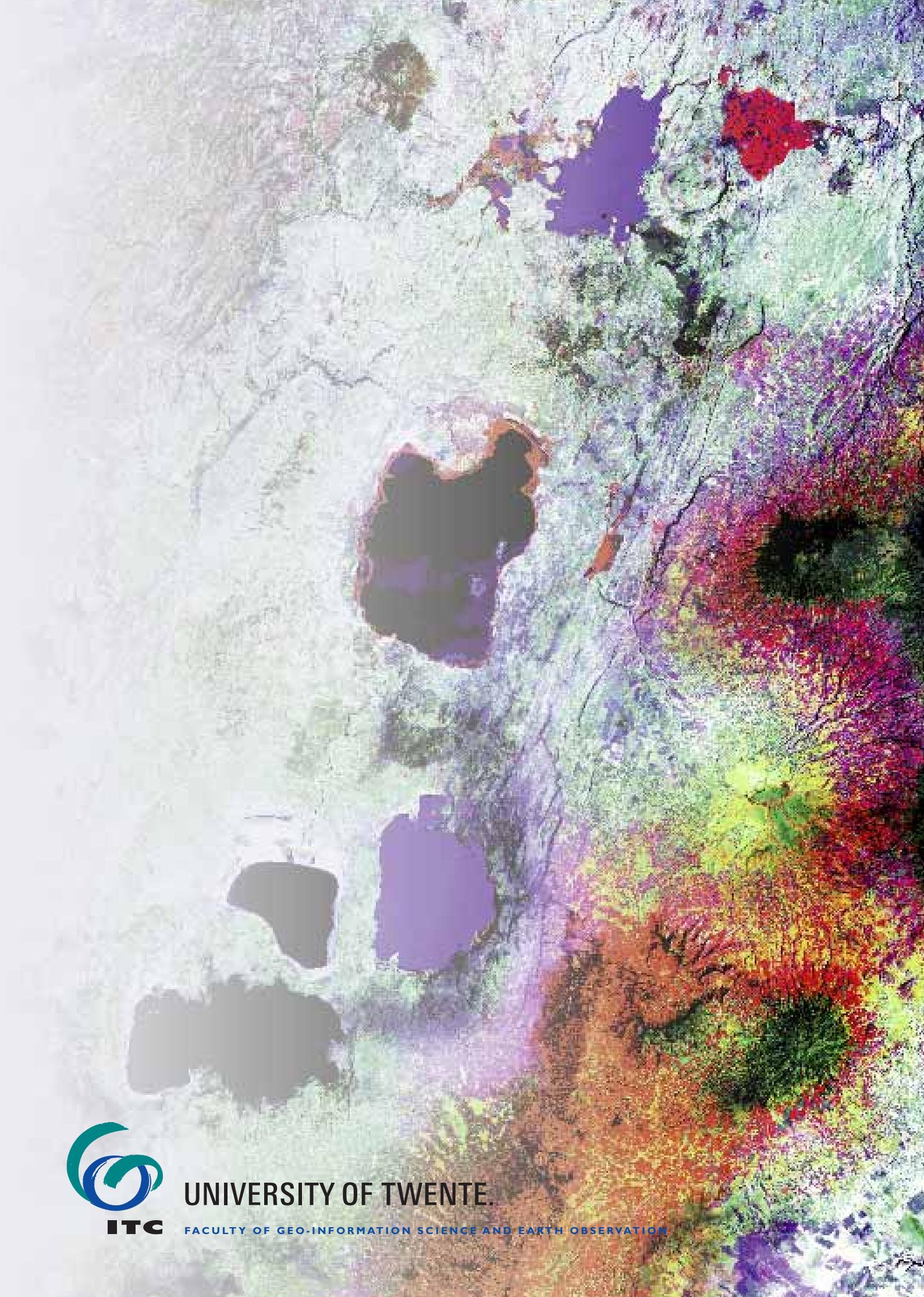
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