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ALUMNI MAGAZINE
FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION
UNIVERSITY OF TWENTE

ITC NEWS

SPECIAL FEATURE
GEOTHERMAL ENERGY

GEOCAP

ENTREPRENEURSHIP & WEB MAPPING

SEMA TANZANIA

GREETINGS FROM

MY TOUCH
ANSWERING CHINA'S NEED FOR GEO-INFORMATION EXPERTISE

YUAN ZHUANG,
MASTER'S STUDENT GEO-INFORMATION SCIENCE AND EARTH OBSERVATION AT ITC

'I enrolled in the Master's programme for Natural Resources Management after earning my Bachelor's degree in Forestry Engineering back in China. The programme fits my interests perfectly. There is huge demand in China right now for geo-information expertise. I'm looking into different possibilities: a job position, maybe a PhD, or a lectureship.'

As Yuan Zhuang has discovered, the faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente in Enschede, the Netherlands, is one of the world's foremost education and research establishments in the field of geo-information science and earth observation. We offer a wide range of the world's best degree courses in the following fields:

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HIGH TECH HUMAN TOUCH

6

8

13

22

25

cover

Content

MAIN FEATURES

3 Entrepreneurship & Web Mapping

6 New Spaces for Learning in the ITC Building

SPECIAL FEATURE GEOTHERMAL CAPACITY BUILDING

8 GEOCAP: Geothermal Capacity Building Programme

10 GEOCAP: the Consortium

13 GEOCAP Partner DNV GL- Energy

15 Background of Geothermal Energy in Indonesia

17 ITC Helps to Search for Geothermal Resources in Chile

18 New and Renewable Energy at the University of Twente

19 Igniting the Ring of Fire

20 Sumba: an Iconic Island

EDUCATION NEWS

22 Community-Based Planning and Monitoring Towards a Better Quality of Life for all

23 Sensors, Empowerment and Accountability in Tanzania

EVENTS

25 Students Attend the 2nd Edition of NL4Talents

26 GREETINGS FROM

ANNOUNCEMENTS

27 Marina van Damme Grant 2014

28 ITC Participating Organization of GEO

LIFE AFTER ITC

29 Charles Cosmas Mkalawa – Tanzania

Michael Mutuku Mwania - Kenya

Fumarol Gedong Songo - The department of Earth Systems Analysis of the Faculty ITC of the University of Twente is coordinating partner of the Geothermal Capacity Building Programme – Indonesia-Netherlands (GEOCAP). GEOCAP will develop intimately linked programmes for education and training, research and databases.

INTRODUCTION

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A new capacity building programme on Geothermal Energy (GEOCAP) which the department of Earth Systems Analysis (ESA) is coordinating, will help the Indonesian government in achieving its ambition to increase energy production and support new geothermal working areas. This programme will offer new opportunities, not only for scientists (geophysicists, geologists, geochemists) but also for engineers, economists, land conservation experts and legal experts. You can read all about this project in the special feature of this ITC News magazine (page 8).

Looking at new areas for development is very important but, naturally, we will not forget the ITC alumni who would like to update their knowledge and learn new techniques at the refresher courses given around the globe. In Namibia alumni enlarged their entrepreneurial skills and upgraded their spatial web presence (page 3). In Colombia alumni enhanced their professional ability to get a better quality of life for all (page 22) which hopefully will spread around the world. Alumni from the East African region learned more about the use of open software and open data in the SEMA Refresher Course in Tanzania (page 23).

For our female researchers out there, the University of Twente has a unique opportunity to develop your knowledge and your career, by applying for the Marina van Damme Grant. This grant was made possible thanks to a gift by Dr M.A. van Damme-Van Weele, who, in 1965, became the first female to obtain a doctorate from the (then Technical) University of Twente. Ladies, wouldn't it be a great honour to follow in the footsteps of the first female PhD graduate of the University (page 27)?

As time goes by, the ITC building is still a landmark in Enschede and to its inhabitants, though the inside of the building is changing: due to developments in information technology, in teaching and learning processes, and in the changing population of our students, we have to adapt the building according to our new needs. On page 6 you can read all about the new learning facilities in the ITC building.

Again, you will find a diverse magazine which keeps you informed about all developments at ITC. Maybe you have an interesting story to tell about *your* experiences after your graduation. As we keep you abreast of ITC's life, please inform us about your present life and maybe you will read your own life story in the next issue of ITC news magazine.

Virtually yours, Jorien Terlouw
Editor

MAIN FEATURES

Entrepreneurship & Web Mapping

Barend Köbben b.j.kobben@utwente.nl

From 28 October until 8 November 2013, a joint team of staff from ITC, the Polytechnic of Namibia (Windhoek), and the University of Pretoria (South Africa) organized a Nuffic Refresher Course. These courses are tailor-made training courses that are financed by the Netherlands Fellowship Programme, for the benefit of NFP alumni, in order to increase the impact and prolong the effect of their earlier training. .

This particular refresher course was on "the use of social media, crowdsourcing and web mapping to enable spatial web presence for the private sector in Southern Africa", a subject thought to be highly relevant to the Southern African region. The private sector is growing fast in all of Africa, and these businesses often have a need to share that data, for example as visualizations in the forms of maps, with their clients and business partners. In this age of social media and web applications, the internet offers a multitude of relatively simple tools that, when creatively used and cleverly combined, can be used to achieve these tasks with limited resources (technology, financial) and limited technical know-how.

The School of Land Management at the Polytechnic of Namibia Windhoek campus.

Participants in the classroom at the Polytechnic of Namibia Windhoek campus

Entrepreneurship

The content of the two-week course was geared towards two main goals. The first goal was to introduce the participants to the growing importance of entrepreneurship: what it is, why it is becoming more relevant, how to move from idea to business model, etcetera. We gave lectures on entrepreneurship and geo-ICT in Africa and let the students brainstorm on business possibilities in the Geoinformatics domain in their respective countries. We also visited several local companies and the "Innovation Village", an initiative of the Namibia Business Innovation Centre that facilitates start-ups and innovation in products and services and the development of technical skills.

The participants formed groups to prepare so-called elevator pitches: Each team had to create a short and to-the-point presentation of a viable business idea in the field of Mobile and Internet Geo-ICT, using the skills and technology taught in the second part of the course.

Web mapping

The second goal was to introduce the students to the use of Open Source Geospatial tools to enable a spatial web presence. The skills taught enabled the course participants to use and combine simple and free tools to make available all kinds of spatial data relevant to their customers and business partners, using new, free and open social media, crowdsourcing and web mapping technology: They used Open OGC Standards to implement Web Mapping Services from Spatial Databases, created websites and programmed Javascript map clients for their webpages. Special attention was given to Open Data: How and where can one obtain and make available interoperable data, specifically in the African context?

Counterparts

ITC staff members Barend Köbben and Rolf de By organized this refresher course at the Polytechnic of Namibia in Windhoek. Sonya Samuels and Lameck Mwewa (a GFM alumnus) of the Polytechnic organized all the logistics, local visits and the social programme. The Polytechnic [www.polytechnic.edu.na] contributes to Namibia's development by providing tertiary technological career-oriented education at internationally recognized standards.

Discussions during a company visit.

Participants at dinner in the Polytechnic Hotel School

Parts of the programme were taught by Victoria Rautenbach and Yvette Bevis of CGIS, the Center for Geoinformation Science at the University of Pretoria. They provided the Southern African perspective on Open Source web mapping and Open Data, as well as hands-on training in using Open Street Map. The CGIS [http://web.up.ac.za/default.asp?ipkCategoryID=16053] aims to facilitate research collaborations, education and training and professional alliances within South Africa and abroad.

Results

The 18 participants enjoyed an indeed "refreshing" course. The combination of web mapping technology with the entrepreneurial and business focus was appreciated and the resulting elevator pitches on the last day proved that they had picked up the challenge whole-heartedly: the business ideas ranged from farmer marketing apps to a web based real estate agency. ■

The NBIC 'Innovation Village'

Participants at the NBIC 'Innovation Village

New Spaces for Learning in the ITC Building

Emile Dopheide e.j.m.dopheide@utwente.nl

Learning spaces should bring students and faculty together, ensuring that the environment promotes, rather than constrains, learning[1]

Learning is one of the key activities at ITC. Obviously this learning does not only take place in the ITC auditorium or in the common lecture rooms. Learning takes place in practical rooms during supervised or unsupervised exercises and during group projects; outside the building during fieldwork or study trips; in the library or in the hotel room during individual studying; in offices during supervision meetings; in the restaurant and corridors during informal gatherings; and more and more through social media and digital learning environments.

The requirements for these learning spaces are constantly changing due to changes in developments in information technology, in the teaching and learning process and in our students.

At ITC we perceive a trend that students spend more and more time outside the traditional class room. The main causes for this trend are the removal of the former computer clusters and the requirement for all students to have their own laptop computer. Obviously, everybody has the freedom to study where they want. Still, we are of the opinion that the learning environment at ITC should also offer sufficient opportunities to interact and work and discuss together, students and staff alike. An important requirement for effective learning spaces is the noise zoning consisting of silent zones, quiet zones, group study zones and "phone" zones.

Furthermore, the ITC faculty envisages a further advance of project-based and student-centered learning which will require more group and individual study spaces, as well as appropriate facilities and services to support the teaching and learning process of the students and the interaction with staff.

It was against this background, coupled with the wish to make efficient use of the available spaces, that the ITC Faculty Management Team asked a working group to make a proposal for enhanced learning spaces at ITC. The working group had interviews with students and staff and explored the latest insights and concepts on learning spaces.

A clear message from most of the students was that they definitely prefer to study at ITC rather than in their own room in the Dish hotel. They prefer to have adequate learning spaces at ITC, because they wish to have a clear division between the space where they study and the space where they live. *"The environment at ITC is more conducive to work, has fewer distractions and helps to focus"*.

From the feedback from the students the working group also learned that students perceive a need for the availability of quiet individual spaces and group spaces as well as social/informal spaces with a very clear arrangement and division between the various types of spaces.

At the end of 2013, based on the various types of feedback and the comparison of alternative setups, new and additional learning spaces were opened on the third floor and the ground floor of the present ITC building. Three noise level descriptions were used: group discussions, group study/low level interaction and silent study areas.

On the third floor adjacent to the library, two additional rooms are now available for individual work with additional screens and one room is available for group work. On the third floor you will main-

[1] *Oblinger, Diana G., editor (2006). Learning spaces, EDUCAUSE, ISBN 0-9672853-8-0. Available electronically from www.educause.edu/learningspaces*

Learning spaces bring ITC students and ITC faculty together, ensuring that the ITC environment promotes, rather than constrains, learning.

Students prefer to have adequate learning spaces at ITC, because they wish to have a clear division between the space where they study and the space where they live.

ly find the silent study areas. On the ground floor additional rooms are available for individual studying as well as a meeting room for use by students and/or staff. The eye-catcher is the space for informal and social gathering in the room that formerly was known as the "bookshop". This room is equipped with various types of furniture that allow meeting, discussing and working in a more informal setting. The room is nicely decorated with paintings from a number of ITC alumni during their introduction period of a few years ago.

Since the opening we have seen a very intensive use of the various individual spaces. We hope that over time the use of the informal spaces on the ground floor will also see an intensified use by students as well as by staff. In this way *learning spaces bring ITC students and ITC faculty together, ensuring that the ITC environment promotes, rather than constrains, learning.* ■

For more information about the learning spaces please contact the working group:
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Geothermal Energy (GEOCAP)

The department of Earth Systems Analysis of the Faculty ITC of the University of Twente is coordinating partner of the Geothermal Capacity Building Programme – Indonesia-Netherlands (GEOCAP). GEOCAP will develop intimately linked programmes for education and training, research and databases. To achieve the ambition of the Government of Indonesia to increase energy production and to support new geothermal working areas, geothermal companies will need earth scientists (geophysicist, geologists, geochemist) but also engineers, economists, land conservation experts and legal experts.

GEOCAP: Geothermal Capacity Building Programme

Freek van der Meer f.d.vandermeer@utwente.nl

In Indonesia, there are not enough skilled personnel to fill the existing gaps in geothermal. Hence a nation-wide capacity building programme is needed. It is difficult to assess the capacity needed both in volume and level of education. The Netherlands Embassy, through Agenschap.NL started to assist BAPPENAS in 2009, to accelerate investments in geothermal areas.

On 14 October 2011 the National Development Planning Agency of Indonesia (BAPPENAS) through its Directorate for Energy, Mineral Resources, and Mining issued a programme for 'proposed technical assistance' aimed at establishing a National Geothermal Capacity Building programme (NGCBP). In this document NGCBP refers to the original proposal by BAPPENAS and the overarching initiative of the Indonesian government to draw a capacity building programme in geothermal research. GEOCAP (Geothermal Capacity Building Programme – Indonesia-Netherlands) specifically refers to the Indonesian-Netherlands capacity building programme that is seen as a contribution to NGCBP.

The objective of the programme is to increase the capacity of Indonesia's ministries, local government agencies, public and private companies and knowledge institutions in developing, exploring and utilizing geothermal energy sources, and to assess and monitor its impact on the economy and environment. BAPPENAS formally asked the Netherlands to support Indonesia in its quest to develop geothermal resources. A broad Indonesian-Netherlands partnership was formed between the Consortium and relevant and interested Indonesian partners that jointly hold all required knowledge and expertise to support the request. Because of the nature of its members, both in Indonesia and in the Netherlands, the partnership will take the form of a Public-Private Partnership (PPP). Following the PPP principles it is expected that, in order to meet the requirements of the NGCBP project, participating government institutions, state-owned companies, knowledge institutions, universities and private sector participants will contribute resources.

The GEOCAP programme has a number of intimately linked components:

- An education and training programme; focusing on developing capacity at university and technician level in support of the development of the geothermal sector

Prof Freek van der Meer (fourth to the left) present at ITB Geothermal workshop 2013

Wayang Windu Geothermal field

- A research programme; addressing the real needs of the sector and solving real life problems related to exploration and exploitation of geothermal resources as well as environmental and legislation issues.
- A database programme; to collect, standardize, digitize and store surface and subsurface information relevant to geothermal development.
- Explore the use of-low & medium enthalpy resources in Indonesia
- A geothermal 2050 programme; out-of-the-box thinking is necessary to explore potential unconventional geothermal resources that at present are undiscovered or technically not yet feasible.

What makes GEOCAP unique:

- GEOCAP addresses a unique set of technical issues building on the strengths of the Dutch partners, including addressing Indonesia's resource potential in low and medium enthalpy systems and risk reduction of failure in the drilling phase by transferring.
- the coordinating partner ITC (founded as UNESCO ITC) has 60 years of experience in capacity building aimed at economic development in developing countries and emerging economies being founded, to fulfill the Dutch contribution to the UN.
- the programme will develop training and research beyond the traditional technical and geo-scientific topics in geothermal exploration. In particular addressing issues related to environmental issues, legislation, and strategic environmental assessment are strongly desired by the Indonesian companies and universities.
- the programme aims to engage with local governments and local population. This is unique and highly needed as all the permits are dealt with (contrary to oil and gas concessions that are dealt with by the state government) by local authorities who are only partly familiar with geothermal energy exploration.
- the programme seeks, and has established, a liaison with parties like WWF, MER committee and other stakeholders.
- the programme has made links to other donor organizations and has adjusted its ambitions accordingly to create synergy rather than to duplicate. So far there is seemingly limited donor coordination by the countries themselves other than the overall coordination that is done by BAPPENAS.
- the programme is aiming to outlive its duration by establishing structural and strategic joint-degree programmes between partners.

ITC'S DEPARTMENT OF EARTH SYSTEM SCIENCES is the consortium leader of GEOCAP. The Netherlands Ministry of Foreign Affairs supports the GEOCAP PPP with a grant of 5.85 million euros which is administered through the Royal Netherlands Embassy in Jakarta. GEOCAP started in March 2013 with a 6 months inception phase. The actual programme will run from 1-1-2014 until June 2017. For more information: f.d.vandermeer@utwente.nl

The programme proposed has a duration of 3.5 years and is envisaged to start early 2014 depending on the signing of the contract. The programme envisages outliving its duration as it strives to implement a number of joint-degree MSc programmes with Dutch and Indonesian universities after the lifetime of the programme. The programme also serves as gateway for Dutch companies to liaise with the Indonesia geothermal sector to develop business to business case studies and corporation. Furthermore, the alliance aims to foster south to south cooperation through trilateral collaboration. ■

Drilling at Wayang Windu

Seperator at Wayang Windu

GEOCAP: the Consortium

Freek van der Meer f.d.vandermeer@utwente.nl

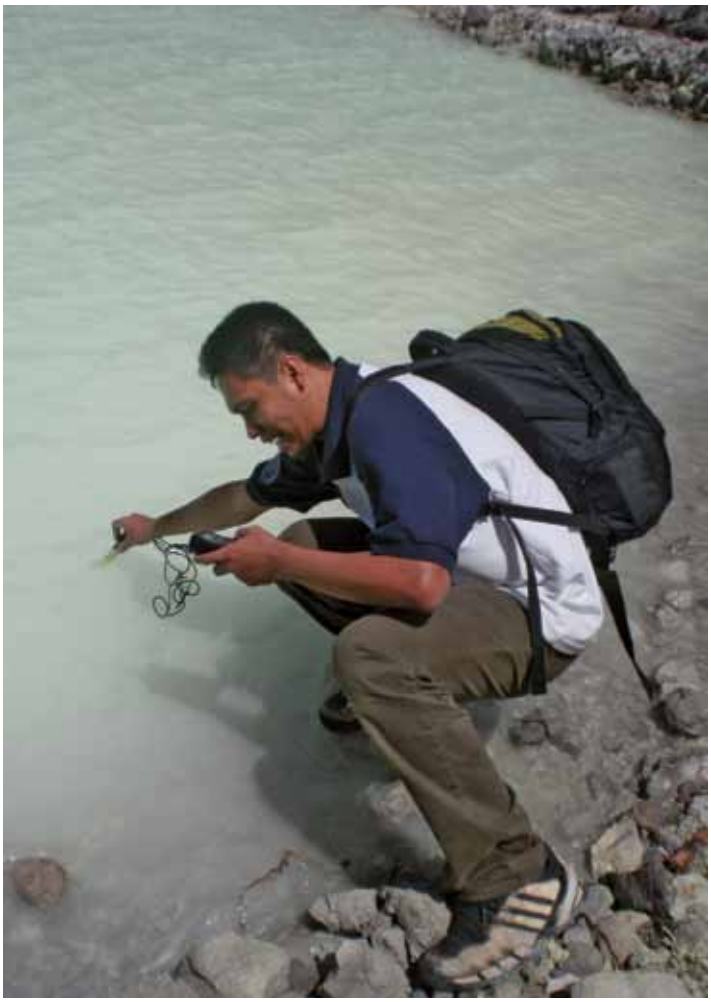
GEOCAP is a public-private partnership. ITC's department of earth system sciences is the leader of the consortium. The consortium consists of partners that have a broad range of expertise in all aspects of geothermal energy, ranging from exploration and exploitation to operational and management aspects, policy and governance, environment and planning. In the sections below the specific expertise of the partners is illustrated.

Indonesian partners include: Technical University Bandung (ITB), University of Indonesia (UI), Gadjah Mada University (UGM), INAGA, geothermal companies, WWF Indonesia.

The Technical University Bandung (Institut Teknologi Bandung, ITB) is the main technical university in Indonesia and is home to two Earth Sciences Faculties: the Faculty of Petroleum and Mining Engineering and the Faculty of Earth Science and Technology. Since the middle of 2008 the Faculty of Mining and Petroleum Technology (FTTM) offers a master'sprogramme in Geothermal Technology.

The University of Indonesia (UI; Universitas Indonesia) is a state university in Depok, West Java and Salemba, Jakarta, Indonesia

Fumarol Gedong songo



Measure Temp PH patuha

and the university with the oldest tertiary-level educational institution in Indonesia, having been founded in 1851. The University of Indonesia (UI) offers a master's programme in Geothermal Exploration intended to provide a deepening of knowledge and expertise (skill) for the geothermal exploration sector in human resources, who are currently or will soon be working in the geothermal industry or other government institutions.

Gadjah Mada University (Universitas Gadjah Mada; UGM) is an Indonesian public research university located in Yogyakarta, Daerah Istimewa Yogyakarta, Indonesia. It was officially founded on 19 December 1949, though the first lecture was given on 13 March 1946. UGM has an undergraduate programme in geothermal exploration which specializes in general geologic sciences.

The Indonesia Geothermal Association (INAGA) was established as a not-for-profit organization to support the development of geothermal energy in Indonesia, and serves as a forum of communication, coordination and consultation for the geothermal industry.

Geothermal companies that are active in Indonesia and are committed to GEOCAP include PGE, Chevron, OTP, Star Energy, and Supreme Energy.

Dutch partners include: IF Technology, Well Engineering Partners (WEP), TNO, DNVKEMA, Delft University of Technology, Utrecht University and University of Twente.

IF Technology is an engineering company that aims at developing solutions for energy-related problems with the ultimate purpose to bring clean and sustainable energy solutions to society. IF Technology is a company that has experts specialized in the development, implementation and monitoring of systems with shallow and deep geothermal, heat storage and CO2 storage). This ranges from advice on policy and legal issues related to energy, to feasibility studies, hydro-geological and geological research, design, implementation and exploitation.

Well Engineering Partners (WEP) is a growing well technology company that is active in the well engineering and well construction business and was founded in 1996. WEP is working with a balanced team of engineers and experts, serving clients in the fields of: well and drilling engineering, well intervention engineering, solution mining engineering, cavern construction, geothermal well engineering, CO2 storage, gas storage, drilling management and total (integrated) project management. WEP has a strong focus on innovative, creative and flexible (fit for purpose, custom made) solutions. Relevant fields of expertise for this project

Drilling in The Hague (Netherlands) to a depth of 2km to reach temperatures that can be applied for electricity production

are: well design and drilling for geothermal energy, drilling process control and management, well data gathering and analysis.

TNO is an independent organization that focuses on innovative and applied research. TNO envisages a world where social challenges are addressed and resolved by deploying sustainable and innovative solutions, because innovation and technology have a significant impact on economic growth, wealth creation and poverty reduction. One of the focal areas of TNO's activities is energy, combined with applied research for innovative solutions in sustainable energy supply. This concentrates on more efficient methods for the production and usage of oil and gas, but as leader of a national research programme, TNO aims to develop state-of-the-art methodologies to better assess geothermal potential and to deliver knowledge on geothermal electricity.

DNVKEMA is a global, leading authority in energy consulting and testing & certification, active throughout the entire energy value-chain. In a world of increasing demand for energy, DNVKEMA has a major role to play in ensuring the availability, reliability, sustainability and profitability of energy and related products and processes. Around the globe, DNVKEMA personnel (more than 1,900 professionals based in twenty countries around the world) serve on leading advisory bodies, standardization committees and other organizations concerned with energy and testing & certification. In this way KEMA plays a key role in assuring the availability, reliability, sustainability and profitability of energy and energy-related products and processes throughout the world.

The Faculty of Civil Engineering and Applied Earth Sciences houses the Department of Geotechnology (Delft University of Technology), which seeks efficient control and use of the earth crust resources and permanent preservation of the geological infrastructure. It has a new sophisticated laboratory where, under geological in-situ conditions, processes can be observed and measured. The department has a leading role in European Geo-technological Research, especially on (geo-) engineering of reservoirs, injection of CO2 and the development of geothermal energy. Lately it is involved in the Delft Geothermal Project, the second recent national geothermal drilling project, where in the first stage a co-generation power plant is supported and in a second phase various methods of CO2/flue gas will be captured and co-injected.

The Faculty of Geosciences of Utrecht University is the largest academic institute for geosciences in the Netherlands. The research programme of the Earth Sciences department is characterized by a close coupling of data acquisition, advanced laboratory techniques, innovative process modeling and field work. The Tectonics research group is a one of the world's leading groups in quantitative research of sedimentary basin (de)formation and evolution, and of the thermo-mechanical coupling of lithosphere processes with surface processes. The research focuses on the understanding and prediction of the geological processes that control the formation and thermo-mechanical evolution of sedimentary basins. The Petrology research group studies melt inclusions and a range of volcanic products to understand magmatic processes; they explore crater lakes and the effects of harmful volcanic emissions, and investigate the origin of mineral resources.

ITC has been a faculty of the University of Twente since 2010 and its primary focus lies in the use of Geo-Information Science and Earth Observation techniques. As a leading institute in the field of spatial information science and earth observation, ITC has established an excellent track record in the use of remote sensing (ranging from aerial photographs and satellite imagery to modern radar, laser scanning and hyper-spectral techniques) for the acquisition of spatial data. The Department of Earth Systems Analysis (ESA) has developed expertise in the use of remote sensing techniques for geothermal resources, geological and geophysical exploration. ITC has a long track record of project planning, management and monitoring in Indonesia. Relevant fields of expertise are: (thermal) remote sensing, data integration, near surface and airborne geophysics, capacity building. ■

GEOCAP partner DNV GL – Energy

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DNV GL – Energy is a global powerhouse in the energy industry. It provides trusted testing, expertise and advice throughout the energy value chain. Within the GEOCAP project, DNV GL – Energy will be drawing on its extensive global experience in power generation and geothermal energy to set up and support an expertise centre that will transfer knowledge and increase capacity in the Indonesian geothermal sector.

New name with a long heritage

DNV GL is a new company whose heritage stretches back to 1864. It is the result of a merger last year that brought together such well-known and respected brands as KEMA, Gerard Hasan, DNV and GL, providing support for the maritime, oil & gas and energy industries.

The company's involvement in the Indonesian renewable energy sector dates back to 1996, when the then KEMA performed a feasibility study on electricity generation on Sulawesi. This included geothermal power plants and financial evaluations. More recently, KEMA investigated possible grid-connected solutions for a 100% renewable electricity supply on the island of Sumba (see article page 20).

Today, KEMA operates within DNV GL's energy division. Headquartered in Arnhem, the Netherlands, DNV GL – Energy delivers world-renowned testing, certification and advisory services to the energy value chain including renewables and energy efficiency. Its expertise spans onshore and offshore wind power, solar, geothermal and conventional generation, transmission and distribution, smart grids, and sustainable energy use, as well as energy markets and regulations.

With over 3000 energy experts, DNV GL – Energy supports customers around the globe in delivering a safe, reliable, efficient, and sustainable energy supply. It also carries out extensive research and development, with its Clean Technology Centre (CTC) in Singapore providing an Asian perspective to these activities to address the challenges unique to the Asian energy industry.

The Energy Academy

Based on this extensive expertise, DNV GL – Energy also offers a wide range of training for the electricity supply chains through DNV GL's Energy Academy. Training is available through open-enrolment courses, seminars, workshops and knowledge days as well as customized in-house training.

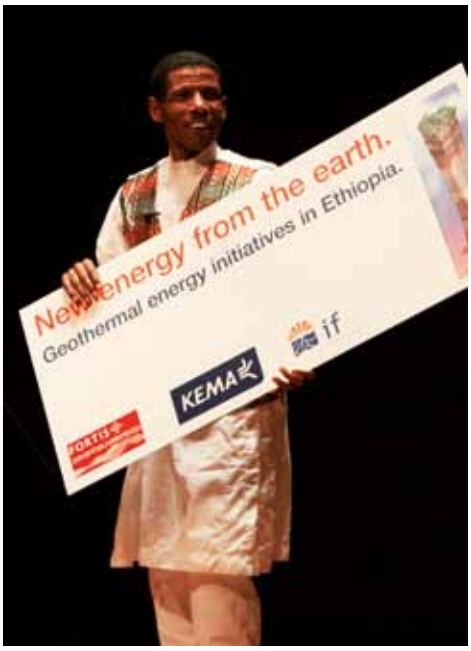
A number of these courses are directly relevant to geothermal power plants in general and the GEOCAP project in particular. These include courses on "Turbines", "Materials, failures & life cycle management", "Ageing, quality assurance, testing, diagnostics and failures" and "Asset management, maintenance and remaining life".

All courses are taught by experienced trainers who are still regularly involved with real-life projects. In power generation, these projects cover technologies ranging from geothermal to fossil fuel plants and activities such as:

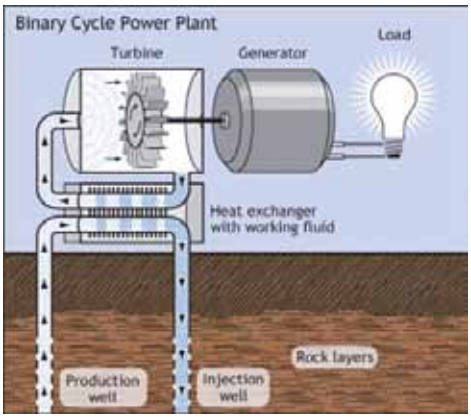
- feasibility and conceptual studies
- heat and power plant planning, e.g. binary cycles process utilization
- licensing, permit and procurement procedures
- environmental impact assessment
- power grid and heat grid integration
- technical and economic optimization
- water treatment (softening) and integration in well systems
- corrosion and failure analyses
- technical assessment of new technologies

Global experience in geothermal power generation

DNV GL – Energy (and its predecessor companies) has been actively involved in a



Haile Gebrselassie receives KEMA and IF Technology's plan for geothermal initiatives in Ethiopia



The binary cycle power plant designed for lower brine temperatures by DNV GL - Energy

number of geothermal power generation projects around the world.

Africa

KEMA led a study into the potential major bottlenecks in geothermal power generation in Ethiopia. Ethiopia has an estimated potential geothermal power capacity in excess of 1,000 MWe. The project included a nationwide siting, inventory and feasibility study on the potential for geothermal energy in Ethiopia plus a detailed business case for the Tendaho geothermal field.

KEMA and GEOCAP partner IF Technology also developed a plan for the next phase of geothermal energy exploration in the country, and presented the results to the world-famous Olympic athlete and Ethiopian national hero Haile Gebrselassie.

Dr C.A.M. van den Ende , Innovation Manager DNV GL Energy, (left) workshop leader of the expert panel for CPFL- Energia in Brazil is the coordinator of DNV GL Energy's contribution to the GEOCAP program

Similar studies have since been performed for Algeria, North and South Sudan and Rwanda, as well as the Sacramento District in California.

Europe

Dutch feed-in tariffs have included geothermal energy since 2012. DNV GL – Energy provides yearly geothermal cost calculations to the national renewable energy incentive scheme (SDE+), which form the direct basis for the geothermal feed-in tariffs.

DNV GL – Energy, together with other GEOCAP partners, also developed a new binary cycle for a geothermal project in Hoogeveen, The Netherlands. The binary cycle is an alternative to steam or flash steam power plants that is suitable for lower brine temperatures.

USA

DNV GL – Energy assessed the cost, feasibility and schedule for connecting the Casa Diablo 4 geothermal power plant to the California transmission grid. Running geothermal power plants in the USA requires the fouling of piping and heat exchangers to be monitored. DNV GL – Energy was responsible for brine quality management and chemical analysis, establishing the corrosion risk through online corrosion monitoring and ultrasound wall thickness measurements.

When a dispute arose, DNV GL – Energy acted as an independent third-party and performed a metallurgical failure analysis of a gland seal from a geothermal turbine to determine the most probable cause of failure and any contributing factors. The analysis consisted of an on-site visual inspection, metallographic sample preparation, optical microscopy and scanning electron microscopy (SEM) with energy dispersive spectroscopy (EDS) of samples at DNV GL – Energy's own laboratory.

The Middle East

When the 24 MWe Organic Rankine Cycle (ORC)- plant in Turkey was commissioned, KEMA carried out the technical due diligence together with local partner Enerji Merkezi. This included:

- technical review of the plant's conceptual design: components and material selection
- thermodynamic analysis: gross/net efficiency, power rating and expected variation
- evaluation of operational aspects: reliability, availability and maintenance requirements
- project evaluation: planning, supplier scope of work, interface management risks

DNV GL – Energy has also performed a study on the environmental impact of

The Casa Diablo 4 geothermal power plant

The technical lifecycle of a geothermal power plant

Geothermal power plant in Europe (Iceland)

geothermal power plants for the International Renewable Energy Agency (IRENA). Based on a technological life cycle assessment, the study focused on power plants in the Middle East.

Technology assessment

As the geothermal industry strives to improve efficiency, cost and output, DNV GL is actively involved in evaluating new technologies. For example, financial investors requested a technical assessment report (TAR) on Tri-O-Gen's new Organic Rankine Cycle (ORC) technology. A TAR is a service from DNV GL – Energy that reduces the risk of adopting new technologies and supports investors in their decision making.

The projects outlined above are examples of the kinds of expertise DNV GL – Energy will bring to the GEOCAP programme through courses, case studies and establishing the technology knowledge centre for the upcoming Indonesian geothermal industry. ■

Background of geothermal energy in Indonesia

Freek van der Meer f.d.vandermeer@utwente.nl

With 220 million people and a GDP estimated around US$800 billion in 2010, Indonesia is one of the largest economies in Southeast Asia. The economy has been steadily growing over the past decade, mostly in the range of 5 to 6 percent per year. Although the economy in 2013 has seen a slight setback in its growth, the forecasted developments are very positive.

The population growth rate along with the economic growth has an impact on the country's need for infrastructure (e.g., schools, hospitals, housing, roads), resources (e.g., food, water, electricity), and jobs. According to the EU country strategy report, Indonesia's investment in its education system has been low compared to other countries in the region.

This economic growth has led to an increasing demand for electricity that has averaged around 8 percent growth per year. The plan is that Indonesia's energy demand has grown thirtyfold in 2050. PLN, the national power company, has struggled to mobilize investments to sustain the demand in energy. In 2006, the Government of Indonesia adopted the Fast-Track Program de-

signed to rapidly develop 10,000 MW of generation capacity, utilizing the relatively inexpensive coal resources that are abundant in the country. This resource is cheap, but the downside is that it results in massive CO2 and dust emissions which are hazardous to the people and environment, and that it negatively contributes to climate change.

However, Indonesia is also committed to international agreements on greenhouse gas emission. The government launched the INISIATIF ENERGI BERSIH (More Energy, less Carbon), the Indonesian effort to limit the impact of climate change caused by greenhouse gas emissions. This initiative proposes a 9,500 MW of geothermal electricity generation to be commissioned by 2025 that will reduce 69.5 million tons of CO2 annually and over 2,085 million calculated over a thirty-year period.

Indonesia, being located in the ring of fire, a large magmatic arc of active volcanoes, has among the world's largest resources of geothermal energy, or energy generated from natural heat produced by the Earth through volcanic processes. Geothermal plants do not produce hazardous gaseous emissions and the energy is renewable. However, there are presently two main hurdles to overcome that limit the development of geothermal energy: lack of skilled and trained personnel to explore, produce and exploit the resource and the competition between exploration and protection of forest areas, as most of the suitable locations for geothermal energy are located in protected forest areas.

To achieve the Government of Indonesia's ambition to increase energy production from geothermal resources to 3556 MW in 2014 and to 12.332 MW, and to support the 20 new geothermal working areas, geothermal companies will need earth scientists (geophysicists, geologists, geochemists) but also engineers, economists, land conservation experts and legal experts. Both university-level personnel and a range of technician-level personnel will be required. ■

Indonesia has among the world's largest resources of geothermal energy, or energy generated from natural heat produced by the Earth through volcanic processes

Chevron Geothermal Salak well head

Salak Power Plant

ITC helps to search for geothermal resources in Chile

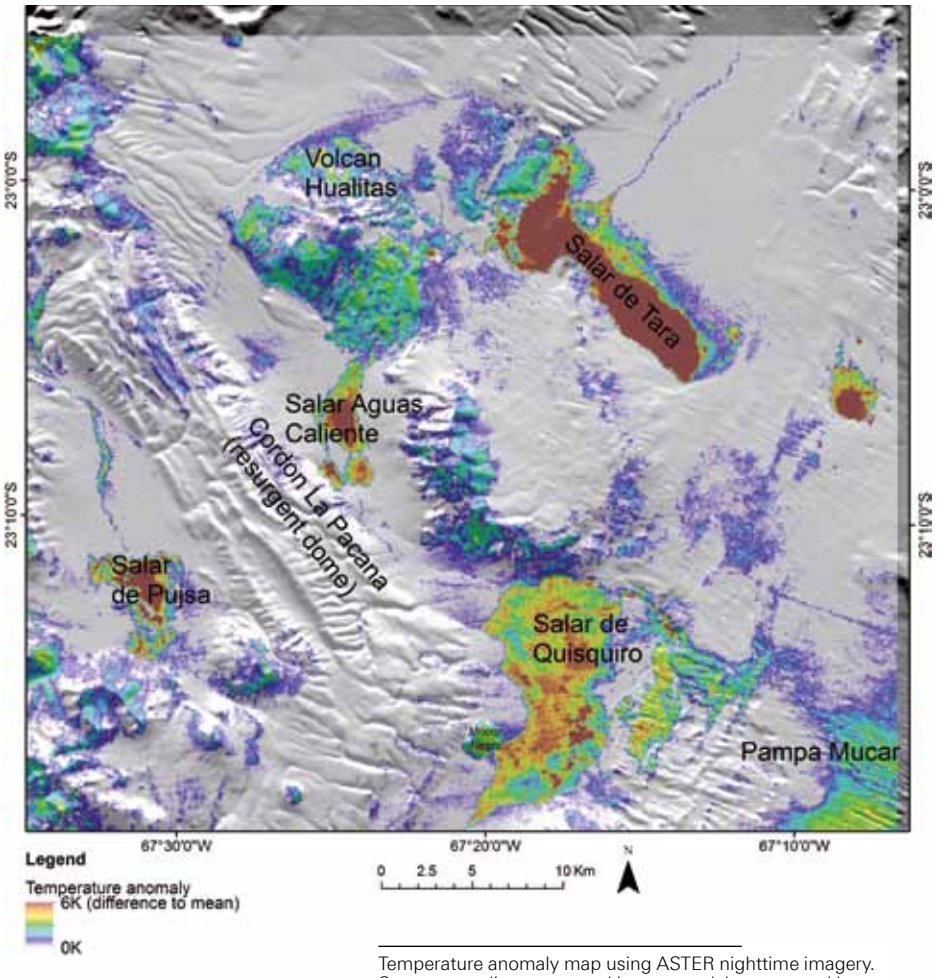
Frank van Ruitenbeek f.j.a.vanruitenbeek@utwente.nl

Chris Hecker c.a.hecker@utwente.nl

Freek van der Meer f.d.vandermeer@utwente.nl

ITC has completed a project with Transmark Renewables (a geothermal energy company) on a geothermal prospect in the central Andes range of Chile. The San Alberto concession area was studied with a variety of exploration techniques, including a magneto tellurics survey, geochemical water analysis, Magnetic/Mantle/Radiogenic (MMR) gas sampling and a geological remote sensing study by ITC.

Staff from the Department of Earth Systems Analysis used their expertise in geological image interpretation and infrared remote sensing to map surface evidence of geothermal potential in the subsurface. Nighttime ASTER satellite imagery was used to highlight hotspots in the landscape that are created by increase geothermal heat flux. Daytime ASTER satellite imagery was used to map clay and other alteration minerals, silica anomalies and green vegetation. Alteration minerals are indications of locations where reactions of hot geothermal fluids have created new minerals upon contact with the rocks. Since the concession area is in a very arid environment, occurrence of vegetation is helping to pinpointing hot springs, where hot geothermal fluids come to the surface. The spatial distribution and chemical compositions of the hot spring locations can be further investigated in the field, to highlight potential fluid pathways in the subsurface, constrain reservoir models and estimate maximum fluid temperatures in the geothermal reservoir. Based on all data layers Transmark Renewables have recently started to spud their first geothermal exploration well in Chile. ■



Temperature anomaly map using ASTER nighttime imagery. Some anomalies are caused by warmer lake water and hot spring; others by hot ground.
Hillshaded SRTM DEM in background.

New and Renewable Energy at the University of Twente

Tom Loran t.m.loran@utwente.nl

New and renewable energy is a field of study that receives a lot of attention at the University of Twente. This is first and foremost the case because global energy and related environmental issues need to be solved in order to reduce energy consumption, to make efficient use of available resources and tap into new ones, and to reduce the negative impact on the environment. The university offers a range of courses that are related to the subject, and renewable energy research is brought together in the Green Energy Initiative (GEI).

In line with its motto of High Tech, Human Touch, the different scientific disciplines within the university are involved and view the subject of renewable energy from a number of different angles. The Faculty of Management and Governance is offering a master's programme in Environmental and Energy Management that is looking at various aspects of energy from a management and governance perspective. The Faculty of Engineering Technology is offering a programme on Sustainable Energy Technology that is dealing much more with energy from an engineering perspective and focuses on technical developments in the field of sustainable energy. The Faculty ITC is rapidly developing a portfolio of training and advisory services on geothermal energy. The subject figures in MSc and PhD research work, and recently for a project in Chile a concession area was studied with a variety of exploration techniques to map surface evidence of geothermal potential.

The research that is carried out by the research institutes of the UT and that is brought together under the Green Energy Initiative is looking at renewable energy from the same range of perspectives. It combines technological innovation with behavioural, organizational and governance research in order to promote not only the technological development but also the successful implementation of the innovations.

When looking at the aspects that are mentioned in relation to the Iconic Island project at Sumba island both the master's programmes and the research topics fit extremely well with the work that is done by Hivos. Examples such as energy from biomass, smart grids and alternatives for fossil fuels are very relevant and this illustrates that UT education and research is well tuned to real-world problems and provides solutions that have a high societal relevance. ■

MORE INFORMATION CAN BE FOUND AT:
www.utwente.nl/meem/, www.utwente.nl/set/, and www.utwente.nl/greenenergy/

Igniting the Ring of Fire: A vision for Developing Indonesia's Geothermal Power

Tom Loran t.m.loran@utwente.nl

Indonesia strongly depends on fossil fuels for the generation of its energy. The energy mix in 2010 consisted of almost 95 % non-renewable energy. With a steadily growing economy and a fast-growing population it is anticipated that the energy consumption will also grow very fast. Although there is a large potential for alternative sources of energy, at the moment limited use is made of this potential. The Indonesian Government aims to increase the share of sustainable energy to 15 % in 2025 and to 40 % in 2050.

Indonesia is the country with one of the highest potentials for geothermal energy in the world and it is seen as one of the most promising sources of renewable energy for the future. However, most of the areas with high potential are located in protected forest areas and although geothermal energy offers a clean alternative for fossil fuels, the conflict between exploitation and protection forms a major obstacle in the development of the geothermal potential.

WWF has the ambition to push for a significant shift towards the use of renewable energy, in particular the sustainable production of geothermal energy in Indonesia and the Philippines. WWF Indonesia has done a lot of work on its vision for the development of geothermal power; this vision was published in July 2012 under the title: Igniting the Ring of Fire. More recently, in December 2013 a report was published entitled "Sustainability Guidelines for Geothermal Development in Forest Areas".

The following is an article from WWF Indonesia about the development of geothermal potential.

A world powered by 100 percent renewable energy by 2050; that is WWF's vision in the energy sector forsustainable living. Study results as presented in WWF's Energy Report show that it is technically possible to get to this point. Achieving this vision would mean getting on the right path for avoiding catastrophic climate change, decreasing pollution, increasing energy security and improving health for people worldwide.

Energy security, for Indonesia as a developing country, is one of the major challenges to conquer. For many decades, Indonesia has been highly dependent on the luxury of fossil fuel consumption for electricity. To maintain the level of economic growth and meet the demand of a growing population, energy demand is still constantly increasing albeit depleting resources.

Global pressure to fight climate change, for developed and developing countries, is becoming increasingly difficult to ignore. Indonesia has voluntarily pledged to reduce its greenhouse gas (GHG) emissions by a minimum of 26% in 2020. Shifting from fossil fuels to renewable energy sources is one of the ways to fulfill this commitment.

The renewable energy pathway is not an option but a necessity for strengthening our energy security and sustainable development. Fortunately, Indonesia is not only rich with fossil fuels but also possesses an abundance of renewable energy sources. Indonesia currently has the biggest world potential of geothermal, with at least 28 Giga Watt potential for exploration while currently only 1.196 Giga Watt is utilized.

WWF's Geothermal Ring of Fire programme has the ambition to shift towards the use of renewable energy, particularly in the sustainable production and use of geothermal energy, in Indonesia and the Philippines by 2015. We are dedicated to

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Mr. Budi Wardhana (WWF-Indonesia Director for Sustainability and Transformation, right) hands the publication Sustainability Guidelines for Geothermal Development in Forest Areas to Mr. Abadi Poernomo, President of the Indonesian Geothermal Association
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transforming geothermal energy into a catalyst for our economic growth, community empowerment, biodiversity conservation and to reduce greenhouse emissions. This report presents Indonesia's challenges and opportunities to be the leader in developing sustainable geothermal options. WWF commits to working with the government, private sector and community to inspire best practices for sustainable geothermal development. WWF hopes, through the publication of this book, to contribute to the stimulation ofthe acceleration of geothermal utilization in Indonesia. We have the opportunity to transform the world in a good way. Together, we can manage the challenges and create a sustainable future. ■

The publication "Igniting the Ring of Fire" can be found at the WWF-Indonesia website www.wwf.or.id/?25521/Igniting-the-Ring-of-Fire-A-Vision-for-Developing-Indonesias-Geothermal-Power

Sumba: An Iconic Island to Demonstrate the Potential of Renewable Energy, Poverty Reduction, Economic Development and Energy Access Combined

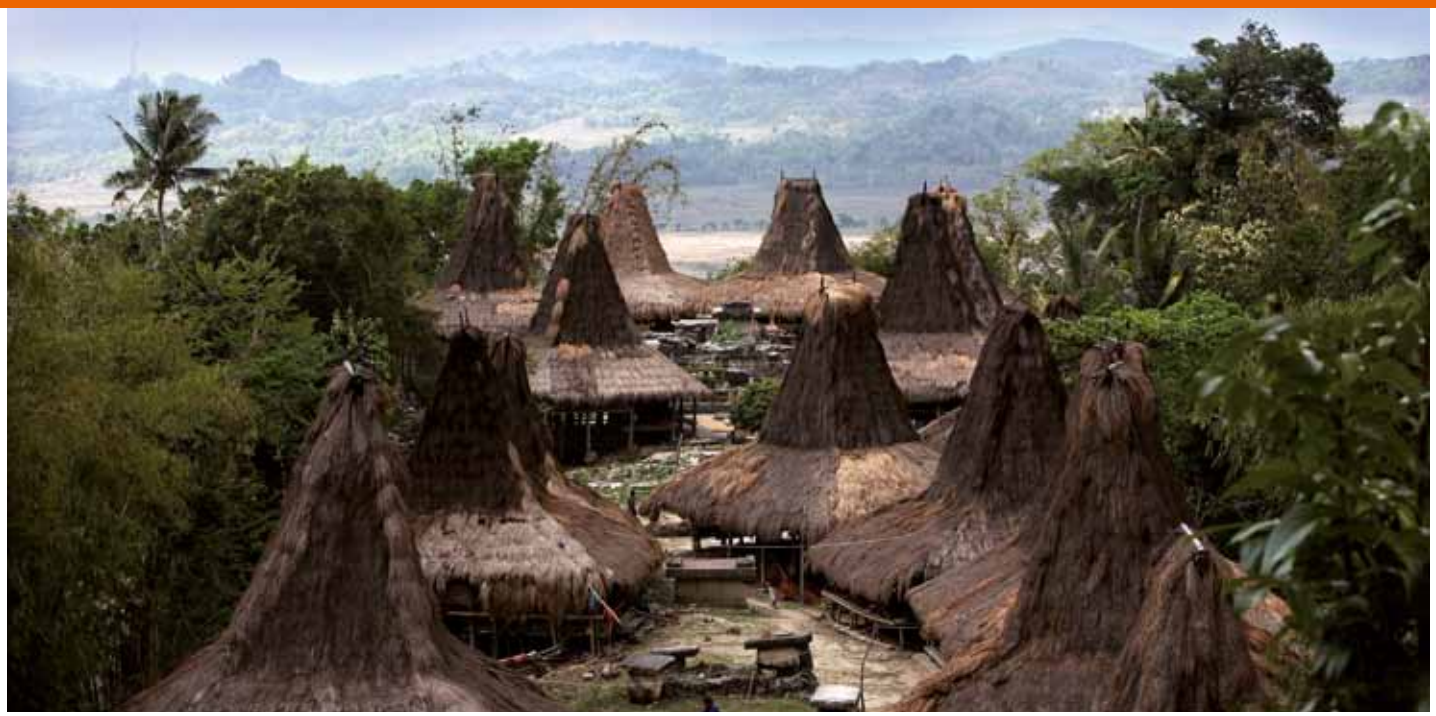
Tom Loran t.m.loran@utwente.nl

Providing the population of a medium sized Indonesian island with 100 percent renewable energy. Improving the quality of life for hundreds of thousands of people in small island communities. Stimulating economic development as well as taking concrete steps towards addressing climate change. These are but a few of the intended outcomes of the Iconic Island project, developed by development organization Hivos. While ambitious, this programme shows that the idea of the Iconic Island is neither impossible nor utopian. It is highly realistic and technically and economically feasible.

Sumba is a poor and relatively unknown island in the Indonesian archipelago. The majority of its 650,000 inhabitants are poor, self-subsistence farmers without access to energy. Only two small grids, powered by diesel generators, irregularly supply about a quarter of the Sumba population with electricity.

Access to energy as a driving force for development: that is exactly what the Iconic Island initiative is about. It is an ambitious programme that shows how the people of a poor, isolated island can take on their own development, facilitated by a supply of 100 per cent renewable energy. Hivos developed a plan to provide the people of Sumba with energy making sole use of renewable energy sources. Supported by the Indonesian Ministry of Energy and Mineral Resources and with funding support from the Dutch govern-

Access to energy as a driving force for development: that is exactly what the Iconic Island initiative is about



ment, Hivos introduced the "Iconic Island Sumba" programme in 2010. The programme was also supported by the local government in Sumba, the State Electricity Company (PLN) of Indonesia, and as of 2012 by the Asian Development Bank.

In-depth feasibility studies on renewable energy potential, electricity demand and cost-effectiveness show that Sumba has a huge, unexploited potential for renewable energy that can be developed affordably. Electricity consultant KEMA (one of the partners in the GEOCAP project, ed.) concluded that the wind energy potential is so abundant that, combined with hydro power, it could replace the current diesel-generated power at even lower costs.

KEMA investigated possible grid-connected solutions for a 100% renewable electricity supply on the island of Sumba, based on local discussions with government and PLN, visits of existing and possible new sites, and a least cost investment plan. For off-grid electrification, solar panels stand out as the single best option and isolated grids can be powered by various combinations of renewable energy sources. Under the same programme in Sumba some 140 domestic biogas installations have been built and an off-grid micro-hydropower plant was constructed.

In order to make a programme like this work the cooperation between stakeholders is crucial, and all stakeholders must be actively involved. The Ministry of Energy of Indonesia has taken the responsibility to lead a task force that includes all parties and is currently developing a roadmap towards the 100% renewable energy island. Just one-and-a-half years after the project started, all these stakeholders are fully engaged: the people of Sumba, NGOs, the Indonesian Ministry of Energy, the state electricity company PLN, the Indonesian Bank BNI, the Asian Development Bank and private companies. ■

This article is based on materials provided by Hivos. More information can be found at the Hivos website: http://www.hivos.org/

The Iconic Island Initiative is an ambitious programme that shows how the people of a poor, isolated island can take on their own development *Photos: Josh Estey, Hivos*

EDUCATION NEWS

Community-based Planning and Monitoring Towards a Better Quality of Life for All

Javier Martinez j.martinez@utwente.nl

Veronica Botero vbotero@unal.edu.co

Improving quality of life conditions for all in combination with good governance score high on the priority list of many governments in Latin America. From the regions that comprise the developing world, Latin America is the one with the highest proportion of urban population. At the same time, although progress has been reported in the last years, income inequality is among the highest in the world, with consequent inequality in terms of quality of life conditions and poverty concentration. Enhancing the ability of professionals to engage in community-based poverty alleviation and quality of life improvement programmes is an important contribution to poverty and (gender) inequality reduction in this region.

It is in this context that between 21 October and 1 November 2013 we carried out a successful Refresher Course with 20 NFP alumni on "Community-based planning and monitoring towards a better quality of life for all (CQoL)". The course was carried out in in cooperation with the Department of Geosciences and Environment of the Faculty of Mining, National University of Colombia – Medellín. Our counterpart was the head of the department, Prof. Dr. Veronica Botero (ITC alumna). The ITC team involved consisted of UPM and GIP staff: Javier Martinez, Javier Morales and Emile Dopheide. The collaboration between staff of two different ITC departments (i.e. geo-information processing and urban planning and management) was very fruitful; broadening the perspective of the course and adding trans-disciplinarily to the course content.

The two main objectives of the course were to:

1- Explain how quality-of-life domains can be captured using multiple sources of knowledge (e.g. expert and citizens knowledge)
2- Setup a web-based environment to collect indicator-based citizen knowledge

Presentations of participants were of key relevance, since they shared their own experiences on quality-of-life improvements and citizens knowledge. Of particular interest were the presentations given by a group of researchers of *Banco de la Republica* and staff of the NGO *Medellin Como Vamos*. They brought in a local

The course enabled participants to improve their skills and be exposed to ideas and methods that would be useful in their work

perspective on quality of life studies in Medellin. During the first week of presentations it was emphasized how gender crosscuts all the dimensions of quality-of-life. Explicitly in the course and in the presentations of indicators we addressed the gender perspective.

From the feedback and evaluation given by the participants we can conclude that this refresher course was a success. Participants indicated that the course will help them incorporate new concepts, methods and techniques back in their own organizations. The course enabled participants to improve their skills and be exposed to ideas and methods that would be useful in their work, in particular in relation to the construction of quality of life indicators, mixed methods, crowd sourcing systems and web applications. The students appreciated the participatory character of the course and the space provided for presenting their own knowledge in the field and exchanging views. They also positively valued the time spent for a case study within the campus of the university and the exclusive use of open source software (e.g. QGIS, ODK).

Overall it can be concluded that the concept of a refresher course to refresh knowledge and skills and to strengthen the relationships between professionals and researches was more than fulfilled with this refresher course in Medellin. ■

Department of Geosciences and Environment of the Faculty of Mining, National University of Colombia – Medellín

The course enabled participants to improve their skills and be exposed to ideas and methods that would be useful in their work

Sensors, Empowerment and Accountability in Tanzania

Jeroen Verplanke j.verplanke@utwente.nl

Since 2012 the University of Dar es Salaam and the University of Twente are cooperating in the NWO funded research project Sensors, Empowerment and Accountability (SEMA)(www.sema-research.net). Based on the first empirical results of this research project a course curriculum was prepared to disseminate the first findings.

Nuffic funded a two week refresher course on SEMA in October 2013. This refresher course was organized together with the Computer Science department of the College of ICT of UDSM. From ITC, input to the course was provided by Yola Georgiadou, Rob Lemmens, Jeroen Verplanke and Bas Retsios. The course was locally coordinated by Dr Juma Lungo. The local organizing team made sure that the course was running smoothly and flawlessly. The course was held at the brand new CoICT campus in Kijitonyama (Old TTCL campus) which offered a spacious lecture room stocked with modern PC's, air conditioning, W iFi and sound amplification. We had the honour to teach our classes there even before the new campus was officially inaugurated. Twenty Nuffic sponsored participants from East Africa joined the course together with a number of staff from UDSM and the

Ministry of Water. The class was very active during the two weeks and always pleasant in their interaction. It was a great joy to staff and participants to meet again and to greet familiar faces.

After the course opening, the first three days immersed the class in the practicalities of online databases, data infrastructure and creating online maps. This was then followed by a mapping event where the participants could explore the possibilities of mapping objects in the field using smartphones and tablets. Over the next three days of the course the data infrastructure was put into the context of local spatial knowledge and the connection to the SEMA research project was made. The SEMA PhD researchers Jesper Katomero, Kapongola Ngayanyuka and Habtom Tsega, on fieldwork at that time in Tanzania, assisted in the running of the course and provided lectures regarding their own research. During the weekend in the middle of the course the course participants got a chance to see some of the SEMA project activities in action.

Twenty Nuffic sponsored participants from East Africa joined the course together with a number of staff from UDSM and the Ministry of Water.

The second SEMA hackathon was organised in Dar es Salaam, where a group of about 20 people worked in teams to develop applications based on open software that could be used in the project. Several course participants joined the two-day event as audience but a few even joined a developer team and participated actively in the event. The final three days in the course were spent to view the concepts of the course in the wider context of transparency and accountability. This also included exposure to practical cases from Tanzania by guest lecturers. Dr Marcos Mzeru (Ministry of Health and Social Welfare) gave a guest lecture on mobile health and Dr Faraja Igira (Institute of Finance Management) lectured on Qualitative Research methods. The course was officially closed by, Prof. Nerey H. Mvungi, the Principal of the College of ICT.

The participants valued the interesting mix of computer science and social science. Particularly the focused start on data infrastructure and gradually widening the scope by involving different users and providers of information was appealing to teach and it resonated with the audience.

As the participants put it: "this course was about problem identification and solving with the interaction of social media, social science and geo-data" while "learning about open software and Open Data was quite amazing" and "approaching societal issues through the use of frames, to visualize causes- problems and solutions in an integrated manner while thinking out of the box" it was clear that "this was about tackling policy problems". ■

As the participants put it: "this course was about problem identification and solving with the interaction of social media, social science and geo-data"

EVENTS

Group photo

Students Attend the 2nd Edition of NL4Talents

Joseph O. Ataguba j.o.ataguba@student.utwente.nl

NL4Talents is a career-oriented event organized by Nuffic to invite all Holland alumni and international students studying in the Netherlands to share knowledge on latest issues of personal motivation, career development, research, scholarships and networking.

From the Faculty of Geo-information Science and Earth Observation (ITC) of the University of Twente, nominees to attend the 2nd edition of NL4Talents held on Saturday, 23 November 2013 included Joseph O. Ataguba, Zahra Hamidi, Eduardo Perez-Molina, Dafni S. Velidou, Tawanda W. Gara, Gustavo Chapeton, and Amr M. El-Zehairy (*See Group photo: L-R*).

We arrived at the Fokker terminal to commence registration for the event on Saturday, 23 November. This was followed by attendance of the plenary opening, with presentations on career opportunities for international students and the possibility of attracting international students to stay and work in the Netherlands after completing their studies. Leading these presentations were Freddy Weima, the Director-General of Nuffic, and Jet Bussemaker, the Minister of Education, Culture and Science.

Each participant signed up for and attended three breakout sessions scheduled for 11.30 - 13.00 hours, 13.45 - 15.15 hours, and 15.15 - 16.30 hours respectively. Among the themes for breakout sessions include networking with LinkedIn, PhD proposal presentation, How to tackle interviews and assessments, presentation skills, Dutch business culture, branding yourself "The Super you", change management, discovering yourself "Personal effectiveness", and entrepreneurship skills. I encourage ITC/University of Twente students to take advantage of the presentations held during these breakout sessions by visiting the web page: www.hollandalumni.nl/news-events/nl4talents/presentations.

It was unfortunate that some themes for the breakout sessions such as "How to bluff your way into Dutch" and "A PhD in the Netherlands as next step" were cancelled by the organizers; hence those of us who signed up for these cancelled themes had to attend breakout sessions on available themes. Furthermore, the time frame for each of these sessions was limited. Although it is sad that each participant was limited to three breakout sessions during the event, I generally acknowledge that the attendance of this event has afforded us basic skills acquisition, networking and some awareness, especially for those considering a career in the Netherlands or abroad.

At the closing of the event, winners of the Dutch prize competition from hollandalumni.nl were announced and presented with their prizes. Thereafter, we were urged to stay connected to the Holland alumni network.

On the social side of the event, we all had wonderful time together: making new friends, meeting other students from our countries of origin, taking photos, interacting with staff of Nuffic, and enjoying a variety of Dutch cuisines, snacks and brewed drinks.

To conclude, we want to thank our course directors and all those who contributed to our nomination for the 2013 edition of NL4Talents and suggest that the event should be sustained to help enlighten international students on relevant skills for a successful career. ■

JOSEPH O. ATAGUBA is in the 2012 - 2014 class of MSc Land Administration course, Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente.

Greetings from…

NAME:

Julia Levermann

JOB DESCRIPTION:

International Intern at ESRI under the Consulting and Project Management Team for Natural Resources

ACTIVITIES:

The main focus is on a project in agricultural development, with the aim of reducing hunger and poverty across Sub Saharan Africa and South Asia by increasing the productivity of small farmers.

Products

During my internship I have had the opportunity to work with the following products: ArcGIS for Desktop 10.2, ArcGIS Online, ArcGIS for Server, ArcPy site package, ArcGIS Viewer for Flex, ArcGIS Viewer for Silverlight, Esri Maps for Office and the Operations Dashboard for ArcGIS.

Project work

My work here at Esri has mainly focused on the implementation of GIS solutions for managing natural resources. My main task was the development and implementation of a cloud-based platform for collaboration and information sharing. This platform allows the client and their partners to add spatial data they have collected during their projects, create maps and web applications, and share these within their organization, or with the GIS and global development community.

Additionally, I learned about consulting and the different phases of project management, such as: proposal writing, the planning and design of a project, project budget and schedule, as well as development and deployment activities.

Esri courses & conferences

Esri has provided me with 24 days of training during my six-month internship. While some of these courses have helped to refresh GIS skills I obtained while studying at ITC, others are completely new, such as: ArcGIS for Server and the building of web applications using ArcGIS API for Flex and Silverlight. I am looking forward to having the opportunity to attend the Esri Geodesign Summit 2014, here in Redlands, and hopefully the International Developer Summit in Palm Spring in March.

Conclusion

The internship has been a great learning experience so far! Overall, I have enjoyed living and working in Redlands, California, as it is a city with lots of people who share the same passion for GIS. On the weekends there is plenty of sightseeing to do with Los Angeles, San Diego, the Pacific Ocean and several National Parks only being a few hours away. One of my highlights so far was meeting up with a friend from ITC over Thanksgiving break in San Francisco.

ANNOUNCEMENTS

Marina van Damme Grant 2014

University of Twente Funds Foundation universiteitsfonds@utwente.nl

In the spring of 2014 the board of the Twente University Fund will award the Marina van Damme Grant to a talented, ambitious alumna of the University of Twente for the fifth time.

The grant, comprising a monetary award with a value of € 9,000 and a sculpture, has been made possible thanks to a gift by Dr M.A. van Damme-Van Weele. In 1965 she became the first to obtain a doctorate from the then Technical College of Twente. Over a period of three years the winner can devote this grant to the further development of her career, for example by gaining in-depth or broader knowledge or an international orientation in the form of a study programme, internship or project.

In-depth knowledge of the discipline concerned can be acquired at a foreign institute of university education, provided this direction is linked to a diploma or certificate. The education enjoyed can also be broadened within the Netherlands.

Candidates

Talented, ambitious female UT alumni can put themselves forward as candidate or be nominated for the Marina van Damme Grant. As the cooperation of the candidate is essential, after nomination she will be approached regarding the submission of the right documents.

Nomination

The nomination should be accompanied by a plan outlining how the candidate will utilize the grant, including motivation and budget. This plan must be drawn up by the candidate herself. The plan must make it clear that, using the grant, the candidate will break new ground or cross disciplinary boundaries in her career. The study programme, internship or project to be pursued must lead to a diploma, a certificate or a testimonial. An up-to-date curriculum vitae must be submitted with the nomination.

Selection

The plans are assessed by a committee composed of a board member of the University Fund, a professor from the UT and an external member. ■

PLANNING

Nominations, to arrive by 1 April 2014, can be sent to:
University of Twente Funds Foundation
Attn: Ir. A. Stobbelaar – SP225
Post Box 217
7500 AE Enschede
Netherlands

The grant will be presented on Wednesday, 21 May 2014, during the UT Innovation Lecture in Enschede. The winner is expected to attend.

FOR MORE INFORMATION:
universiteitsfonds@utwente.nl

stichting universiteitsfonds twente

ITC Participating Organization of GEO

Janneke Kalf j.kalf@utwente.nl

During the GEO-X plenary and ministerial summit in Geneva on 15 and 16 January 2014, the GEO community approved the proposal of the Netherlands for ITC to become a Participating Organization in the Group on Earth Observations (GEO).

The Group on Earth Observations (GEO) is an international coordinative effort to connect earth observation initiatives in one Global Earth Observation System of Systems (GEOSS). GEO was established in 2002 at the World Summit on Sustainable Development of the G8 leading industrialized countries. At present, GEO's members include 89 governments (and the European Commission) and 67 intergovernmental, international, and regional organizations that are either Participating Organizations or Observers.

Since its establishment, ITC has worked with GEO on various tasks with themes like water (GEONETCast), biodiversity (GEO-BON) and environmental monitoring and health (EO2HEAVEN) in large through EU framework programmes.

As a Participating Organization, ITC will assist GEO in developing a coordinated effort and international agenda for capacity development. Professors Tom Veldkamp and Freek van der Meer represented ITC as respectively plenary head of the delegation and its alternate. ■

ITC representation at the GEO plenary

GEO Co-Chair Kathryn Sullivan, Acting Under Secretary of Commerce for Oceans and Atmosphere and Acting National Oceanic and Atmospheric Administration (NOAA) Administrator, US, opened the GEO-X plenary

LIFE AFTER ITC

Charles Cosmas Mkalawa – Tanzania

Natural Resources Management (2008)

"The knowledge and practical skills I have acquired from ITC have changed my life completely."

Studying at ITC has changed my life and transcended me into who I am. I remember the year 2007 to 2008, the moment I joined ITC for my master's degree in Geo-information Science and Earth Observation for Natural Resources Management.

I consider that moment as very fundamental moment of my life, and I will never forget this moment for many reasons: firstly, because it was the first time for me to go abroad and experience a new life with people of a different culture, nature and background; when I arrived at Enschede everything was new to me.

Secondly, because of what I have learned at ITC; the knowledge and practical skills I have acquired from ITC have changed my life completely. It made me conversant and confident of working as an individual and in a team as well. I am capable of mapping and geo-data base designing and management, and these have all been rendered skills which I had never experienced before being taught the GIS and remote sensing skills at ITC.

From The year 2009, I started working with the Ministry of Lands in Tanzania as a Town Planner. Now I am working on obtaining my doctorate at the Tongji University in China. Here, I don't have many troubles in my studies, relying on the good background I have from ITC.

I am married and have one kid enjoying life in Dar es Salaam, Tanzania as I am currently working on a data collection process in Shanghai, China where I am working to obtain my PhD.

I will feel guilty if I don't extend my gratitude to the Netherlands Fellowship Program (NFP) coordinated by NUFFIC, and to the lecturers and administrators who supported and guided us during our studies. The same should be said of the associated staff who gave me patronage in one way or another in the time I stayed at ITC ■

Michael Mutuku Mwania - Kenya

Geoinformatics (2004)

"A lot has changed in terms of how I tackle problems in my work place. The pressure at ITC has hardened me to the point that nothing is impossible to me however challenging it may be.

I learned a big lesson the moment I landed at Schipol airport… which was to always read instructions well! I made an assumption and forgot to read the hardcopies I received from NUFFIC with details about the Netherlands, including train departures. Guess what? Instead of boarding the intercity train, I took the one which stops in every town!

I joined ITC in 2004, after reading an ITC Journal at the Kenya Institute of Surveying and Mapping Library. After that I went to the Netherlands embassy for more details, and since then a lot has changed in terms of how I tackle problems in my work place. The pressure at ITC has hardened me to the point that nothing is impossible to me however challenging it may be. I shared the materials i got from ITC with my colleagues in the work place and have tried to keep myself updated by attending relevant workshops and short courses.

After attending ITC I got a job in the National Mapping Organization of Kenya after working in the private sector for a while. Currently I am seconded to the Independent Electoral and Boundaries Commission as a GIS Analyst.

Refresher courses organized by the University of Twente / NUFFIC have been useful, especially the recent one on Sensors, Empowerment and Accountability (SEMA), the course was technical and very relevant to my career.

I am now a father of one son (Allan) and a husband to one loving wife (Fridah)!

Unfortunately I forgot to buy the traditional Dutch wood shoe and I hope one day to go back in ITC (Now University of Twente) and come back with one! ■

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