WASTE NEWS

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A SUCCESS STORY OF A WASTE ALUMNUS:

GAURAV KEDIA FROM INDIA, WASTE STUDENT OF GENERATION 2004

There is a natural order our souls resonate to and we all need to find it out to achieve that state of resonance. This aspiration always leads mankind to seek for the new dimensions in life. So do with me!

Having grown up in a middle class family of a developing country, I have always been particularly sensitive to the disparities that exist in societies, countries and technology. The advent in Germany, working at University of Stuttgart, pursuing the WASTE master program, joining the Royal Dutch Shell and finally coming back to India to work in the field of renewable energy were undoubtedly the factors to bridge and understand these disparities. Herewith, I would like to share the different facets of my life with you.

Since my early days I have seen the necessity and need of technologically sound and managed means. The unavailability of electricity in great parts of my home country i.e. India was one of them. This technical bent of my mind and passion for problem solving made me choose engineering as a career choice after my high school. I always dreamed to work in four fields namely: research, job in multinational company, business and politics. Research – to learn and give to society something that may never have thought before. Job in multinational company – to learn the world notch working style and to earn money. Business – to put research ideas and work experience into practice in an entrepreneurial manner. And finally politics – as esp. in developing countries almost everyone complains about the poor political situation but very few show courage to opt for it.

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ILLEGAL WASTE DISPOSAL IN INDIA

An online news article on Hazardous Waste Disposal in India startled me to the core. A bit more googling into the topic gave me statistical insights into the situation. Last September, customs at a port in India detained nine containers of hazardous waste with a combined weight of 195 metric tonnes. One of the containers had around 20 metric tonnes of waste, including used condoms and surgical gloves. Four other containers were imported by a firm which has a permit to recycle items such as PET bottles and PVC products. However, the containers had about 72.59 metric tonnes of waste that included oil cans, metal waste and other waste soaked with oil, dirt and grit. While the firm is into waste plastic grinding and packing, "The container had things that the company was not equipped to handle". There is a never ending list of such cases at various ports in India. The credit can partly be attributed to the levels of corruption at the ports.

According to an estimate, India imported around 16.8 lakh tonnes of 'waste paper' in 2005-2006, valued at about $290 million. However, environmental activists say that much of the so called recyclable waste that is imported is trash and ends up in Indian dumps, landfills and sometimes, even farmlands. Developed countries find it much cheaper to dump the waste in India than to process them to meet the strict environmental guidelines at their homelands.

India alone is not at the receiving end. Many developing countries like Nigeria, Ghana, Pakistan and China also are facing similar issues. When we find it difficult to dispose of our own waste, why import more from foreign countries?

▪ Ramesh Saagi

International M.Sc. program „Air Quality Control, Solid Waste and Waste Water Process Engineering" (WASTE)
Newsletter published by the Study Program and the WASTE Club Stuttgart e.V.

>>> A success story of a WASTE alumnus: Gaurav Kedia

After completing my undergraduate studies, I decided to explore my knowledge in the field of Molecular Simulation by working at "Institute of Thermodynamics and Thermal Process Engineering (ITT)", University of Stuttgart along with pursuing the master degree program "WASTE" at University of Stuttgart, where I graduated in the year 2004. My job as a research assistant at ITT also included the managerial part beside the usual technical aspect. Interaction with scientists combined with an intellectual atmosphere, excellent academic resources and research facilities in and around my institute has broadened my horizon and made me all the more motivated. To be exact, I realized the importance of balance of technical knowledge accumulation, work experience and above all international exposure rooted on scientific podium.

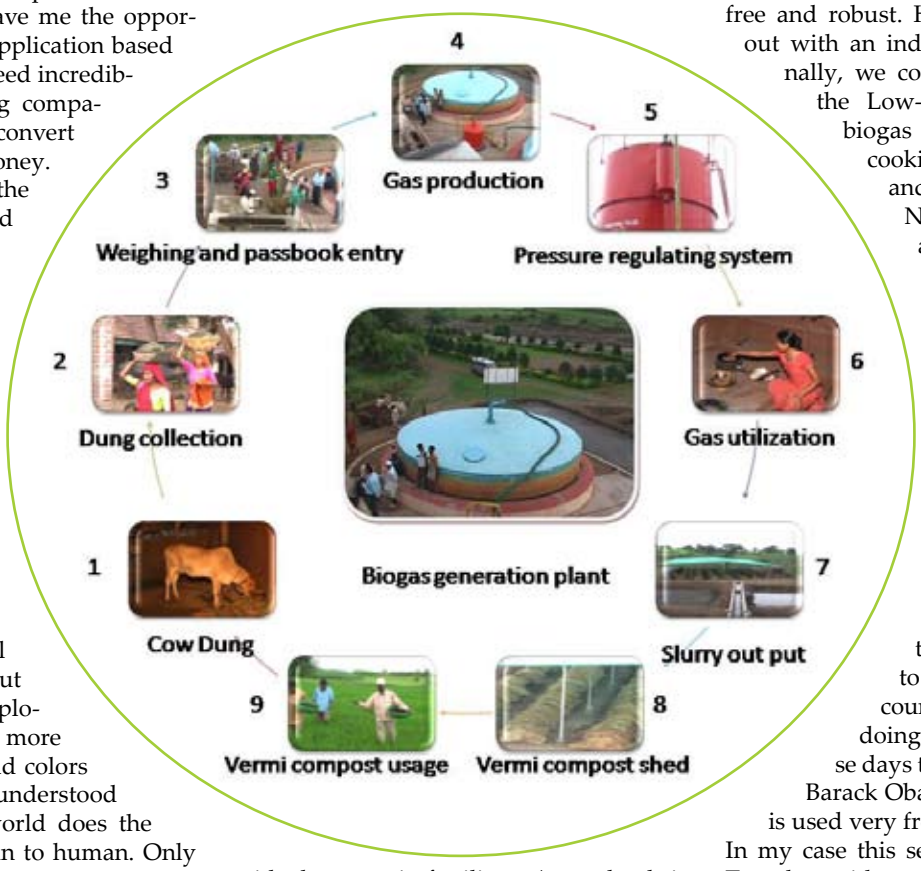
Next to research came the Job in multinational company. I was lucky enough to get the job at Royal Dutch Shell at Cologne, Germany as an advanced process control technologist. The job gave me the opportunities to explore the application based technologies. It was indeed incredible to learn how the big companies could successfully convert competencies into money. I started feeling as if the world is quite small and everything is possible. After three years in job, as per my career milestone I had to give a full stop to the job and needed to come back to India.

As per Mahatma Gandhi, „India lives in its villages". And for me the real India was still unknown. The first thing I did after coming back was to travel extensively throughout India. The more I explored Indian villages the more I came to know the vivid colors and strength of India. I understood that everyone in the world does the business between human to human. Only a farmer does a business between nature and human. Besides, it took time for me to comprehend that the poor will never opt for something new by spending money but they will never mind to share the profit. Those days the idea to develop a Bio-refinery came up.

In the year 2008 I had the great chance to take over a India's oldest biogas company with 10 employers near Pune, India. In Bio-refinery model, the biogas is primarily been used for the cooking need. The additional biogas need to be used for electricity generation / battery charging. Once the cost effectiveness is in place, the fuel cell concept needs to be introduced. At the beginning only cow-dung is being used to produce biogas but soon the multi-feed biogas technology, where many different kind of organic wastes e.g. agricultural residues, kitchen waste etc. will be introduced. Solar and Wind will supply the additional energy in the form of thermal and electricity.

The first step towards Bio-refinery was the development of Gobar bank project. The concept is to buy cow-dung from the villagers and in return give them the biogas as cooking gas through pipeline along with the organic fertilizer. A passbook is being maintained and the balance is settled every month in cash. As India has got the decentralized way of cow keeping, therefore to ensure the proper supply- chain management "Gobar bank" concept was developed. The model project is already running successfully. Several such models are soon to be replicated.

India still has a very low electricity tariff for power generation based on biogas. Therefore, it was very important to upgrade the biogas and provide it as Bio-CNG. Unfortunately, all the existing technologies were very costly and we couldn't use them for rural application because we wanted it to be cheap, almost maintenance free and robust. Hence, we had to come out with an indigenous technology. Finally, we could develop and prove the Low-Scrubb technology for biogas upgradation mainly for cooking, running a vehicle and electricity generation. Now, all the technologies are in place but we are still struggling from social engineering point of view i.e. to make people understand the need of the time for renewable energy. Nevertheless, my company is growing permanently and presently I employ 24 people.



To conclude, "Study WASTE and use the gained knowledge to benefit to your home country and the people by doing something useful". These days the sentence of president Barack Obama of the United States is used very frequently: "Yes we can!". In my case this sentence is also justified. Together with my company staff, I prove this sentence every day: Yes, we can make our environment cleaner! Day by day we transfer this sentence into practice by distributing renewable and affordable energy devices to the rural people in India, to their and the environment's benefit.

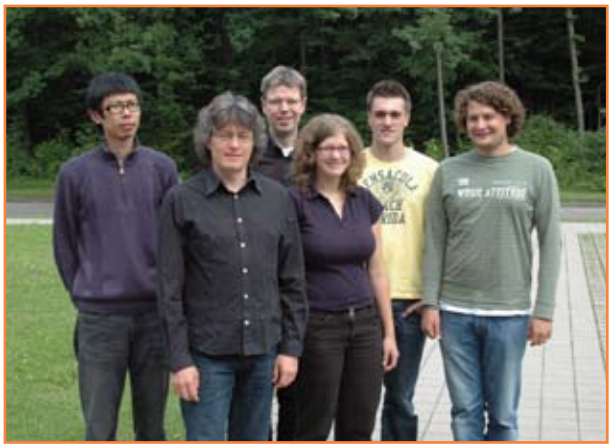
▪ Gaurav Kedia, Pune / India

News and announcements

The topical WASTE Office-Team

Right now the WASTE Office-Team has six members: Starting from the left side: **Zhuguo Zhang**, Hiwi and student of the study program "Umweltschutztechnik"; **Ulrich Vogt**, Course Director; **Adolf Neuwirth**, Examination Office; **Mona Mutz**, **Robin Laube**, **Tobias Bunk**, all Hiwis and students of the study program "Umweltschutztechnik".

The task of the WASTE Office is very comprehensive. We are answering countless questions from prospective students prior to their application. We conduct the application process including the application, the selection of the students and the admission (in close cooperation with the admission committee and the students' secretariat), organization of rooms in the student dormitory etc. The entire organization of the examinations, collection of the grades, application and performance of Master's Thesis at the University or in industry, maintenance of a data base, issue of transcripts and the final certificates and diploma. The time schedule of the lectures and seminars, including the organization and reservation of the lecture halls and seminar rooms in close cooperation with other study programs like WAREM, MIP, Umweltschutztechnik, Verfahrenstechnik, Maschinenbau etc has to be performed by the members of the WASTE Office. We provide the students with official documents they need for different purposes like scholarships, residence permit, application for the Master's Thesis or PhD or recommendation letters. Different scholarships, e.g. DAAD and especially IPSWaT – International Postgraduate Studies in Water Technology (see other report of this newsletter) – are conducted through the WASTE Office, including the application process, the contracts with the



scholarship donator (our Federal Ministry for Education and Research) and the scholarship holders, the payment of the regular installments, the participation of the scholarship holders in scientific conferences and the entire financial issues.

All the activities of the WASTE program and the WASTE Club Stuttgart e.V., like WIM – WASTE Intercultural Meeting – graduation ceremony, summer party, Christmas party, welcome party, participation at the "Tag der Wissenschaft", football tournament (together with different other international study programs of the University), different excursions, are organized and supported by the WASTE Office in close cooperation with the WASTE students.

The regular publication of the WASTE Newsletter is also an important task of the WASTE Office Team, informing the members of the WASTE Club Stuttgart e.V., the WASTE alumni and all people interested in our Study Program.

Last but not least we support the applicants and the students with all social questions and problems which occur regularly in close cooperation with the international center (IZ) of the University of Stuttgart.

All the members of the WASTE Office like their job a lot, leading to an unique atmosphere within the Team and between the Office members and the students on the one hand and the lecturers on the other hand!

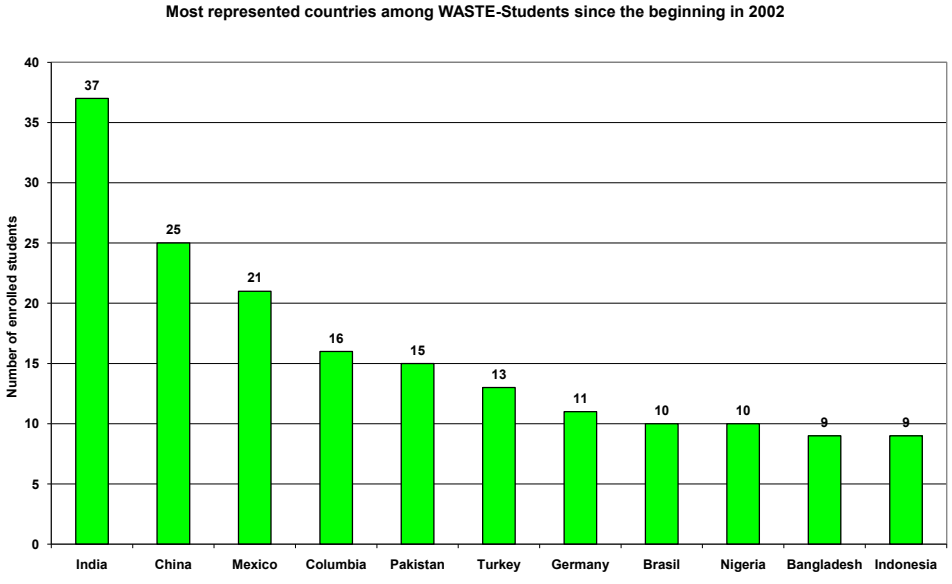
If you like, just contact us, we are open for every kind of question, suggestion or request!

▪ Ulrich Vogt, Course Director

Little WASTE-Statistics

Since its inception in the year 2002 the international English taught M.Sc. Study program „WASTE" has seen eight generations of students coming from 48 countries to the University of Stuttgart to enhance and deepen their knowledge in the areas of „Air Quality Control, Solid Waste and Waste Water Process Engineering". Up to now 261 students have enrolled in this program which brings the average size of a generation to 32.6 students. Even though the Waste-students come from all over the globe, there are countries which are more represented among the students than others. In this regard the „gold medal" goes to India with 37 students so far, China receives the silver medal with 25 students and Mexico gets the bronze medal with 21 students. More than 67% of all Waste-students to date originate from 11 countries (see diagram).

▪ Adolf Neuwirth



IPSWaT - International Postgraduate Studies in Water Technologies

My first tryst with IPSWaT happened almost a year ago, when I got an email from former Course Director Dr. Waldbauer stating that I stand a chance of getting the scholarship. A few months later, an email confirming the scholarship made my landing on the Stuttgart runway very smooth. After meeting the new Course Director Mr. Vogt and completing the initial formalities, I met the other four stipendium holders from our generation. Since then it was a seamless journey, thanks to IPSWaT.

IPSWaT stands for International Postgraduate Studies in Water Technologies. It aims to support students in acquiring master's and PhD degrees with "water background" during their bachelor study or during work experience. Since 2001, the program is funded by BMBF – Federal Ministry of Education and Research. Currently there are 20 German universities members of IPSWaT that are eligible for this scholarship. WASTE program got included in the list only last year. WAREM (Water Resource Engineering and Management) and ENWAT (International Doctoral Program Environment Water) are other programs from the University of Stuttgart that qualify for the scholarship.

The selection process for the scholarship starts at the University. Individual universities shortlist students based on various criteria. The shortlisted candidates are further scrutinized by the IPSWaT selection committee and suitable candidates are selected and nominated for the scholarship. This is an excellent scholarship as it covers all your monthly expenses, travel and health insurance. The scholarship also facilitates interaction with other fraternity related to the water field through annual meetings. Even participation in related international conferences and workshops are supported financially, as well as research stays abroad in context with the Master's Thesis. But the flip side is that, the application for this scholarship can only be done before the start of the program and cannot be applied for after completing a part of the

program. For all those interested in getting more information, please visit the website: www.ipswat.de.

One important international conference that some scholarship holders attended last year was the Acqua Alta Conference 2009. It was a three-day conference, carried out in Hamburg from 10 to 12 November, and presented the latest research findings, projects and political standards on consequences of climate change and flood protection. The Acqua Alta Conference provided round tables and forums for politicians, business experts, academics and experts to discuss topical developments and strategies in a whole range of issues linked to climate change such as flood protection and coastal protection; risk and disaster management; hydropower, barrages and dams; climate consequences, environmental protection and water management; and research, development and services.

As it was stated in the welcome brochure from Acqua Alta, Hamburg was appropriate for the conference and exhibition because Hamburg is a maritime city that has learned to live with water – and water with Hamburg. In fact, Hamburg is a city that knows about water and so it has already launched the first steps to respond to climate change with the Hamburg Strategy for adaption to climate change. At the end of the conference, the participants were invited to a guided tour to IBA DOCK. – climate neutral building by the water. We had the opportunity to visit the construction of the first auto-sustainable floating building which is part of a larger building project in Hamburg.

This three day event let us take part of high-level meetings of experts, academic exchanges, and presentations of innovative advances about climate change. The knowledge level of the speakers, the building and technology used in the conference and fair were appropriate for such event. We learned many new useful subjects, such as the present situation and actions plans, due to both practical and academic presentations; and we got motivated to research better technologies to face the climate change challenge. Thanks to IPSWat for this academic and personal pleasant experience.

▪ Ramesh Saagi

Participation in the "International Technical Conference on Clean Coal & Fuel Systems"

Aaron Fuller, a former Waste student and current Waste club member, attended the 35th International Technical Conference on Clean Coal & Fuel Systems from June 6 to 10, 2010 that was held in the Sheraton Sand Key Hotel, located in Clearwater Florida, USA. As a PhD student, he participated in the best student paper award. The award is given to a student who submits and presents a paper of high caliber. The goal is to give exceptional student / speakers well-deserved recognition. Aaron Fuller was the winner of the this year competition that included 24 student papers submitted and 22 student presentations given by students from universities all over the world. We would like to congratulate Aaron Fuller for his award and wish him continued success in his work!

▪ Ulrich Vogt

I am very thankful for the opportunities that arouse out of my participation

Aaron Fuller receiving the Best Student Paper award at the 35th International Technical Conference on Clean Coal & Fuel Systems (emeritus Prof. Dr-Ing. Klaus R.G. Hein next to Mr Fuller)

in the Waste course. The work was made possible through a European funded program. I give acknowledgment to Dipl.-Ing. Jörg Maier who is my department head (Department of Firing Systems), Director Prof. Dr. techn. G. Scheffknecht (IFK director), emeritus Prof. Dr.-Ing. Klaus R.G. Hein for encouraging us to participate in the conference, the European Union's Seventh Framework Program for funding the research work under the DEBCO project, the DEBCO project partners for their contribution to the demonstration campaign where the data was collected, Electrabel personnel and other personnel at the Rodehnhuize power plant located in Gent, Belgium for their participation in the demonstration measurements, personnel in the Institute of Combustion and Power Plant Technology at the University of Stuttgart, for their support in the demonstration campaign and analyses of samples, the Institute of Mineralogy and Crystal Chemistry at the University of Stuttgart.

▪ Aaron Fuller

Relevance of international co-operations – example EDUBRAS/MAUI

Since 2001 the Institute of Sanitary Engineering, Water Quality and Solid Waste Management at the University of Stuttgart has taken part in environmental projects in Brazil. The former WASTE Course Director Dr. Waldbauer initiated and cultivated relationships with Brazilian Universities, Environmental Protection Agencies and Industry Associations. The implementation of summer school courses from 2002 to 2005 with the topics industrial waste water and industrial waste in São Paulo, Curitiba, Belo Horizonte and Recife showed a great interest in environmental issues, but also a need, to expand the range of teaching by study courses. For sustainability and thus for the success of any environmental project the know-how and skills of competent professionals are critical. Hence a study course was developed and implemented in Brazil under the German Academic Exchange Service-Program (DAAD). 2008 the international, professional master program "MAUI – municipal and industrial environmental protection" was launched at the State University "Universidade Federal do Paraná (UFPR)" in Curitiba together with the "Serviço Nacional de Aprendizagem Industrial (SENAI/PR)", which is a part of the Industrial Association of Paraná. Within four semesters the "Master of Science" is acquired.

Opening ceremony for the new students 2010

The link between university teaching and research on the one hand and industrial application on the other hand is realized to a large extent. Having work experience the students can look back on different high-quality professional curriculi, which lead to interesting and fruitful technical discussions between students and faculty. Experience shows that, by this very lively learning, the students are highly motivated to implement sustainable environmental protection at their workplace and most of them do this already during their studies and in their master's thesis.

Visit of the Rector Prof. Ressel and EDUBRAS / MAUI Officials in the Universiadade Federal do Paraná-Rector's office

Partnerships with Brazilian companies, like SANEPAR, the supply and disposal company of Paraná, allow for projects in which an expansion concept for the municipal waste water treatment plant is planed. Such partnerships enable the University of Stuttgart to conduct international research projects and to offer exchange programs for Brazilian and German students.

At the moment some very good students are given the possibility to visit the University of Stuttgart either for doing there master's thesis or to attend a two-week specialized course.

In 2009 an evaluation of the course was held by the DAAD in Brazil. The members of the evaluation panel composed of representatives of German universities, DAAD, and people working in university research projects, described the course as "a perfect example for a flagship project" and evaluated it as "excellent". As next steps textbooks will be published and the realization of a double-degree and the international accreditation are planned. A PhD-Program, based on the master course is planed, as well.

As a part of his trip to Brazil in October 2009, our Rector Prof. Ressel got a personal impression of the course MAUI and held talks with representatives of the Brazilian partner institutions.

▪ Dr. Daniela Neuffer, coordination Master Course MAUI and DAAD-project EDUBRAS and Prof. Dr. Uwe Menzel, Director DAAD-project EDUBRAS

Dates to note

- Waste Intercultural Meetings "WIM" in upcoming winter semester every 3-4 weeks
- 23 July 2010: Summerparty 2010
- 24 July 2010: End of lecture period
- Sept. 2010: Arrival of 9th generation
- Sept. 2010: Welcome Excursion
- 14 Sept. 2010: Excursion to IFAT
- October 2010: Welcome Party
- 18 October 2010: Start of lecture period
- 11 Nov. 2010: Grad. Ceremony 2010
- 24 Dec. - 9 Jan. 2011: Christmas Holidays
- 15 February 2011: Application deadline for 10th generation starting in Sept. 2011

Studying WASTE

WAREM-Excursion

Two month ago 23 students took part in an amazing trip to the south west of Europe visiting some cities in Germany, Austria and Italy. Those students were perfectly prepared to follow the tight schedule organized by WAREM Staff and the WAREM Course Director Matthias Schneider. The most important things to bring were passport, good shoes and clothes for any kind of weather, camera and very good attitude to face all the unexpected adventures during the excursion.

The objective of the excursion was to take a look on processes and technologies in real companies in order to see the application in the industries, and also to learn about the mistakes made by them in the past, as well as realize the impact of our engineering studies on the ecology and human life.

Our excursion started at the "Deutsches Museum" in Munich, which is one of the largest science and technology museums in the world and it demonstrates how important science and technology is to german people. There we could see some exhibitions like energy technology, hydraulic engineering and the planetarium. After visiting the museum we went directly to Salzburg, where a nice tourist guide wearing a traditional dirndl was waiting for us in the city center. She showed the most touristic places and explained some important facts about Mozarts time.

On Tuesday we went to the Waste Water Treatment Plant Siggerwiesen where we could see all the theory that we learned last semester in practice. This plant cleans the wastewater of the city of Salzburg and the surrounding communities. This day we also visited the River Power plant Werfen/Pfarrwerfen which is an optimal addition to the existing power plants of St, Johann, Urreiting, Bischofen and Kreuzbergmaut. All five power plants together generate 375 million kWh of electricity, which is enough to supply about half of all households in the federal province of Salzburg.

On Wednesday we had the most beautiful view on the Australian Alps; we visited the Kölnbrein Dam which is located in the southern foothills of the high Tauern Mountain Range in Austria. This dam supplies Austria with about 45% of its electricity, has a total turbine capacity of 891000 KW, a total pump capacity of 406000 kW and produces approximately one billion kWh per year. Our day continued with the Restoration of the Upper Drau River. The objective of this project is to improve the ecological integrity of the river ecosystem, to reduce riverbed degradation, and to ensure flood protection.

Our journey continued in Longarone where our hearts trembled with the shocking history of the Catastrophe of Vajont. The Vajont Dam is the site of one of the worst tragedies in Italy which resulted in the death of 1914 people. It was caused when dam developers ignored the geological instability of Monte Toc during the construction of the southern side of the reservoir basin. Despite expert warnings that the mountain was unstable, the reservoir was filled. After a minor landslide, the construction of an artificial gallery in the basin and five small earthquakes one day in early October 1963 a 260 million m3 landslide fell into the reservoir, causing 50 million m3 of water to overtop the dam in a 250 m high wave that brought massive flooding and destruction to the Piave Valley below, wiping out several villages completely.

The fifth day was amazing! We departed early in the morning to visit the Hydraulic Laboratory of the Ministry of Public Works, we received a very detailed and good explanation about their projects and we had the opportunity to see one of the biggest physicals models of the world. Immediately after the visit we drove to Venice, our next visit was in the city center of Venice in the "Information Center Puntolaguna" so our first impression was amazing. When we arrived there the expositors where already well prepared to give us a nice presentation about the project called "Venice, The Mose System to Defend from High Waters". They used very good media to explain their project and they were very enthusiastic with the benefits the city is going to have when it is finished. During the night we saw how romantic the city looks, the atmosphere was relaxing and the weather was perfect to spend some time just walking on the street.

On Saturday we visited the city of Venice and everybody was excited and happy about it. We went to the most tourist places there and we had a nice time finding other amazing places and corners. In the city there were as much tourists as beautiful places. In that night we arrived to Trento, a small but beautiful city and we ate a delicious dinner there.

The last day of our trip we drove to

Füssen to visit the Neuschwanstein Castle. The weather was not good but that wasn't an impediment to continue with our plan and we realized why that castle was proposed to be one of the seven new world wonders.

Finally we came back to Stuttgart very tired but with a big smile on our faces, and satisfied with the excursion. We learnt a lot about technical aspects but we also thought a lot about all the consequences that our work as an Engineer can cause on the environment, the economy and the society. We learnt about our responsibilities, our possible errors and our possible successes. We are grateful to the WAREM Master Program because they organized every hour and every second so well that we did not lose any time and also because even if that excursion is directed for WAREM Master Students, they always leave some places for the WASTE Master Students, and I think that is a very good idea, because Water Technology is an important part of our studies. So we are ready and willing to go to the next excursion.

▪ Gisela Tejada and Ana Maria Vasquez

STUBE-Seminar

From 7th till 9th of May, Ivan, Collins and I were in the STUBE-BW (Studienbegleitprogramm für Studierende aus Afrika, Asien und Lateinamerika in Baden-Württemberg) seminar which was held in Weil der Stadt. Out of our expectation, it turned out to be a wonderful seminar.

We have gotten the chance to get to know people from the countries in the three continents. We had a few joyful discussion sessions about the topic – „Water- A source

of life". Each of us shared and exchanged our experiences and the water situation in our countries. From the discussion, I came to know and see the water problems from different angles. Some of the countries are actually having enough water resources, but these countries are still facing water shortage problems due to political reasons. Some people enjoy free water and electricity supplies in their countries but they suffer from kidney disease or other health problems due to extra high saline content in the water. In one corner of the world, people have no choice but to use and take in highly polluted water. Due to the various problems and issues, some of the participants of the seminar came to Germany to pursue their study in environmental related engineering. They have the sense of mission, they hope they can help to improve the water situation back in their home countries. The most important information that I got from one of the exercise sessions is that each of us consumes approximately 1 million litres of virtual water in a year! It was shocking figure to me!

There were also a few professions who joined us in the seminar and shared their experiences from the technical, political and social point of views. The seminar is not only a platform for us to exhange our ideas but also a place where we could learn about different cultures.

In a nutshell, STUBE does provide a very good platform for the foreign students to exchange ideas on different topics. Some of the topics are conducted in English; some are in German. For more information, please refer to the STUBE website www.stubebw.de.

▪ Jess Wong Yun Chin

Excursion to the Böblingen-Sindelfingen WWTP

Since WS 2009 I'm a student of International Master of Science Program WASTE.

I'm very glad that the University contributes not only to the education of the person in his specialization area but also to his intellectual, spiritual and social development. One of the positive sides of our Master Programme is that it aims to provide students with the ability to take part in special excursions connected to our programme.

On the 7-th of May 2010 WASTE students who take „Waste Water" as a core module had an excursion to the Böblingen-Sindelfingen WWTP. We had an opportunity to have a detailed insight into the work of WWTP. It was very kind of senior members to help us with finding answers to the questions which are of interest to us concerning our current project.

One of the most important points in afore-mentioned excursion was that we had a possibility to make ourselves familiar with water processing steps in detail, namely: mechanical processing, sedimentation, denitrification and etc.

▪ Emin Saibov

Recent events

Planetarium

Sky, this mysterious creature has always been the source of attraction for people during a long time. This has always been one of the common interests for all the people from different continents, different countries and different cultures all around the world.

"In past days there was no electricity invented and so no TV and Laptop has been made for people to spend their free time sitting in front of them at nights, so they spend more time staring at sky" this said the man in charge of planetarium tour in Stuttgart, while we, the students and course directors of all international master study programs of University of Stuttgart (COMMAS, MIP (Master of Infrastructure Planning), GEOENGINE, PHYSICS, INFOTECH, WAREM and WASTE) and the international doctoral program ENWAT were looking at the virtual sky on the archly shaped ceiling full of stars and planets.

We took a planetarium trip to the southern and northern hemisphere to see how the stars look from different part of the earth, and what sky images are seen by several cultures.

In the rest of this fantastic sky trip we studied all the planets in solar system, Mercury the innermost and smallest planet, Mars called also red planet, Jupiter the biggest planet with a big dark spot (a huge hurricane) with double size of the earth, Saturn and its colorful rings made of icy rocks, and so on.

The huge joy with a big smile was the souvenir of this trip to sky for all of us.

We recorded that with a group photo taken in the Schlossgarten in Stuttgart, and continued this excitement by drink together and watch football in the first day of world cup 2010 in the nearby beer garden.

What is left now is a perfect and unforgettable day with my friends from different countries and different study programs in Stuttgart. I would like to encourage the course directors to continue to organize such joint events for all international students. This was a great start of the joint activities!

▪ Ms Nasim Rafiefard, Student of the International Master Program PHYSICS

IFK-Excursion

In the summer semester 2010, the Institut für Feuerungs- und Kraftwerkstechnik (IFK) offered the opportunity to participate in a international excursion around north of Germany and Denmark: "Energy today and tomorrow". This one-week trip allowed its participants to get a perspective of what is going on in the field of energy production nowadays and in the future.

The journey started with a tour in a Nuclear power plant in the north of Germany. The Unterweser NPP is a thermal power plant situated along the Unterweser River, ten kilometres south of Nordenham.

To see another way to produce energy the group travelled to Aurich, where the headquarter of ENERCON, a young company created in 1984, is situated. ENERCON started with the development of the first ENERCON wind turbine, nowadays with a number of 16.000 installed wind turbines worldwide, and a total power production of more than 20 GW.

The journey continued in Hamburg, where the group visited Subitec - Sustainable Biotechnology, which was founded in 2000 as a spin-off of the Fraunhofer Institute for Interfacial and Biotechnology (IGB). By means of a globally patented flat panel airlift photobioreactor, algae biomass can be cultivated on an industrial scale using solar power. With the aid of the FPA reactors, a large number of valuable substances can be obtained from the microalgae, such as fatty acids, proteins, vitamins, carotenoids and colorants, which are used as raw materials in the chemical, pharmaceutical and food industries. As well as the obtaining of high-priced substances, the technology also allows the use of algae biomass for energy purposes. For this, Subitec developed integrated circulating processes: The CO^2 needed to cultivate the algae, comes from industrial processes. The closed system allows circulation of water and nutrients, and the concept of the biomass refinery makes it possible to utilize the algae biomass in its entirety.

Coming back to well-known technologies for energy production, the group visited one of the world most modern and efficient power plants for the supply of electricity and district heat, which is currently being built in Hamburg-Moorburg. Located on the Elbe River on a site that was previously used for electricity generation, the Moorburg coal-fired plant will make use of the latest available technology in its construction. Once in operation, the plant will meet roughly 85% of Hamburg's electricity needs and 40% of its district heating needs.

The Esbjerg Power Station was also scheduled in our visit to Denmark. EPS has been operating since 1992 at Esbjerg harbour. With its unit 3's 250-metre high chimney, it is the tallest in Denmark and makes the power station a distinct landmark at the quay in Esbjerg. In 2004 the power station's environmental facilities were extended with a DeNOx facility for nitrogen oxide removal. The visit was focused on the Pilot Plant for CO2 recovery throws Absorber/Stripper process using MEA, which has shown good results.

In addition to the mentioned places and facilities, the group had the opportunity to enjoy other cities like Kopenhagen, Odense, Esbjerg, Neumünster, and Bremerhaven, and also enjoy the food, traditional drinks and the night life.

Thanks to IFK, Gosia Stein-Brzozowska, Nataliya Knierim-Dietz, all the people related with the organization and also to the companies which sponsored the excursion. Looking forward to the next IFK excursion.

▪ Jorge Mario Toro Santamaria

"Fishing" for new students at Europosgrados Tour in Chile, May 2010

Europosgrados is the most important higher education fair in different Latin American countries and the only one to focus on the wide range of postgraduate courses in Europe in order to promote student and professional exchange and mobility. From May 15 to 20 this year the fair took place in Chile. The University of Stuttgart was represented by the Course Director of the WASTE master program, Mr. Ulrich Vogt and the WASTE alumnus Ms. Carolina Acuña Caro. The event was organised by BMI (a professional company, specialised in organising educational fairs) and Becas Chile (partner organisation of DAAD in Chile) with the collaboration of institutions such as The British Council, DAAD (German academic exchange service), Campus France, Instituto Chileno Norteamericano, among others. In this opportunity about 120 universities from USA, Canada, Australia, Mexico, Spain, Italy, Great Britain, Netherlands, France, Switzerland, Israel and Germany participated.

For the German universities DAAD-Chile coordinated the event. Every two years a large fair takes place in Santiago de Chile involving around 40 German universities. The University of Stuttgart participates since 2005 in these fairs in different Latin American countries, having great acceptance because of the varied offer of Master degrees taught in English: COMMAS, MIP (Master of Infrastructure Planning), GEOENGINE, Physics, INFOTECH, WAREM and WASTE. In fact during the last years our university was present in educational fairs in Colombia, Mexico, Argentina, Venezuela, Brasil and Chile.

In Europosgrados tour Chile 2010 the University of Stuttgart shared the German delegation with the Technical University of Dresden and the University of Heidelberg.

Usually the fair takes place only in Santiago, the capital city, but this time it was extended to other Chilean cities: Antofagasta (1300 km north of Santiago de Chile) and Valdivia (850 km south of Santiago de Chile). The convocation got over the expectations. Around 13.126 visitors were estimated only in Santiago, while in Antofagasta were about 1.184 and in Valdivia 1.479. The crush at our stand was not less in Antofagasta and Valdivia compared to Santiago due to the fact, that less exhibitors were present there. The University was prepared to collect the information about the visitors at the stand resulting in a database in order to contact the interested people. Thereby a number of approx. 600 students looked for advice at our stand. From a first estimation in Santiago the questions were targeted not only to the international master's degrees but also to doctoral degrees (among others ENWAT – the doctoral program in the water sector at our university) and masters in education and philosophy. In the north of Chile mining constitutes the main economical activity. Not far from the fair site in Antofagasta, the biggest surface mine world-wide, Chuquicamata, is located. Therefore most of the professionals are civil and mechanical engineers, thus our stand generated great interest in comparison to other universities, where engineering courses were not offered. In Valdivia the length of the fair was shorter than in Antofagasta, but the work was not less. In general, most requested study programs were WASTE and WAREM, but also the other international master study programs as well as courses taught in German language.

Although the German language was considered in many cases the limiting factor to come over, it can be concluded that the German academic excellence is far over those limitations: the week after the fair several visitors already contacted the University of Stuttgart. We assume an increase in the number of applications at the University of Stuttgart from Chile in future.

The combination as stand personal consisting of a course director and an alumnus of one of the international master study programs – in this case a Chilean from the WASTE program – who is presently doing her PhD at the University of Stuttgart, pointed out to be ideal for the participation in such an educational fair.

Although the participation in the fairs was quite exhausting due to the high number of interested people at our stand, we enjoyed it as well because of the nice atmosphere during the fairs.

▪ Carolina Acuña Caro and Ulrich Vogt

Funny stories

Mexico vs. Netherland

Look! Number 11 is at the offside position! What does offside means? I have no idea. Frankly speaking, I know nothing about the rules of football game except that there are 11 players in each individual team. I like to watch football game out of no particular reason, just enjoy the excitement of the games that comes from the fans and the energy that comes from the players.

On 26th of May, I finally had the chance to watch my very first life football game in Freiburg. Thanks to my Mexican peers who brought me to see and support the Mexican team which played against the Netherland team. We reached the stadium one hour before the game started. Outside the stadium were filled with men, women, and children, most of whom wearing their jerseys with the flags in their hands. There was a crowd which really caught my attention, it was a group of Mexicans who danced around, sang and cheered for their

team. Neither of the people who passed by had not stopped to share their warmth and happiness.

The feeling was very different when you sat in the stadium, looking at the teams marching in to the field and hearing the cheers coming from the crowd.

There was a heavy rain pour during the match but it did not stop the players' fighting spirit. The Netherland team scored two balls at the first half and Mexican team did not score. I could sense the tension in the Mexican supporters. However, their cheers had never died down at the second half.

Finally, the Mexican team scored one ball! On the second the ball went in the gate, I got a shake in my ear drum. The excitement and sensation from the crowd was so overwhelming! The match continued and stopped with 2: 1, Mexican lost.

Even though the Mexican lost, the Latinos already told us how much they love about football and their passion and warm in supporting their team. It was really a great experience to see the life game and I would definitely love to see more again in the future. ▪ Jess Wong Yun Chin

When I got stuck in my past

It is always great when you are back at home again. You meet all your beloved family, friends, and same old surroundings. Right after my last final exam, I catched the fist flight back home to Thailand… excitedly and of course happily. Although there were situations going on in Bangkok, I spend most of the time there with my family like nothing happened. My time there was too short. After delighted with doing whatever I wanted it was time for me to leave for my study.

During my time in Bangkok I heard that there were volcanic eruptions in Iceland but it didn't catch much of my attention. I was so happy being home at that time. But on April 16th, my smiling face faded out when a local TV said "All flights within, to, and from Europe were cancelled indefinitely". Wait a minute, do you mean my flight on the next two days too? After that my life was a mess with doing nothing but calling Suwannabhumi Airport and Thai Airways on that whole day. It did not work. The line was corrupted. No one could answer my questions.

After that chaotic day, my sister brought me to the airport, to go directly to the Thai Airways counter service and rebook the flight. Her airline dealer said the best way in a situation like this is "go to the counter. Do not wait in front of TV, computer, or telephone." Nonetheless, the ground attendant could not tell when the air space will be open again. We need to take our own risk. After one day past, the soonest flight was on April 28th, ten days delayed. But I was quite happy though, I had some more time with my family and friends.

My suggestion in this situation:

1. Check if your flight is really cancelled.
2. Do not spend too much time on telephone or internet. No one is going to there to answer the same questions thousand times.
3. Go to your counter service and talk face to face with the attendant.
4. Do not forget that all staffs are facing the problem too. Be sympathetic and understanding. Make them understand nicely and calm. ▪ Arunee Tan

2010 FIFA World Cup

It is time for South Africa to host the greatest football show on the planet, the FIFA 2010 World Cup - and the entire world looks up to South Africa. From June 11 to July 11, the first football World Cup on African soil takes place. The football world is again in a party mood. Who does not remember the fantastic images of the 2006 World Cup in Germany? Wherever there was space and the opportunity to watch the games, Germany and numerous international guests watched the broadcasts of World Cup games.

WASTE students, who come all over the world, are also looking forward for this international festival. Although the majority of us will not travel to South Africa due to budget constraints, should not give up the stadium atmosphere, but should look for public viewing places. The most convenient one is in Schlossgarten in Stuttgart. So we went there to watch the opening match South Africa vs. Mexico on 11 of June. The environment was fantastic and the organizational levels were perfect. Thousands of people were there, drinking beer, singing together, and were giving a virtual support to their team. We had a great time there and enjoyed our time together. ▪ Emin Saibov

Life after WASTE

Réka Tittesz at EISENMANN

As a former WASTE student of the generation 2007, I would like to share with you how my post-academic life looks like.

After struggling myself through the WASTE examinations, I entered industrial life by deciding upon a Master thesis at Daimler AG. The opportunity to work in such a worldwide recognized and highly esteemed company enriched me with a great deal of theoretical as well as practical knowledge, meanwhile offering an insight to the workflow of a company of Daimler's size, not to mention its contribution to my German language skills. I have been dealing here with the exhaust gas treatment system of medium duty diesel vehicles, my task consisting of optimizing the particulate matter filter by finding the optimal catalyser ratio for increased dust removal efficiency. It was a highly challenging and meanwhile rewarding experience.

To my actual working place got me an excursion organized by the WASTE board, where we could enter the open doors of EISENMANN.

EISENMANN is a global engineering, procurement and construction supplier in the fields of general finishing technology, material flow automation, environmental technology as well as process and high temperature technology. During the open day, we had the possibility to view an incineration plant assembled together to be transported to Russia. I was highly impressed of what I saw and got very eager to be part of the team that materialized this. Being employed since more then a year in the team, I have indeed the possibility of contribution. I am active in the environmental department, division of residues, dealing with the treatment of all kind of waste streams by the means of incineration. In other words, I am part of a real pyromaniacs group, bringing into flames everything what's burnable.

My main tasks here are the design of incineration units with the corresponding exhaust gas system, executing the required thermodynamical calculations and deciding upon the most suitable applicable technologies. It's also between my responsibilities the direct contact with clients and providers. Being given that we rarely encounter similar target formulations and every solution that we offer is tailor suited, my job covers a wide range of variety, excluding monotony and always delivering something new to learn. Thus, I think I may say that I really have the chance to develop and deep in my knowledge gained during the WASTE studies.

Accordingly all I can do is to encourage you by deciding upon WASTE, wish you lots of luck with your decisions and ambitions afterwards, but until then I wish you just as much fun as I had during my "WASTE time"!

▪ Réka Tittesz

Magdalini Vythoulka about electronic waste recycling in Greece

In 2005 I applied to study WASTE, as it was the continuation of my Bachelor degree in Pollution Control Technologies in Greece. After the completion of my studies in the WASTE program I returned to Athens, my hometown, in order to look for a job. After all, working in Athens and using the knowledge acquired during the program was the goal.

For more than two years now, I have been working in the field of electronic waste. APPLIANCES RECYCLING SA, is a non-profit company responsible for organising, controlling and coordinating all stages of WEEE (Waste of Electric and Electronic Equipment) management. According to legislation, producers of EEE have to regularly declare the quantity of products marketed in Greece and pay the legally required tax, which exempts them from the obligation of later having to recycle their products themselves. In other words, the company is responsible for practically all electronic waste recycling in the country. We work on raising awareness and developing the necessary infrastructure for the WEEE collection and treatment. Waste management of WEEE involves all stages of collection, transport and recycling so that after the dismantling of the appliances, the materials which constitute them are streamed back into the market.

My work is in the Technical Department which deals with the control of the recycling process and its compliance with the technical procedures. The recycling plants are located in different parts of Greece in order to lower the costs of waste transportation. The recycling process is monitored with thorough reports that the recycling plants submit on a regular basis as well as with frequent visits to the collection points and the recycling facilities. The aim is to achieve the recycling rates set by the European Union and the Greek Government.

The WASTE experience has been a valuable tool for me for many different reasons. Not only the knowledge provided during the lectures and the excursions to all the treatment plants, but also the team work and this international bond formed between the students of the WASTE generation 2006 have made it a life altering experience for me. It has given me a great advantage in my CV that provided me with expertise and confidence and a great gift of having friends all over the world!

Thank you for this invitation to write for the newsletter. I am proud to be part of the WASTE family!

▪ Magdalini Vythoulka

Where to go in Europe?

Krakow – Poland

Krakow is the second largest and one of the oldest cities in Poland. It is a city of around 750,000 inhabitants and it is situated on the Vistula River. The historic centre of the city was inscribed on the list of World Heritage Sites, with many important places like the Old Town, Kazimierz and the Wavel Castle. The Old Town of Krakow is named "Stare Miasto", which is well known by many churches like St. Mary's Basilica, Church of St. Wojciech and Church of St. Barbara.

Kazimierz was the home of a Jewish Community from the 14th. century until the Second World War. In this place was built many Synagogues like Fortress Synagogue and Old Synagogue.

Old Synagogue

The Wavel Castle is one of the most important places in Krakow. It is a national museum full of stories for the polish culture. One of the most well known

stories is the one of the Dragon of the castle. The story says there was a Dragon, which used to eat cows and sheep of the people of Krakow. The King Krak (hence the name of Krakow) offered his kingdom and his daughter to the one who could defeat the Dragon. A young shoemaker could kill the dragon with cleverness and he liberated Krakow. Nowadays, there is a statue of the dragon and it is the favourite mascot of the city; such is its popularity, almost all tourists take a dragon figurine as a souvenir.

Other famous place near by Krakow is the Nazi Concentration Camp. It is located 65 kilometres from Krakow and it is possible to travel by bus, train or taxi. There are two sites opening for the visitors, Auschwitz I and Auschwitz II-Birkenau. Nowadays, Auschwitz is a museum and a memorial site to remember the victims of Holocaust. Other important place to visit is Wieliczka Salt Mine. It reaches a depth of 327 meters and is over 300 km long. It is possible to get a tour to the Salt Mine from Krakow with shuttle buses or by train.

Krakow is undoubtedly an extraordinary city and one of the treasures of world culture. Therefore, it was named the official European Capital of Culture in 2000 by the European Union.

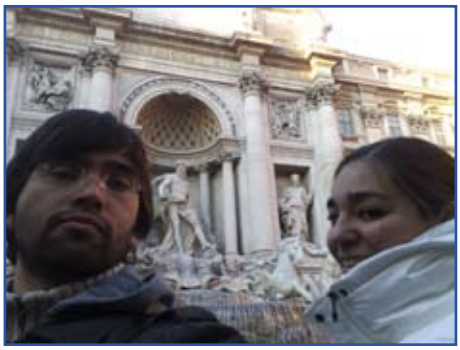
▪ Fabiola Salguero

Rome in winter, Rome in spring...

You can reach Rome either by train or by plane, but I recommend you the second one: if you book with time it could be as cheap as by train but it is faster and you can find direct flights from Stuttgart. Of course and as expected, the Roman Airport is not exactly the most effective airport in Europe but if you take your bag with you on the plane you can find outside the airport a lots of bus shuttles or the train connection to take you right downtown, where the fun begins.

Winter in Rome is a cold but almost-no-snow winter. Spring is sun time, not that hot to stay the whole day sweating but with the perfect weather to enjoy a gelatto. And even so, I still prefer Rome in winter: touristless!

I don't think I have to talk here about the magnificence of the Colisseum or the speechless Basilica de San Pietro with its always heartbreaker Michelangelos Pietá. Of course, you have to include an endless but still amazing tour at the Vatican Museum. And when you get to the Capilla Sixtina: don't take pictures with flash, it's forbidden



and perhaps you would meet an Italian security man who is going to remember it to you in his very own loud special way.

The best of way of getting to know a city is walking and walking: go to Trastevere (Trans Tiberim), right "beyond the Tiber", do some shopping near Piazza di Spagna, walk till Piazza di Popolo and then have dinner at Piazza Navona. And just let Rome to show you its magic…

And before leaving remember to throw 2 coins into the Fontana di Trevi, one for your special wish and one to come back to Rome. I did it and it worked! ;)

▪ Maria Blanno Vidal

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Authors
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Pictures
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Master of Science Program „Air Quality Control, Solid Waste and Waste Water Process Engineering" (WASTE), of the Universität Stuttgart and WASTE Club Stuttgart e.V.

Program Coordinator
Prof. Dr.-Ing. habil. Günter Baumbach

Contact
Dipl.-Ing. Ulrich Vogt
WASTE - Universität Stuttgart
Pfaffenwaldring 23
70569 Stuttgart
Germany

info@waste.uni-stuttgart.de
www.waste.uni-stuttgart.de
Tel: +49 (0) 711 685 68291
Fax: +49 (0) 711 685 68277