

This special edition was realised by  
order of the ITC faculty | October 2014

# nieuws

SPECIAL

# ITC



## BUILDING NEW KNOWLEDGE



Before you lies the ITC-special of UT Nieuws. With this special, we hope to better inform the UT community while at the same time making the reader more curious about ITC by providing a behind-the-scenes picture.

The ITC is in a transition process from being an independent international educational institute towards a faculty of the University of Twente. Technically, this transition is already a fact, which is confirmed by recent educational and research visitations. Luckily, we have a lot in common with the UT community, but we're also fundamentally different because of our mission. Building new knowledge infrastructures and capacity in geo-informatics and earth observation in developing countries through education and research is our biggest motivation.

Our student population is entirely foreign and a large part of the research takes place worldwide, as can be read in this special. As a result, we are a bit less visible in Twente and at the UT. ITC receives many foreign visitors next to their own MSc and PhD students and functions as a global knowledge hub in its discipline.

To be a hub like that, several boundary conditions need to be met. That's why this special also pays attention to the internationalisation of education, what happens in between application and admission and what it's like to live in our hotel.

We expect that our foreseen move to campus will contribute to further integration and the realisation of the internationalisation ambitions of the UT. We are always prepared to share our expertise and experiences with the UT community to assist in the UT's transformation towards a more international university that matters globally in all its knowledge domains.

**Tom Veldkamp en Erna Leurink**  
Dean and Managing Director ITC

## COLOPHON

This journalistically independent special of UT Nieuws was established in collaboration with ITC.

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*The level of ambition at the ITC-faculty is high, dean Tom Veldkamp says. 'We engage in the niche of earth observation and geo-information. And the impact of our domain is growing.'*

TEXT: MAAIKE PLATVOET | PHOTO: RIKKERT HARINK >

'The increased use of mobile applications might be the primary reason for the fast growth of our discipline', the dean explains. 'Even a homeless person currently has a mobile phone and uses satellite information. If you want to profit from this technology, you have to learn, as a university, how to think differently. What you see now, is that the UT is too heavily focussing on regional markets with classic partners such as the known companies. Issues that are researched are primarily Dutch issues. The resulting solutions aren't suitable for a similar problem in Kenya, whereas the social impact there is much larger.'

Veldkamp therefore believes that the UT has to be more global. 'That offers more challenges from a content point of view, because there is a larger market where you can sell and develop your knowledge.'

The dean considers it his duty to make the UT more 'curious' about this global aspect. It was for good reason that he took president of the executive board Victor van der Chijs and dean of the faculty of engineering technology Geert Dewulf to Kenya in August. There, he showed them the technological challenges of a rose nursery. 'What you see is that there are plenty of substantial challenges for our university in these kinds of countries. In education as well as in research. But to that end, the UT has to be willing to take a step. What's happening now is that our ITC-successes are not yet the UT-successes. You have to be willing to take that chance.'

Veldkamp says that if the UT wants to be more visible internationally, it has to be globally active in education and research as well. 'Issues elsewhere in the world have more impact because they are quickly

about life or death. If you build your education and research around that, you matter. The world is becoming smaller and smaller, but you have to want to join in as a researcher.'

### Successes

The reason why the faculty has developed so successfully and may call itself world-leading in her discipline, is because ITC has 'grown alongside the developments in technology', the dean says. 'Added to that, we were able to turn the many cuts in our budget from the ministry for development cooperation into successes. Especially during the last year, we were granted many projects from all over the world. This is why ITC has many vacancies at the moment.' In the meantime, this success also shows in another way: the research visitation resulted in the highest score.

Veldkamp hopes that the move from his faculty to the Spiegel building will not be long from now. 'Clarity about the time frame should be there any time. Our presence would also lead to adaptations in the building. Take the canteen, for example. We call that a restaurant and it fulfils an important function for students, staff and guests of our faculty. Many activities take place there and people eat extensively. In that sense, we are a special community that wants to display our personality in the Spiegel. But next to that, we want to be inviting to the rest of the campus.'

'Consider the world as your playing field', is his message to colleagues at the UT. 'Many UT-researchers are world-famous in their discipline, but let's try to work with global coverage. Only then you can truly matter.'



## ALUMNI@WORK

### EMBASSY IN NEPAL

#### Who?

Chudamani Joshi is special advisor at the Embassy of Finland in Nepal. He graduated in Natural Resource Management in 2001, and finished his PhD in 2006.



Tom Veldkamp, dean of ITC-faculty

‘CONSIDER THE WORLD AS YOUR  
**PLAYING  
FIELD**’

**Finland in Nepal**

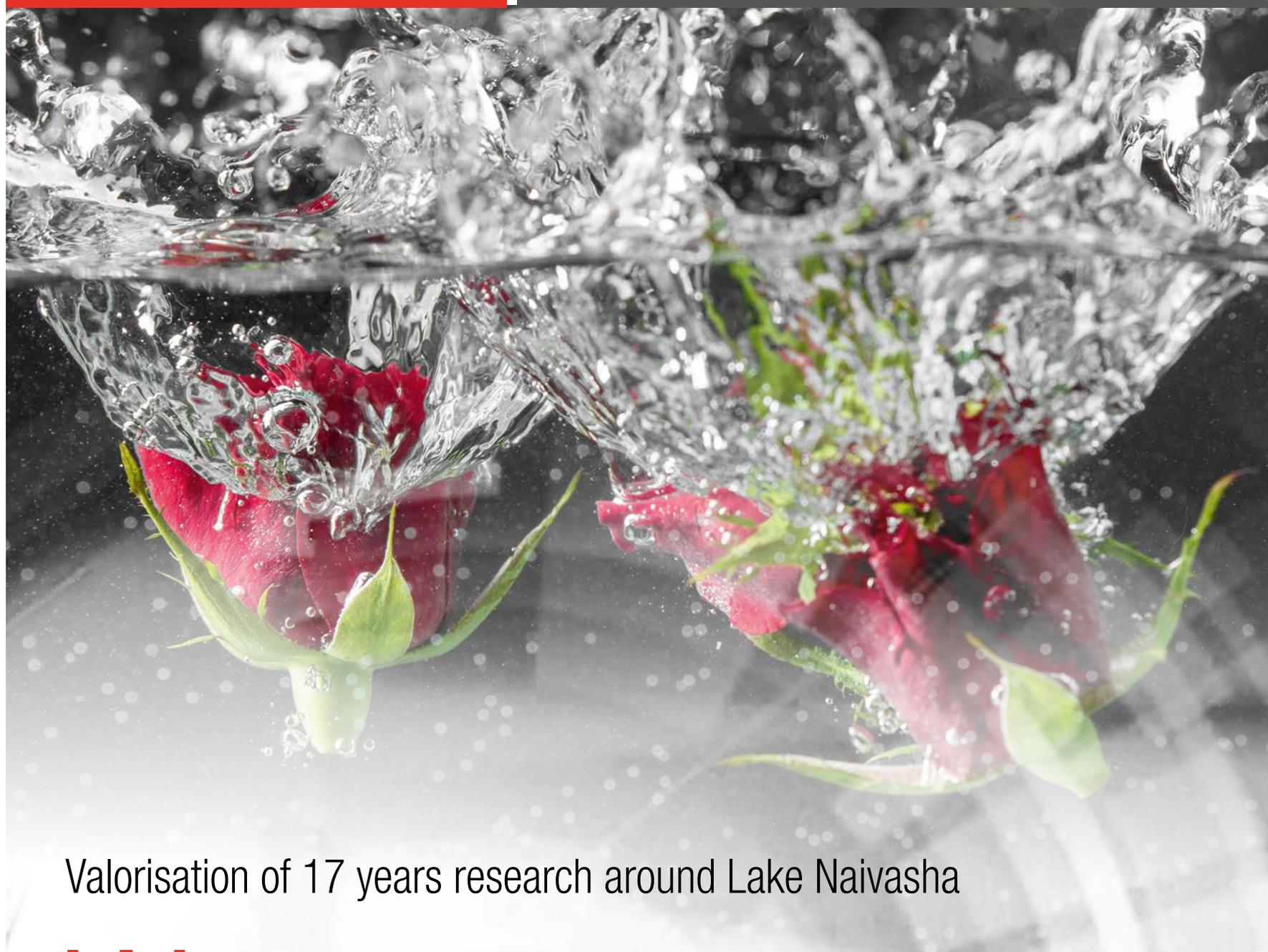
‘I advise the Finnish Embassy on forestry, environment and climate change in Nepal. Nepal is one of the 7 long term development partner countries for Finland. My work includes the supervision of projects, communication with stakeholders and joining diplomatic missions. I use GIS, natural resource management and remote

sensing a lot, for instance to map forest resources.’

**Writing with dust**

‘I came a long way from growing up in a remote Nepalese village to joining ITC as one of the world’s well recognized international institutes. As a child, I had to walk to school for 4 hours, where we would write on

small wooden boards using dust from the floor. We had no electricity and water supply. After a long journey, I got to study at ‘space concurring ITC’ and work for the Finnish government. It was one of my dreams to re-introduce degraded forest ecosystems and to restore biodiversity so that my grandchildren will be able to collect medicinal herbs to purify my aging blood.’



Valorisation of 17 years research around Lake Naivasha

# WATER MANAGEMENT FOR KENYAN ROSE CULTIVATION



ALUMNI@WORK  
IMPACT ON THE GROUND

**Who?**

Lameck Mwewa is the dean of the School of Natural Resource & Spatial Science at the Polytechnic of Namibia. He graduated in Geo-Informatics in 1998.

*Nearly every ITC-department has once gone there: Lake Naivasha in Kenya, where local farmers cultivate billions of roses and string beans for the Dutch market. The region around the lake was the fieldwork area for tens of MSc-students and five PhDs conducted their research there. ITC helps to professionalise its water management. 'A perfect example of valorisation', researcher Robert Becht says.*

TEXT: PAUL DE KUYPER | PHOTO: RIKKERT HARINK >

Around Lake Naivasha, located more than 100 kilometres from the Kenyan capital Nairobi, development collaboration and trade go hand in hand. The Dutch government invests in the region. Dutch and Dutch-

Kenyan companies from the area profit. Approximately forty to fifty cultivators near Lake Naivasha primarily grow roses on their 4000 hectares of farmland, but also carnations, string beans and baby corn for the European market.

Roughly 4 billion roses annually find their way to the Aalsmeer auction. Spring beans and baby corn are in the Dutch supermarkets. 'Lake Naivasha has an enormously profitable industry', according to hydrologist Robert Becht, who has been coming to this region since 1997. 'The nurseries and the surrounding companies offer jobs to 50 thousand Kenyans

and the area has revenues of half a billion to a billion Euro.'

Next to that, Lake Naivasha has a tremendously idyllic environment. Hippos swim there, amongst others, and there are over 400 bird species. The art is to find a balance between this natural beauty and economic development. ITC plays an important role in this. For a few years now, the faculty is responsible for the quantitative and qualitative water management of the lake's surroundings, or: how to make sure that there is sufficient water for all users and that this water is of good quality?

At the moment, ITC is closely involved in the preservation of the entire chain. Dutch supermarkets (Albert Heijn first, as one of the larger buyers of Kenyan roses) signed a contract in which they agree that there will

no longer be non-sustainable fresh produce on the shelves by 2018.

'We have to get to a sustainable management of the production area', Becht explains. And according to the hydrologist, that's easier said than done. 'All companies can be very green and sustainable separately, but when there are many, they can still dry the lake. We have to make a shift from a sustainability label at firm level to a label at the level of the entire catchment area. We have to align all companies and there must be sanctions.'

### Valorisation

According to Becht, the water management at Lake Naivasha is the 'perfect example of valorisation'. Because, next to much appreciation, ITC benefits from it financially. Local companies pay for the faculty's work. To create future independence from financial development aid we're creating a fund to cover the costs of water management. The idea is to deposit a small amount of money per sold rose. Albert Heijn has the intention to join in. When the fund grows, The Netherlands can decrease or even stop the contribution from Development Collaboration.

The faculty has been active in the region since 1997. 'Almost every department has been here with staff or students, although our water department is the epicentre', Becht says. Until 2008, Lake Naivasha wasn't an official ITC-project, but a field work area. In total, approximately 85 master students wrote their theses with the data that they collected around the lake. During the past six years, another five PhDs and postdocs worked in the region. They researched topics as the interaction between water level, land usage and biodiversity, the social economic impact of the lake and political processes in the region. 'Lake Naivasha is a good example of integrated research between social and technical sciences', Becht's colleague Anne van der Veen adds. 'In the area, we combine remote sensing with water research, ecological research, economic studies and governance issues', the ITC-professor elaborates. Becht believes that the broad perspective on the area and the extensive experience is the added value of ITC compared to other research institutions that want to get foothold in Kenya. 'We've been there for so long that we are acknowledged as an important player in the area now. Kenyan politicians come to us for advice. We were able to build that status thanks to our knowledge from all the research that we've done during the past years.' |

### From student to dean

'After I graduated, I started teaching geo-informatics at University of Zambia in Lusaka. From there, I got involved in an ITC-led project to train GIS and remote sensing to people from the ministry of Lands and Resettlement in Namibia. After a while, I was asked to join full-time to assist in the development of academic programs. Now I'm the dean.'

'We are a young technical university. Our faculty started with technology oriented programs. Although we still use GIS and remote sensing throughout all curricula, we also started offering education as land management, architecture and agriculture. We also pay a lot of attention to application of theory as every student has to spend six months in industry. We train professionals.'

### Real developments

'Working with ITC taught me how to use education and research for development purposes. I still collaborate with them, because they really make an impact on the ground and use students, professors and locals to implement actual projects, rather than working on theories. That's so much bigger than just learning informatics.'

History and future of ITC

# OBSERVING IS NOT ENOUGH

*ITC is a world-famous institute for geo-information science and earth observation. Once established to map developing countries from the air, it's now an all-round technology-based centre to map, interpret and monitor many topics that have spatial elements in them. Educational director Alfred Stein fills us in on its past, present and future.*

TEXT: MARISKA ROERSEN | PHOTO: RIKKERT HARINK >

ITC has a special mission on capacity development. Professor Alfred Stein, educational director, clarifies that this mission is noticeable in all of the institute's activities: 'We observe, map and interpret spatial information on, for example, the environment, water and urban areas with a focus on sustainability. Many of our projects are executed in developing countries and we have a high percentage of exchange students.' In this way, the institute contributes to local progress.

## Beyond Africa

Perhaps because of this capacity development mission, many people strongly associate ITC with Africa. But that's just part of all places where ITC left its mark. Stein: 'We are world-famous. People around the globe who work in spatial sciences know us. We work with Asian countries and Latin-America, for instance. As soon as we come somewhere, we are warmly welcomed and are even regularly invited to ministries.' But how did it all start? ITC is the newest faculty, but it's older than the University of Twente itself. It was founded more than 60 years ago, as an independent scientific centre for earth observation mapping using aerial photography. Stein: 'The post-war government decided that we needed such a centre to map urbanisation, forestry and water flows in developing countries.'

The days of photography observations as a core activity have gone,

though. Observation alone doesn't cut it anymore. Stein: 'We still engage in aerial photography, but now we also develop models to interpret situations and monitor changes by using a wider range of technologies.' One of the reasons for mapping and monitoring environmental situations is to give planners, policy makers or emergency aid organizations the tools to make the right decisions. Stein sees that imaging and design becomes increasingly important.

## Training academic partners

Although ITC has always paid a lot of attention to the practical relevance of their work, they are equally academically equipped. 'We publish well, we collect research funds and we have many excellent PhD candidates,' according to Stein. It even seems that ITC is educating their own research counterparts. 'There used to be a need for traditional development aid models, especially in Africa. But now we collaborate more and more at academic level with the people we trained ourselves.'

What else does the future hold for such an acknowledged institute? Stein: 'We will have to be able to answer questions that we don't know exist yet. In order to do so, we must be opportunistic towards new technologies to help us.' In any case, Stein foresees a larger role for entrepreneurship and an increased interest in for example geographic health. One thing will remain the same though. Stein: 'Capacity development will always be in our mission.' |



## Political application developed for and in Tanzania

# LOW-TECH APP FOR BETTER WATER SERVICE

*Research project SEMA (Sensors, Empowerment and Accountability in Tanzania) revolves around a mobile application, which allows ordinary people to report problems with public services directly to the government. 'It's an exciting research to be a part of', says Jeroen Verplanke, who has been involved in the project since its beginning.*

TEXT: MICHAELA NESVAROVA | PHOTO (SMALL): GIJS VAN OUWERKERK >



### **What is the main idea behind the SEMA project?**

'We are developing a political application that allows citizens to use their mobile phones to report issues with public services, primarily problems related to their access to water. We are trying to create a system that can be used for updating information about water points. However, the project

involves much more than just creating software. To make the application, we first need to understand the existing system and the relationship between the citizen and the government in Tanzania.'

### **How do people in Tanzania react to the idea?**

'To get people to use such an app is very difficult. Most applications that allow people to report issues directly to the ministry basically ignore the entire existing relationship between the citizen and the state. Such an approach skips many people, who would normally be involved in solving the issue. As soon as you start to exclude people, they begin to work against the system. That is why we try to understand how the institutional setup works and develop a system that fits into it. We want to improve the existing chain of decision making, rather than replace it.'

### **How does the application work? Do you need a smart phone and internet connection to use it?**

'No. The application will work on smart phones, but it can also be used on an ordinary phone by sending a text message. The software behind the application is complicated, but the app and its interface are very user friendly and low-tech. It should be available to everybody with a mobile phone.

We have developed a prototype and the application is currently in a testing phase. Our researchers are going back to Tanzania in a few months to deploy the app for the first time.'

### **Who is involved in the research?**

'It is an integrated research that includes different disciplines. At UT, staff from ITC and the department of Public Administration are involved. We closely cooperate with Tanzanian University of Dar es Salaam and its departments of Computer Science and Political Science.

We have three PhD students and a Postdoc working on the project. One of the PhDs is working on the software; one is researching what motivates citizens to use the app and the third one is looking at the political landscape, meaning how institutions deal with the information they receive. Two of these students are Tanzanians and one is from Ethiopia. The project also employs a local software engineer in Tanzania.

We try to have most of the technical development done in Tanzania, because if we want the project to be sustainable in a developing country, it should be developed there as well.'



Capacity building in the geothermal energy sector in Indonesia

# DEVELOPING COURSE MATERIAL ON ENERGY FROM THE EARTH'S HEAT

*At the moment, Indonesia doesn't have enough well educated people for the geothermal energy sector, generating energy from the heat of the earth. The Geothermal Capacity Building Programme (Geocap), with ITC as the project leader, has to do something about this deficit in highly skilled people. Assistant professor Chris Hecker from the department Earth Systems Analysis is involved as a researcher.*



## ALUMNI@WORK STRONG GLACIER TEAM

**Who?**

Laura Zalazar works for the glacier inventory carried out by IANIGLA in Argentina. She graduated in Geo-Information Science and Earth Observation for Environmental Modelling and Management in 2006.



#### GEOCAP PROJECT PARTNERS

Geocap started in January this year and has a duration of 3,5 years. It is structured as a public-private partnership. Next to the UT, with the ITC-faculty as the project leader, TU Delft and the University of Utrecht are partners. From the Indonesian side, they are the Technical University of Bandung, the University of Indonesia and Gadjah Mada University. Other participants are TNO, IF Technology, Well Engineering Partners and the Indonesian Geothermal Association. The ministry of Foreign Affairs subsidizes the project.

TEXT: SANDRA POOL | PHOTO: CHRIS HECKER >

In a couple of years, Indonesia will need many people with the right knowledge and skills on geothermal energy. 'There are suitable sources for geothermal energy all over the country. The Indonesian government knows that all too well and focuses on that. They want to realize growth and therefore they need capacity,' researcher Chris Hecker (on the photo with dark sunglasses) explains.

Geocap assists in this. According to Hecker, the project is a typical example of capacity building in Indonesia. The primary goal of the project is to equip people who work in geothermal energy, with the latest knowledge on innovations in the sector. 'It concerns staff members who work at ministries, local governments, public and private organisations

and knowledge institutes', Hecker says.

'In this project, we collaborate with several prominent Indonesian universities in geothermal energy. We educate, develop course materials and jointly build a network. The goal is for our partner universities to eventually coach local and smaller universities themselves, and to spread the course material there.'

### Ring of Fire

Geothermal energy is everywhere in the earth, Hecker elaborates. 'Only the geothermal gradient, how deep you have to drill to get to high temperatures, varies per area.' In the Netherlands, sandstone is the reservoir. 'Drilling occurs until about two thousand metres deep here. We use the heat from the earth to warm up houses and greenhouses. The eighty degrees centigrade temperature of that hot water in the Netherlands isn't high enough though, to be easily transformed into electricity.'

In Indonesia, it can. The country is located on a transform boundary. 'We also call the boundaries of the Pacific Ocean the Ring of Fire. The area is known for its frequent earth quakes, volcano eruptions and also for its geothermal sources. It's the largest geothermal area in the world. You don't need to drill that deep to get to high temperatures.'

Heat from the earth has numerous advantages, Hecker believes. 'It's a continuous, reliable source of energy. Contrary to solar and wind energy. When there's no sun or wind, there's no energy to gain. The CO2- emission in geothermal energy is limited. The little that is released is only a few percent of the amount that is produced with fossil fuels.'

### Risks

But there are some disadvantages, too. 'There is certainly a financial risk', the researcher states. 'Investments are needed. To build a plant, but also to connect with the users. Sometimes, a geothermal area isn't located favourably, for instance near a volcano. Nobody lives there. Then you have to think about how to get the energy to the cities. That requires the necessary investments.'

Determining the drill location contains risks, too. Hecker explains that the expected yield isn't always realised. ITC's knowledge plays a role in this. 'We have sixty years of experience in earth observations. We conduct all kinds of measuring. We look at things like landscape changes, faults, temperature differences, if there is water or minerals close by. We model what you can expect below the earth's surface.'

All used methods for measuring and observing are applied to Indonesia in the Geocap project. 'That's the challenge for us,' Hecker believes. 'I'm really curious if we can develop something for the Indonesian context. Our department has a lot of experience in earth observations in, for example, Africa. But Indonesia is of another kind. The environment is different. It's more wet and wooded. How can we adapt the techniques and knowledge that we have now to Indonesia? To us, that's our main challenge.'

#### Protect the glaciers

'There are many glaciers in Argentina. It's important to map them, because they are an important hydrological resource. Glaciers are retreating all over the world. If we know how many we have, where they are and how they behave, we can create optimal plans to protect them. It's my task to process satellite

imaging of medium and high spatial resolution for mapping.'

#### Professional goals

'When I studied at ITC, I already had a job in satellite imaging and mapping. However, I was mainly working in rural areas. I eventually left that job because

of limited growth possibilities. Now, I have more chances to realize my professional goals.'

'I still apply the knowledge that I obtained at ITC in my daily work because I work with spatial data all the time. It's my expertise to work on satellite imaging, whereas most of my colleagues know all about glaciers. We're a strong team.'

# MULTICULTURAL ENVIRONMENT

TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK >



## NOT KNOWING YOUR NEIGHBORS LYDIA BAKECURA

**Studying: Natural Resources Management (MSc)**

**Comes from: Uganda**

**Has lived in the Netherlands for: 1 year**

'The first shock was of course the weather. I have never experienced winter before. There is a huge difference between the Netherlands and Uganda if it comes to relationships among people, especially neighbors. In my culture, it is completely natural to know all your neighbors. I know absolutely everybody in my village. People are brought up to get to know people around them and to help each other. Neighbors are almost considered extended family. Here you can live next to somebody for years and not know them at all. Another shock was related to cycling. Dutch people are famous for their bikes, but I was still surprised to see that everybody cycles – men, women, children. Where I come from, women are not supposed to ride a bike. The attitude towards religion is also different here. Going to church is not really important for most people. It took me a while to get used to that.'



## FORMALITIES TAKE MUCH LONGER KUNAL SOOD

**Studying: Geoinformatics (MSc)**

**Comes from: India**

**Has lived in the Netherlands for: 1 year**

'I was a bit surprised with how the local people reacted to me as a foreigner. I expected them to keep their distance, but everybody has been very friendly and welcoming. Dutch people are generally warm and accepting towards others. What I like about the Dutch society is the fact that everybody seems to spend a lot of time with their families, especially during weekends and evenings. At 6 pm everything stops and everybody goes home for a family dinner. On the other hand, formalities, such as making an appointment, seem to take much longer here. Everything has its specific rules, you need to follow them and getting anything done takes a long time.'



## OPEN TOWARDS STRANGERS AMY LYNNE BUTLER

**Studying: Urban planning and management (MSc)**

**Comes from: USA**

**Has lived in the Netherlands for: 1 year**

'I have been coming to the Netherlands for about 4 years, but I still remember things that I thought were strange at first. There are many subtle social differences. Dutch people are generally more honest and less dramatic than Americans. They are also a bit more open towards strangers – for example, it is normal to greet people you don't know on the street or in a doctor's office. This might be related to the sense of security. There is a high crime rate in USA and people are generally more cautious. Also, Dutch people are very tolerant and open-minded, for example if it comes to minorities or gay people. Not to forget, Dutch people seem to be much closer to their families and they visit each other all time.'

*ITC faculty has become a rather multicultural environment to study in. People of different nationalities and cultural backgrounds walk through the halls of ITC building every day. Nobody is surprised to meet a foreigner in a classroom or a cafeteria, but is there something that these foreigners are surprised about? We interviewed international ITC students to find out how they view the Dutch culture and if they've experienced any cultural shock while studying at UT.*

## ONLY ONE COOKIE

### MATTHEW DIMAL

**Studying: PhD in Geo-information, Disaster management (PhD)**

**Comes from: Philippines**

**Has lived in the Netherlands for: 2 years**

'I have lived in different countries in the past so there was no huge shock. What I noticed though, is the fact that Dutch people, especially women, seem to be more confident and independent. They are free to do anything they like. Dutch society truly celebrates equality and diversity and it is very open, accepting and tolerant. That applies to everything – religion included. Church communities here are much smaller in size, but they are more open-minded if it comes to religious freedom. And to mention something specific - there are some social rules that are different from Asia. For example, if it comes to food. In Asia, you simply put snacks on the table and people can take as much as they like. Here, it is impolite to eat more than one cookie unless the host offers it to you.'



## DIFFERENT SENSE OF HUMOR

### JELENA MARJANOVIC

**Studying: Geoinformatics (MSc)**

**Comes from: Serbia**

**Has lived in the Netherlands for: 1 year**

'I was expecting a big cultural shock when I first arrived, but I was surprised with how similar the culture and people are here. I expected everybody to be cold and introverted, but Dutch people are very friendly and open towards others. That might have something to do with the big amount of foreigners that live in the Netherlands. I'd never seen so many people from so many different parts of the world at one place before. That is not common in Serbia. However, if I had to point out the main difference between the Netherlands and Serbia, it would be the sense of humor. I can't make the same jokes as I would make back home, because people might not understand them.'



## INCREDIBLE PUBLIC ORDER

### JORGE EDUARDO MORALES MALDONADO

**Studying: Land administration (MSc)**

**Comes from: Guatemala**

**Has lived in the Netherlands for: 1 year**

'People from Guatemala have a western mind set, and so I didn't feel any major difference between ours and Dutch culture. However, I found it – and I still find it – difficult to obtain practical information, for example about public transport. People are not always willing to explain how things work and only refer me to a website or a document. I also think the attitude towards religion is a bit different here. For instance, using churches for public events seems a bit odd to me. On a positive note, there is an incredible public order and security in the Netherlands. I'm actually not sure what police officers do here! Everybody seems to follow the rules and respect others.'





# INTERNATIONALISATION: MORE THAN SPEAKING ENGLISH

*By 2020, the UT will be internationally focussed and is training tomorrow's global citizens. This ambition is articulated in the strategic document Vision2020. But how is the internationalisation of education actually done? Attracting loads of foreign students and solely speaking in English isn't enough, in any case. ITC can be a role model for the other faculties.*



## ALUMNI@WORK CLIMATE CHANGE

**Who?**

José Alfredo Suárez is the coordinator of research on climate change at the Private Institute for Climate Change Research in Guatemala. He graduated in Geo-Information & Earth Observation for Environmental Modelling and Management in 2010.

TEXT: PAUL DE KUYPER | PHOTO: GIJS VAN OUWERKERK >

English as language of instruction for the whole university and seducing many more foreign students to come to The Netherlands. When these two goals are accomplished, the internationalisation of education has come a far end already. This is what is often thought, anyway. A misunderstanding, Tom Loran believes. There is much more to be done before you can speak of true internationalisation.

Loran is the one to know. The physical geographer gave lectures on soil science at ITC for years and lived in Indonesia for nine years, where he was involved in various educational and research projects in name of the institute. Currently, being the course director, Loran is co-responsible for all master programs at ITC. 'Because of our origin, internationalisation is in our blood. International collaborations are in the back of our minds with everything we develop.'

### Global questions

All topics in the curricula of ITC-programs need to have an international outlook. 'We always ask our students: how do you implement this policy or technology in your own country? Then it appears that there are large differences between Africa and Asia, for example. Students explain to each other why a certain approach does or doesn't work in their country. Learning from each other in such a way is what makes a curriculum international.'

Having disciplines as disaster management, food security and water supply ensures that ITC has globally applicable questions for the taking. Loran believes that such topics can also be imagined in other UT-faculties. Some programs are further in doing so than others. Masters like sustainable energy technology and environmental and energy management are pre-eminently internationally oriented. And the bachelor program international business administration even bears its global nature in its name.

But it's also possible to think of international topics for studies as mechanical engineering and communication science, according to Loran. 'You can teach mechanical engineers to work in an international context. And communication scientists also need to be able to work in other European countries. But then you do have to prepare them. After all, things are sometimes different outside The Netherlands.'

The course director and Indonesia expert assisted Communiqué, the student association of communication science (CS), to prepare their study trip to Indonesia last summer. The students wanted to learn something about corporate social responsibility, the social role of industry. According to Loran, this resulted in a topic that would effortlessly fit in a curriculum with international character. 'Indonesian firms are obliged by law to spend part of their profits on social purposes. Such a law would function very differently in Africa or elsewhere in the world. The

CS-students thoroughly investigated how corporate social responsibility works in Indonesia.'

### Mixed groups

Mixed groups are a crucial element in international education, Loran continues. ITC-lecturers always ensure that diverse nationalities collaborate. 'For instance, we have project on an area in Thailand where they have problems like population growth and erosion. The students receive a site plan of the area and the accompanying challenges and have to come up with a solution. Everyone approaches the problems from the knowledge from their own countries. But the suggested solution might not work in Thai context. Students learn to approach problems from different perspectives. A solution doesn't always work the same in international context.'

Other international ingredients in ITC-education (and some other UT-programs) are guest lecturers from professors from all over the world and the double degree programs where you can follow part of your study at a foreign university. Equally important, according to Loran, are the graduation assignments that many students launch into in an unknown country. 'Students from Guatemala research volcano eruptions in Indonesia, for example, whereas Indonesians prefer to study something in Europe. When they return they've really learned something. After all, they already know the problems at home.'

### Example to other faculties

At the moment, ITC is drawing up an inventory on how internationalisation is represented in every module and how that aspect is tested. The latter is important for visitations by the accreditation organisation NVAO. Saying that internationalisation is part of your education is one thing, but you also need to prove that students master learning and working in an international environment.

Loran is happy to share the information that this inventory will produce with other UT-faculties. After all, we read in Vision2020 that the UT wants to 'deploy curricula that prepare for international careers', just what's already happening at ITC.

Loran deliberates with internationalisation coordinators and is in contact with programs that want to add an 'international flavour' to their curriculum. That contact is still limited, however; the educational director would like to collaborate more intensively. Not only could other faculties learn from the experience that ITC lecturers have accumulated over the years, having internationalisation in the UT-limelight during the next years is beneficial for the faculty itself as well. Loran: 'To us, internationalisation seems daily routine, to the extent that some of us don't even think about how to retain the international character in a curriculum anymore. But internationalisation shouldn't happen by accident, you have to consciously pursue it.' |

### We don't need climate change

'I coordinate research on short and long term understanding of climate change. In Guatemala, we have a very dynamic area with extremities that periodically affect us. We have volcanoes, tropical storms and heavy rains. We don't need climate change on top of that. Therefore, we try to understand climate varia-

bility, we model climate behaviour and we work with communities to help plan prevention and adaptation strategies in villages and fields.'

### Two times at ITC

'I used to work at a sugar cane institute. In 2008, they supported me to study in Europe for the first time,

sponsored by the Erasmus Mundus Programme. When I returned home, my knowledge in remote sensing made the board consider me as a strong candidate for my present position. I applied for a PhD position at ITC, so hopefully I can come back for a second time. I want to research climate change and natural resources or water resources management.'



## ALUMNI@WORK VISUALS ON CONFLICTS

### Who?

Dita Anggraeni from Indonesia is an associate expert on humanitarian mapping at UN OCHA, the UN office for the coordination of humanitarian affairs. She graduated in Geo-Information for applied earth sciences for

## Report: living in the ITC Hotel

# 'ALL FACILITIES AND FELLOW STUDENTS WITHIN REACH'

*Your room is cleaned on a weekly basis and you can study peacefully, but rent is substantial and you can't just invite overnight guests. The ITC Hotel at the border of Enschede's city centre has 389 rooms and 29 collective kitchens for international students. UT Nieuws took a look and asked the residents what it's like to live in a hotel.*

TEXT AND PHOTOS: JELLIEN TIGELAAR >

Sitting on a brightly coloured couch in the spacious hall of the ITC International Hotel, we find Anthanasios Iraklis (25). He moved from Greece to Enschede five days ago. The next five months he will be working on his master thesis (electrical engineering). 'I like it here! However, rent is costly and it's a pity that there are restrictions. Friends are only allowed to stay for a maximum number of days and you have to pay for an extra bed in the room. But I've got all I need here. My room is cleaned every week, although I'm not frequently in there. I don't like to be alone, so I'm often in this hall. There's a good coffee machine around the corner and I've made many new friends there during the past four days.'

At this coffee corner, Wendy Zhao (20), who has only been in The Netherlands for a few days as well, is working. She came from China to Enschede to follow the bachelor electrical engineering. 'Someone told me that the study level at the UT is high and I want to see more from the world.' Lacking wireless Internet in her own room, Wendy is busy with her English course at the work place next to the coffee machine. Fully happy with the service, however, she is not. 'I've already e-mailed the helpdesk twice about wifi in my room. As long as I don't have Internet there, I'll have to work here, but it's too noisy for me'. Wendy plans on living across the road in the Stadsweide living quarters (that belong to the hotel) for the next three years. 'This place seems safe, it's clean and I enjoy having the shopping mall so near. Also, the room prices are affordable.'

It's quiet in the lounge on the first floor. Although the large bar suggests that it can get nicely crowded in here, there's only one single student actively studying at the moment. Romy Estradha (29) is finishing

his master thesis on disaster management in his own country, Indonesia. With this thesis, he will finish the master urban planning & management in a few weeks. 'It's exceptionally calm for a Wednesday afternoon, I was able to study uninterrupted. Usually I come to this lounge together with my friends. That's what I like most about living in this hotel: we can meet up any time to cook, study or relax.'

### Always clean and tidy

Two stairs up, on the third floor, Romy shows his room. He's been living there for almost a year now. He opens the door with a card. The room has a view of hospital MST. The room is just large enough to have a bed, desk, fridge and a built-in closet. 'It isn't big and we do pay a lot. Everybody complains about that. Some people are looking for cheaper rooms in Enschede, but I like it here. This hotel has everything. My fellow students are nearby, there are others from Indonesia, I can cook, do laundry, and the shopping mall is close.' Next to the table tennis room and the laundry area on the ground floor, is the Globe, a meeting room where parties are sometimes organised. There are many tables and chairs and there's a cabinet with board games in the corner. Gelareh Ghaderi (24) from Iran is studying there with a friend. 'I've been living in this hotel for a year now and I like it. Because of the high costs I did look for other accommodation in Enschede, but it's hard to find something for international students. I'd rather stay here, all facilities and classmates are within reach.'

Gelareh's friend doesn't agree with her. 'I did move. The ITC Hotel is a good place to study and it's always clean and tidy. But it didn't feel like home to me. I want to be able to hang my own photo's on the wall and have my friends stay over whenever I want to.'

natural hazards and disaster management in 2010.

#### Maps to help emergency aid

'I produce visuals, such as infographics and maps, on conflicts and natural disasters anywhere in the world. This helps to see how many people are affected by a crisis and what kind of support is needed.'

We share our visuals with donors like the Red Cross, or journalists like Al Jazeera and the New York Times.'

'My office is based in New York. We get our data from our field offices all around the world, such as Iraq or South Sudan. We support from a technological point of view and produce the communication tools.'

#### Graphic design is the future

'At ITC, I learned a lot about GIS technology. This was very helpful in my previous job as a geo-officer at the Red Cross. Now, my work is more visual with graphic designs. I believe it's the future to make maps more appealing, catchy and easy to understand.'

## Freek van der Meer on the importance of capacity building

# ALUMNI WHO CALL THE SHOTS



*Capacity building in developing countries is one of the pillars of ITC. It's the third portfolio in the management team, next to education and research. Freek van der Meer, professor in Earth Subsurface Systems Analysis is the contact person. 'With ITC-knowledge our alumni can make the difference in their own country.'*

TEXT: SANDRA POOL | PHOTO: ARJAN REEF >

### **What is capacity building?**

'The needs vary per country, but generally speaking capacity building consists of three elements: human resource development, an institutional component and a mandate from a company or a governmental organisation.'

### **How do those three relate to each other?**

'In human resource development it's about enforcing the knowledge of people. But next to that, the work routine in an organisation need to change as well if you want to implement a new system. And sometimes it even requires an adaptation of the law.'

### **Do you have an example?**

'The Earth Systems Analysis department is the project leader of the Geothermal Capacity Building Programme in Indonesia. It has a geothermal focus, gaining energy from heat stored in the earth. The best geothermal sources are sometimes located in wooded areas. However, the Indonesian ministry of Forestry forbids the chopping down of trees in some places. In that case, a mandate is needed to ensure that one can chop and subsequently drill.'

### **What is the role of the ITC-faculty?**

'We're not there to change laws, but we do transfer our experience and knowledge about earth- and space observation onto students. We have

the knowhow to educate people who work at mapping agencies, organisations that provide geographical information.'

### **How does this lead to capacity building?**

'Our alumni return to their home country and immediately send new students to Enschede. They themselves grow into all kinds of political positions. They even make it to minister and get jobs where they call the shots. In that way, you connect ICT-knowledge with people who know the situation in their own country very well and who can make a difference. We notice that our alumni are very loyal to our faculty. They really consider ITC as their alma mater. They're abroad for eighteen months. That has tremendous impact. Next to that, ITC is a multicultural society where friendships all over the world develop.'

### **How does that show?**

'It recently showed in Kenya. The president of the UT-board went on a business trip to the capital, Nairobi. Relatively last minute, we organised an alumni meeting at the Dutch embassy. About eighty people came, from all over the country. Because of that, relations between graduates and the faculty remain good.'

### **What does the future for capacity development look like?**

'Education is always subject to renewal. As a university and as a faculty you need to ride the waves of change. At the moment, The Hague values business to business a lot, meaning they want us to involve industry in research and education. That's the new challenge for us.' |

## Risk assessment for Caribbean countries

# 'HURRICANES MIGHT BECOME MORE SEVERE'

*During hurricane season Caribbean countries like Saint Lucia and Belize are confronted with floods and landslides. ITC leads a project called CHARIM that aims to create national scale flood and landslide hazard maps of these countries. Project coordinator Dinand Alkema, expert on flood modeling and flood hazard assessment, explains more.*

TEXT: MICHAELA NESVAROVA | PHOTO (SMALL): GIJS VAN OUWERKERK >



### What is CHARIM?

'The acronym stands for Caribbean Handbook for Risk Information Management. It is a World Bank funded project targeting Caribbean countries of Saint Lucia, St. Vincent and the Grenadines, Grenada, Dominica and Belize. ITC leads a consortium that has to create national scale flood and landslide hazard maps of these

countries, as well as a handbook for the government staff to be used for engineering and planning of infrastructure.'

### Why is it important to create such a handbook?

'These countries experience a lot of problems, especially during hurricane season, when they are confronted with floods and landslides. Those occur also in urban areas, which are becoming more and more populated. That adds up to a bigger risk. This project is interesting because it will not only lead to creating the handbook, but it will also uncover new research questions that can be studied, e.g. by ITC's students. In this way they can contribute to solving some of the practical issues people at the islands experience.'

### Can you explain a bit more about the related research?

'The Disaster Management group studies natural processes that can

result in disasters, such as floods or landslides. I personally focus on the use of flood models with the aim to assess their consequences and provide risk assessments.

We have ITC researchers and students going to the countries involved in CHARIM. Some of them will do field tests and others will focus on the impact the floods have on people. They will interview locals, who have been affected by disasters. It is important to talk to them and understand how they have experienced these events and how they dealt with these situations. Better understanding will hopefully contribute to better planning decisions and recommendations. Another factor we need to take into account is that the world is continuously changing - think of climate change, for example. We need to consider that the hurricanes might become more severe and the population more vulnerable.

Simply, the main focus of the research is to assess the future risk while considering all the different changes, such as changes in urban population or climate change.'

### Will you collaborate with local experts while working on the project?

'In September we had a workshop with local experts and government staff. Later this year, we will receive a group of ten experts from the involved countries and we will provide them with hands-on training. It is important to realize that the countries are very small and do not have many experts on these topics. They lack capacity, which is something ITC can help with as capacity building is one of the faculty's main objectives.'





TEXT: MAAIKE PLATVOET | PHOTO: ANNABEL JEURING >

Preceding the new academic year, BOZ-employee Adrie Scheggetman gets to learn the names of all new students by heart. And where their files are. As soon as the students enter the faculty, she transfers them to colleagues. 'Then I'll already be working on the next group.'

At the start of the academic year 2014/2015, Scheggetman expects 120 short course and extramural students (who follow part of their ITC-program at a foreign partner university) and 153 master and post graduate students from various parts of the world. In total, there are 850 to 890 students on annual basis.

The procedure that all students go through if they get their paperwork in order, is one that occupies Scheggetman all year. That's because there are multiple entry dates for courses. Together with two colleagues, she keeps in close contact with the students. 'The application of students has

been digital for about ten years. We have our own system, that deviates from the UT-system because of the specifics of international students. The candidates have to register all kinds of personal data, but they also have to upload grading-lists and degrees. When everything is approved, as well as the financial part, the application is sent to the so-called course director. Then, he or she determines if the potential student is suitable for our program.

### Validity

By now, experience over many years has taught her to recognise the country of origin and validity of many degrees. 'But there are also quite a few changes at times. For instance at newly established private universities, or when universities merge.' To test the validity of degrees that are unknown to her, Scheggetman uses the services of Nuffic or Naric (organisations for international collaboration in higher education). 'They have the tools for me to check the type of university, the level and the validity of the degree.' Also in this trajectory, there are always applications that don't pass the voting committee. Again, 10 percent drops out.

When the application is approved, the student has to arrange financing.



## ALUMNI@WORK

### SATELLITE IMAGING

#### Who?

Dafni Sidiropoulou Velidou is about to start an internship at Esri, an American GIS software development company. She graduated in Geo-Informatics Earth Observation Science in March 2014.

What's involved in the application for an ITC-program?

# FROM APPLICATION TO ADMISSION

*Approximately 8000 applications from new students are received by the ICT-faculty every year. Eventually, five to ten percent really travels to Enschede to start their program or course. Adrie Scheggetman from ITC is involved with the application and immigration procedure for new students.*

This year, tuition fee has increased enormously. From 9.500 to 19.839 Euro. 'Although we were afraid that this would result in a decrease in student numbers and applications, reality proves otherwise.' Many students have scholarships to study at the faculty, for example through the Netherlands Fellowship Program (NFP) from Nuffic. But it also happens that employers or rich family members pay for the study. Starting this fall, the NFP-applications will also go through universities and institutions because of budget cuts at Nuffic. However, the decision on whether or not the scholarship is granted remains at Nuffic. This summer, we adapted our application system accordingly and the NFP-program is further spread throughout the faculty.

## Finger prints, passport photo, visa

When the financial part is arranged as well, the application for an immigration procedure is started. Scheggetman and her colleagues are on top of that. All candidates receive a package with the necessary information sent to them in time. We need finger prints, passport photos and an antecedents declaration when the student gets a temporary residence permit from the Dutch Embassy. 'It's important that we inform the students well,

to prevent that they find out too late that they passport photo doesn't comply to the regulations, for example.'

The application procedure takes about six weeks, because students sometimes have to go to another country to arrange the visa. 'It's comparable to us having to travel to Berlin for a visa', Scheggetman pictures the situation. When eventually all data is correct, the Immigration and Naturalisation Service hands over the temporary residence permit to enter The Netherlands. In case of trouble, Scheggetman and her colleagues help wherever they can. 'We don't do that to pamper our students. We offer structured help. To us, it's simply very important to be sure that the students come to the faculty. This is because of the fair amount of financing that's involved. The student as well as the faculty might lose the grant.' Also the flights are arranged and booked by ITC for NFP, Erasmus Mundus and ITC-bursary students. 'The student receives a train schedule to travel from Schiphol to Enschede and a map of Enschede. Once arrived at Enschede train station, there's a reception committee with fellow-countrymen and they eat together. After final registration at ITC, I'm ready to work on the next group of students for the next academic year. And then smiles: 'But not before I've had a holiday myself.' I

## Edge detection

'After my graduation, I had a short research contract at ITC. Together with my supervisors, I wrote a paper on edge detection algorithms for geological lineaments. I worked on methods to automatically extract the content of the image, such as geological faults or linear objects.'

## USA

'I'm ready to travel to America and start my internship close to Los Angeles. I will work on the production of online services for automatic change detection. Esri's software compares satellite imaging of the past and present to discover large changes, in for instance deforestation. Automatic detection is important because it

saves time, and allows a person to see changes that are invisible when you go into the field.'

'I'm not fully sure of my task in the company, but it will definitely involve the development of algorithms. One of the things I learned at ITC is to work independently and look for solutions to my problems myself. I believe that skill will help me do my future work well.'

Bill and Melinda Gates foundation donated 7,5 million dollar

# CAN REMOTE SENSING HELP BEAT HUNGER?

*Remote Sensing and GIS technologies can greatly facilitate our lives, through services like Google Earth and Google Maps. But can they also help beat hunger? Project leader Rolf de By and his team believe this is possible. And they are not alone. The Bill and Melinda Gates Foundation recently donated 7,5 million dollar to their Spurring a Transformation in Agriculture through Remote Sensing (STARS) project.*

TEXT: MARLOES VAN AMEROM | PHOTO: GIJS VAN OUWERKERK >

## **What exactly is the aim of the research project?**

Rolf de By: 'By analysing satellite images of their fields, we aim to advise smallholder farmers in Africa and Asia on how they can increase their crop yields by using new, or more appropriate, farming methods. These farmers make up the majority of the population, in many developing countries. In Ethiopia, they comprise over 60% of the population, for example. But these small agricultural households often struggle to get by, because the revenue obtained from selling extras at local markets is insufficient to cover their healthcare costs and school fees, for instance. Also, their crops can fail relatively easily due to droughts or plant diseases, which can put these rural families at risk of hunger.'

## **Is there any kind of dream vision leading this project?**

'Not directly, but an inspiring factor have been the Kenyan female farmers that are portrayed in the Last Hunger Season, a book written by Roger Thurow. A small loan from an NGO enabled them to invest in better seeds and pesticides and to follow relevant training courses. The farmers managed to increase their maize production significantly through these measures. As a result, they could say goodbye to hunger and embrace a better life for themselves and their families.'

'This is not to say that the information we will provide to the farmers will centre around seeds and pesticides, by the by. The type of information that is to be provided will be determined together with the participating farmers, or with the other stakeholders that we work with,

for that matter. But one thing that we are likely to do is to compare the fields of successful farmers with those of less successful ones. That focus alone may produce some important insights.'

## **Can you tell me a little more about the project's set-up?**

'Our pilot projects take place in Mali, Nigeria, Tanzania, Uganda and Bangladesh, following requests from organisations in these countries. While in West Africa smallholder farmers will be the main target group, in Tanzania the provided information will mainly serve the national government's food security office. In Bangladesh, we also target agriculture companies specialised in smallholder farming practices. We are not the sole party participating in the project, by the way. The University of Maryland and the Commonwealth Scientific and Industrial Research Organisation are, among others, important partners.'

## **What is the technical rationale behind the project?**

'The ITC faculty has, for years, assisted developing countries with GIS-based advice regarding agricultural practices. The fields of smallholder farmers proved hard to tackle in those projects, because their crops were insufficiently visible from the skies. Thanks to the progress in remote sensing technology, this is now changing, so that smallholder farmers can now also profit from this technology.'

## **Technology is a great facilitator, but it can also fail. What are technical challenges in this project?**

'For one thing, the chance of persistent clouds is relatively high in the



areas where we work. This may render one third of the images obtained at a certain stage unusable. Also, while today's satellite images allow us to discern crops from other green spots on the earth's surface, on a given piece of land it may be difficult to distinguish different types of plants from one another. This is particularly true for smallholder fields, in which various types of crop are often cultivated, and where farm plots are not clearly demarcated from each other. To alleviate this problem, images made by model airplanes will also be used. These images may not only help us to map crops in more detail where needed, but can also offer new information. By showing which plants grow well compared to others on the same field and how this relates to soil moisture, for example. Also, researcher teams on the ground will visit the farmers to find out more about their agricultural practices.'

**The project's goal to assist farmers in Africa to use more productive farming techniques sounds great. But earlier attempts to promote a 'Green Revolution' in Africa in the 1970s and 1980s failed drastically...**

'The Green Revolution cannot be tagged as a failure only, or as a success only. It was a mix of both, with successes in India and elsewhere, and some failures in Africa, for instance. We have learned that recipes for success are location-dependent. Remote sensing technology allows us to quantify some of that location dependence, but certainly not all of it, as the social and cultural dependencies also play important roles. But, you are right, technology alone can never be the full answer to hunger; there are also many social and political aspects involved. And

no, there is no guarantee that the agricultural revolution that the Gates Foundation would like to see happening will be realised. Having said that, there are now socio-economic developments in place that could facilitate an African 'Green Revolution.'

**Can you give some examples of those socio-economic developments?**

'First, the 'mobile revolution' in Africa has made it much easier to establish and maintain contact with people living in remote areas. Even farmers who do not own a cell phone are likely to have access to one. This greatly facilitates the dissemination of information, for example by simple sms technology.

Second, the trend towards urbanization is expected to introduce new opportunities for those staying behind in the rural countryside. In around 15 years time, half of the population in developing countries will reside in big cities. These people need to be fed, which turns these cities into interesting markets. Just imagine if some of the smallholder farmers could become regular suppliers for emerging supermarket chains. This would provide them with a regular, and most likely relatively high, income. But to be properly prepared for that scheme to unfold, a farmer needs to be able to guarantee a certain output volume, as well as a certain output quality, of her or his agricultural produce. Today, this is not yet feasible for many smallholder farmers. But by finding out how they can cultivate their crops in more effective ways, with proper attention paid to the risks involved, this could soon change...'



**ITC**

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Geen vergoeding voor bevestigden