



## THE CHINESE THREE GORGES DAM PROJECT

The development of renewable energy, for instance, hydropower, solar energy, wind power, is getting more and more important all over the world. Clearly, it is not only caused by the increase of public awareness on climate change, but also by declining fossil fuel reserve as well as increasing oil price. According to The Green Guide, a record \$100 Billion was invested in renewable energy in 2010.

As renewable energy is naturally replenished and environmental friendly, it is considered to be the ideal alternative for fossil fuel. There are many large-scale as well as small-scale projects worldwide, especially in developing countries, where it has been demonstrated that renewable energy has significant direct contribution to the economics. One example is the famous Chinese Three Gorges Dam project.



Chinese Three Gorges Dam is the largest hydropower station in the world and the largest dam in Chinese history. The beginning of the project can be traced to the early days of New China. In 1950s, the exploration, design and demonstration of the project, in which the Soviet Union's irrigationists were involved, was carried out under the supervision of Premier Zhou Enlai. And the arguments related to this project raged on and on and has never ended yet.

The supporters held the opinion that it would be necessary to construct the dam to prevent and control the flood, which was considered as the key benefits of the project. Besides, it could produce huge economic benefits by producing electricity, which in turn resulted in the ecological benefits by reducing coal consumption and the emission of large amounts of CO<sub>2</sub> and industrial wastewater.

>>> continues

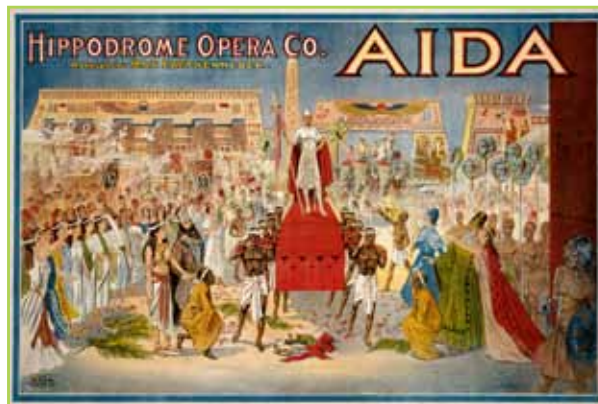


## STUTTART OPERA: AIDA

Last October almost 30 WASTE students collectively attended Italian composer Giuseppe Verdi's *Aida* at the Stuttgart Opera House. *Aida* is tragic love story set in Ancient Egypt, in which two lovers battle to overcome an ominous fate. In addition to a powerful and memorable musical score, it is considered one of the grandest of all operas. The male lead, Egyptian General Radames is in love with *Aida*, captured Ethiopian princess and slave to the Egyptian Pharaoh's daughter, Princess Amneris. Moreover, if Radames returns successful from an invasion of Ethiopia, then he is to marry Amneris and become the ruler of Egypt. Radames returns triumphantly from Ethiopia bearing prisoners, one of which is *Aida's* father Amonasro, the Ethiopian king. *Aida* and Radames both struggle with conflicting homeland loyalties that threaten their love for one another. It becomes clear their only hope is to run away in secret otherwise suffer the unrelenting pain of suppressed love. Before they can do so, their love is uncovered by Egyptian authorities, a dreadful twist of fate which leads to an unexpected finale. So, how was the performance?

To see one of the grandest of all Operas in Germany was a very special opportunity. Wearing a blindfold, ho-

wever, may have been a good idea. Allow me to explain. When the curtains drew, the setting was not Ancient Egypt but rather a tacky alternative-future military party. While some settings may be open to interpretation, it is my belief that *Aida* was intended to be, and should always be, set in ancient Egypt. The experience was definitely lessened because of this unfortunate presentation. Despite the visual disappointment, the music was first-



rate. Ramfis, high priest of Egypt, and Amonasro were master basses, and *Aida* sang fervently throughout. Radames seemed to have saved his voice for the second half, during which emerged to our delight a deep seeded passion to impress. Overall, it was a pleasurable experience, just not the grand opera experience I had envisaged. Hopefully my colleagues were not turned off by the odd presentation and

are interested in attending future operas - perhaps a humorous Mozart love affair or a Richard Wagner magnum opus. One thing is for sure, do not pass on taking advantage of the numerous musical opportunities Stuttgart has to offer. Fine music compliments the diesel engine as one of Germany's greatest gifts to the world.

▪ James STARNES, *generation 2009*

## >>> THE CHINESE THREE GORGES DAM PROJECT

On the other side, it was believed that other alternative methods should be considered instead of the Three Gorges Project because it is extremely complex. In addition to technical difficulties, other plans might be crowded out by such a large project. And because of the silt as well as other issues, building the dam could not be the final solution, not to mention other issues such as migration and sudden rise in water level. Due to this situation and other political factors at that moment, the project was once held on. In the 1990s, this project was brought out again and in 1992, the motion was passed, marking the formal beginning of construction of the Three Gorges Project in spite of the voice on the opposite side.

After seventeen years of construction, the last inspection of the Three Gorges Project was accomplished in 2009. In terms of flood control, power generation and navigation, it has been proved that this project has brought huge economic as well as ecological benefits. However, the negative effects on the environment and other issues which were expected by the opposition side also come out.

A national meeting related to the follow-up of the Three Gorges Project was held by the Chinese State Council lately. The government admitted that there are

still some urgent problems which need to be solved, such as migration, environmental protection and geological disaster prevention issues. Meanwhile, the shipping, irrigation and water supply along the middle and downstream of Yangtze River are also affected. The focus of the meeting was to set up the procedure to deal with the adverse effects caused by the project, in order to achieve ecological restoration, improvement of habitat environment and conservation of biological diversity.

It is emphasized that the principle is the sustainable development of economics, society and environment. Therefore, some measurements have been brought out to achieve a harmonious and stable Three Gorges. First of all, the government will create more employment to promote the local economy, providing a rich and stable environment for the immigrants. Meanwhile, it is very important to carry out integrated pollution control all over the district and construct the ecological protection system. In addition, monitoring and warning systems and response mechanisms in case of geological disasters will be established.

As any other civil project in other countries, the Three Gorges project has been constructed after long-term scientific research and demonstration, affected by

many political as well as economic factors. In reality, problems are unavoidable and things always happen out of expectation. The nuclear crisis in Japan is just a practical example. Instead of judging the government for its wrong decision at the first beginning, a positive attitude towards the potential problems or risks is more important. It is still unknown whether these measures are able to solve the problems or not in the future. But it is clear that the Chinese government is trying the best to take the responsibility.

▪ Jiexia ZHENG, *generation 2009*

**Type of dam: Gravity dam**  
**Height: 181 m**  
**Length: 2,335 m**  
**Crest width: 40 m**  
**Base width: 115 m**  
**Impounds: Yangtze River**  
**Spillway capacity: 116,000 m<sup>3</sup>/s**

**Type: Conventional**  
**Hydraulic head: Rated: 80.6 m**  
**Max.: 113 m**  
**Installed capacity: 20,300 MW**  
**Maximum capacity: 22,500 MW**  
**Annual generation: 80,000 GWh**  
**Net generation: 368 TWh (2009)**

## News and announcements

### THE TOPICAL WASTE-OFFICE TEAM

Right now the WASTE Office-Team consists of six members: Starting from left to right:

Carsten Horn, Hiwi and student of „Umweltschutztechnik“; Marja Steinlechner, administration secretary; Robin Laube, Hiwi and student of „Umweltschutztechnik“; Ulrich Vogt, Course Director; Adolf Neuwirth, Examination Office; Zhuguo Zhang, Hiwi and student of „Umweltschutztechnik“.

The number of applications to the WASTE program and the number of students increase constantly the last years. Therefore the work load for the WASTE Office Team also increases permanently. Work like consulting of applicants and

students, application process, admission, organization, collection of the grades, application and performance of Master's Thesis, issue of transcripts, final certificates, diploma and confirmation letters etc. is only a part of the entire work which has to be done by the members of the WASTE Office. Due to the increasing work load, the WASTE students have to support the WASTE Office team more and more with the activities of the WASTE program and the WASTE Club Stuttgart e.V., like WIM, graduation ceremony, summer party, Christmas party, international football tournament, different excursions, etc.

We, the members of the WASTE Office like our job a lot and we like the very

good atmosphere within the Office Team and the students and the lecturers, the entire "WASTE family".

We are open for suggestions to improve the WASTE program and to requests. Please contact us.

▪ Ulrich VOGT, *Course Director*



### DATES TO NOTE

- Waste Intercultural Meetings "WIM" in upcoming winter semester every 3-4 weeks
- 29 Jul. 2011: Summer Party
- 30 Jul. 2011: End of lecture period
- Sept. 2011: Exam Period
- Sept. 2011: Arrival of 10th generation of WASTE students
- Sept. 2011: Welcome Excursion
- Sept. 2011: Welcome Party
- 17 Oct. 2011: Start of lecture period
- 12 Nov. 2011: Graduation Ceremony
- 24 Dec. 2011 - 06 Jan. 2012: Christmas Holidays
- 15 February 2012: Application deadline for 11th generation of WASTE students starting in Sept. 2012

## Studying WASTE

### FRÜHLINGSFEST OR SCHWÄBISHFEST!!

Welcome to the Frühlingsfest in Stuttgart, Germany.

The Stuttgart Spring Festival (in Germany called Stuttgarter Frühlingsfest or sometimes vernacular Cannstatter Wasen or just Wasen) is an annual fair that takes place in Stuttgart between the middle of April and the beginning of May.

The Frühlingsfest is a combination of beer drinking as well as amusement park rides!

They have roller coaster rides, thrilling rides which drop you from a height of 9 or 10 stories, rides which spin so much it makes you puke, and a HAUNTED HOUSE! with human „ghosts“!

Frühlingsfest was a surprise for me just like dreams and cartoons which I had watched in my childhood. Especially when I was seeing the people who were dressed up in traditional and local clothes, it gave me such a strong flash back!

Walking further into the park you will arrive at a huge tent - that is where the drinking starts - hehe each mug of beer is 1 liter - that it seems to be a beer festival



with carnival rides - I went with a bunch of Muslim students those who never drink never get drunk except me! Unfortunately I missed this huge fun...

Nearing to the evening the crowd was getting larger and the atmosphere got better too, it was time to enjoy!

The only bad thing about this event was that it ended at 12 midnight...So everyone, whether you were drunk or not, had to GO! It meant you shouldn't miss your morning class. Sigh... it

was a good night we enjoyed so much and we were really tired.... Everyone went back home and cuddled themselves in their bed ...

Finally the Frühlingsfest like other festivals ended by a great performance of fireworks in a fantastic musical show.

Life is like a festival in both sides of winter and spring, for some people always it seems to be an autumn with leaves falling, for some one full of blossom of spring or a hot breath of summer, I hope your life always be a Frühlingsfest, full of happiness.

▪ Hamid Reza SHARIFAN, *generation 2010*

### CHRISTMAS MARKET IN ULM

It's always a pleasure to get to know people from other countries - a group of people full of joyousness to explore all around them, to combine studying with fun and parties.

This was the way I met the WASTE people. And then it's of course a kind of honor to present them my hometown Ulm. Telling them about history and tradition, showing them nice corners and places where to enjoy the flair of the city.

Saturday the 12th of December we arranged this trip to Ulm. I welcome a big group of WASTE students full of expectations and excitements at the Ulmer main station. Braving the rainy weather we went through the old part, the Fischerviertel, over its small bridges, passing the Schiefe Haus, went further along the river Donau on the city wall and enjoyed the "special" view to the city Neu-Ulm on the other site

of the river. We took a lot of pictures here and there, jumping and smiling for the cameras in front of the old frame construction houses. Before ending up completely wet we went to the Ratskeller to have some warm drinks. The highlight however was still waiting for us, the Ulmer Münster and its traditional Weihnachtsmarkt in front - of course including Bratwürste, delicious sweets like gebrannte Mandeln and the Glühwein. "Mandatory" in the German traditional pre-Christmas period.

The time passed unfortunately so fast that we had to hurry to come again to the main station to reach the train back to Stuttgart.

Thank you WASTE students for this very cool and funny day!!!

▪ Christine WÜST

*Studiengang Umweltschutztechnik*

### EXPECTATIONS III



In a world saturated with injustices, where our leaders are forced to be more concerned about GDP than access to education or the health of our environment, belief in an ominous future is understandable.

Growing populations amalgamated with changing climates and already stressed ecosystems have created abounding uncertainties everywhere. Furthermore, jingoistic powers continue to hinder our ability to build healthy transboundary relationships, imperative for humans to live in synergy with each other and the planet. While we wish things were different, "all we have to decide is what to do with the time that is given to us".

Joining the WASTE program was an opportunity to participate in world changing momentum, dedicated to intellectual advancement and a healthy environment. I expected to be challenged in the classroom and to enhance my knowledge, which I was and I did. I expected to be introduced to different cultures and perspectives - and I have been. Most importantly, I wanted to build life-long relationships so that together we could continue to reshape how we live together on this earth. These relationships are not destinations, but journeys. To my WASTE colleagues - thank you for your companionship, the unforgettable experiences and for challenging me to be a better me. While the future is full of foreboding uncertainties, „nothing is over until we decide it is“. This quote from „Animal House“ may be belligerent but going forward, I expect us apply what we have learned and together transform a foreboding future into a bright future

▪ James STARNES, *generation 2009*



## Recent events

### EXCURSION OF ALL INTERNATIONAL M.Sc. PROGRAMS AND ENWAT TO FAMOUS OLD CITY OF TÜBINGEN



In the Summer Semester 2011, the International Masters organized an excursion to Tübingen. Though this town is situated only 30 km south of Stuttgart, some never had the chance to visit it.

When the excursion date was announced, I was the first to sign. I always had heard about this town named Tübingen, a town which lies on a ridge between the Neckar and Ammer rivers, a town that is also called university town, but never had the chance to visit.

The excursion started at around 14:00. We reached Tübingen, got off the train, the first impression was: This is totally different from Stuttgart. It's a hilly town, with the Schlossberg and the Österberg in the city centre and the Schnarrenberg and Herrlesberg, rising immediately adjacent to the inner city. An old town with a smell like an old book that time just had made more special. Just next to the town lies the Schönbusch, a densely wooded nature park.

of life of all cities in Germany. Due to its infrastructure, integration of bicycle lanes into the road system, bus system connecting surrounding hills and valleys, late night services, areas of the town that can be reached on foot, the pedestrianised old town, other amenities and cultural events offered by the university. The tour guide then told us about the historical events of this town and how Tübingen's Altstadt survived the Second World War due to the city's lack of heavy industry and the surrender of the people. The landmarks of the Old town are the Rathaus on Markt-platz, and the Stiftskirche. Along with the rest of the city, the Stiftskirche was one of the first to convert to Martin Luther's protestant church.

The life was different back then, the town was divided into the high class who lived in the upper side of the town and the lower class, the poor people who lived in the other side of the town or other side of the world. This town has lots of history a quote in a wall, a sentence in a gate and lots of small details that make it really special.



back home during the holidays. It is the town with the youngest average population in Germany.

Tübingen also hosts some funny events such as the duck competition, the chocolate festival and many other crazy events.

That's not all, this small town hosted and resided some of the famous poets such as Friedrich Hölderlin and Ludwig as well as Uhland, the neurologist Alois Alzheimer from whom Alzheimer disease takes its name, Friedrich Miescher who was the



The group was divided into 4 smaller groups. Three to be accompanied with a guided tour through the town and the fourth one to be accompanied to the Hohentübingen Castle. The guided tour started. This town is different, with its crooked cobblestone lanes, narrow-stair alleyways, streets lined with canals and its traditional half-timbered houses. The guide told us how old this town is and the more she spoke, the more precious we felt this town is. This small town holds lots of treasures and stories behind it, it is a home to many picturesque buildings from previous centuries and lies on the river Neckar. It is considered to offer one of the highest quality

Still why is it called the university town, a question that kept roaming in my head? The deeper we got into the town, the more we were convinced that it's university town. Everything was related to the university, every corner, every place, our eyes caught something related to the university, it felt that the university had its branches and roots all over the town, even the castle, Schloß Hohentübingen, is now part of the University of Tübingen. The group came to know that Tübingen has a population of around 80,000 inhabitants, one quarter of them are students, so the life in the city is dominated by its many students; and that the town is paralysed when students are

first to discover nucleic acids, David Thomas Nolan, a Nobel laureate for medicine, and Wilhelm Schickard who was the main precursor to the mechanical calculator, and Johannes Kepler.

The few hours that we've been there were not enough to discover this small town, with all its contents. What about drinking some beer in the beer garden, talking about what we have experienced today with new friends from the other international M.Sc. Programs?

• Yusra Izzeldin SULIMAN  
student of International. M.Sc. Program MIP

## ALL YOU NEED IS LOVE OR SOCCER ?



Have you ever asked yourself: which disease is the most widespread in the world? No? If yes, then I bet that on the top of your list were heart or blood circulation diseases. But

let me argue about it and suggest you my own ranking. My answer is not so obvious, but if you look closer - there will be no doubt. Yes, I am talking about soccer, this illness of all continents around the globe, and about the largest army of patients which are infected by this chronic disease for the whole life. From the very childhood I as well as my "WASTE" friends were also in love with and infected by the soccer, and in the next paragraphs I will tell more about our experience with soccer in Stuttgart.

In the end of January in the University of Stuttgart was large Holiday of Soccer – the third regular championship on mini-soccer in Uni-Stuttgart where every student or employee of the University, male or female, could participate. My friends and I from the "WASTE" Master Program could not miss this event and

we appreciate "WASTE Club Stuttgart e.V." and its Chairman Dr. Ulrich Vogt for supporting us and providing free T-Shirts of the "WASTE Program". Immediately and unanimously the team was given the name 'Wasties'. Our team was really international, participants were from 9 countries and 4 continents: Edwin Biney ANAMAN (Ghana), Mauricio Andres CE-



LIS CARDENAS (Columbia), Jose Manuel FORERO SUANCHA (Columbia), Roman GINIYATULLIN (Russia), Sergiu GLIGOR (Canada), Christian KENDLER (Venezuela), Sumate KHANKAEWPHAP (Thailand), Benedikt KLINGLER (Germany), Tharaka Abilash PRATHAP (India), Jesus Alberto RIVAS GONZALEZ (Mexico). You ask, is it FC Chelsea (London)? No, it is

"WASTIES" from University of Stuttgart.

So, about the championship itself: There were 40 teams that were divided into 5 groups. The teams winning the first three places could go into the next round. Each group played 4 games. Our first game was draw (1:1), the score of the second game (0:2) against the champion of the year 2009 we have considered as rather successful, and the third game we won 6:0! In the last decisive game the struggle against the team "Fregadera" was very intensive and sometimes even frankly rude from the rival's side. Unfortunately, the game ended with the score 0:1 for Fregadera"... As a result, we did not qualify to the next round although we had a positive balance of goals.

But the most important is that all of us have enjoyed great games, received lots of positive emotions and the most important is that this event has united us. And since we have enough time for preparation for next Championship in summer we will be definitely more successful. Thanks to all who came to support us. See you at the next game!

• Roman GINIYATULLIN, *generation 2010*

## CHRISTMAS PARTY 2010 FOR PHYSICS AND WASTE



By joint efforts the classes of the international M.Sc. PHYSICS program and the International M.Sc. program WASTE organized a Christmas party taking place on the night of the 17th December 2010. The party took place in the WASTE department located in the Institute of IFK with its beautiful wood structure. The Hall was decorated nicely with a delightful Christmas tree, glorious candles and Santa's hats.

The buffet had some oriental touch as

all the students brought some food with them which is famous in his or her home country, so that you do not need to travel around the world for the delicious food. Of course Glühwein (spiced wine) must not be missing at a Christmas party in Germany, together with the good music played by the DJ. The atmosphere was very good. In addition, the students of the WASTE Program successfully organized a secret Santa gift exchange with a person dressed

as Santa handing out the gifts to all of the students, producing quite some laughs. Every PHYSICS student got a special present from the Course Director of WASTE, -- a shopping bag with the WASTE logo, so that everyone could do something for the environment.

The party was great fun with everyone eating, drinking, dancing and laughing and we want to thank the organizers and everyone helping to prepare such a great party. It was a great idea to have a joint Christmas Party.

• Nicolas Teeny,  
*student of the Intl. M.Sc. Program PHYSICS  
and R. Beyer, PHYSICS Office*



## Life after WASTE

### MY OUTWARD-BOUND JOURNEY (TO SILICON VALLEY) -- INTERNSHIP IN USA

It was the last month of my last semester with WASTE. Hanging on my thesis work without a deadline, I was not really sure whether I wanted to continue what I was doing. Thanks to Mr. Vogt for posting the internship opportunity on the WASTE Pinboard that made me aware of this internship opportunity. After being selected as an intern at PARC for „Renewable Liquid Fuels“ project, I finished my write-ups in a couple of weeks (what a motivation) and flew the next week of my final presentation, 30th of October 2010 to USA.

While landing in San Francisco International Airport after a long-haul flight, my tired eyes were kept opened with the amazing view of Bay Area dipped in dark with glitters of welcome. On that evening of Halloween, I experienced a culturally alive San Francisco and it did not take long to get into the crowd throwing all hesitations away. Nobody gave me any impression of me being a stranger and I was held spellbound by the amazing city which looks like a living museum. But the party did not last long; I had to show up at PARC the very next morning.

Palo Alto Research Center (PARC) is a wholly owned subsidiary of Xerox situated in Stanford Research Park, Palo Alto, California. Mainly known as information technology and hardware system based R&D company for innovations like Laser Printing, Ethernet, GUI, VSLI and many others. PARC also conducts research into Cleantech and Energy. Renewable energy is one of the focus areas of research at PARC which is mainly focused in the field of Solar, Geothermal and Renewable Liquid Fuels. Development of a commercially viable approach to making carbon-neutral fuel that is realizable within the existing fuel infrastructure is the motto of

the „Renewable Liquid Fuels“.

After understanding the concept, my responsibility is to perform experiments for the optimization of the electrochemical process of CO<sub>2</sub> extraction from seawater in a lab unit. Eventually, I got involved in building a new prototype facility to investigate real world performance of the unit. Presenting the results in project meetings and writing monthly reports for the donor agency are the refreshing duties. At times, when results are not as expected, I remember the Einstein quote hung in my colleagues office: „If we knew what it was we were doing, it would not be called research, would it?“

Needless to say, I greatly benefit from the experience and I am taking away much from it. It is an experience I would not trade with any academic degree. The value of my education from Uni Stuttgart has been upgraded to a professional level with this wonderful opportunity. More willing to take the responsibilities, greater level of enthusiasm and reasoning capacity have been developed and the „real work environment“ has provided me the opportunity to learn different problem-solving approaches. Working in a team of achievers from different fields, the horizon of thinking has been expanded for good. I am more excited about the pending patent and the publication that I am working on now.

This experience is not only about the monotonous account of my work life. There is a lot of

fun around. The workplace has an awesome environment. Wide range of collection at the library, international menus in the cafeteria and a perfect set of equipments in the fitness center invite me every morning with a no-dull-moment guarantee for the next 8 hours. And after that, there will always be something to do for the rest of the evening.

With headquarters of Apple, Yahoo, Google, Facebook, YouTube and many other giants, Silicon Valley is the most happening place for Tech Companies. And with academic institutions like Stanford, UC Berkeley and Caltech along with many research centers, Bay Area is growing as an energy research hub as well. A perfect combination of location, weather, landscape and infrastructure can be found here. Sprawling beaches nearby Pacifica are the typical day-trip destinations for a perfect slice of surf, picnic or to get a tan. One can drive up to the mountains for ice skiing on the same afternoon. A great place to live, learn and work.

• Keshav PARAJULY  
WASTE alumnus generation 2008



### WORK IN WEHRLE UMWELT GMBH



In January of 2006, right in the middle of the German winter, I started my WASTE Master Program with snow everywhere

and temperatures of -17° C. Despite the temperature, language and culture shock it was the beginning of a once in a life time experience! This experience allowed me to widen my horizon and knowledge of the world while sharing experiences with my fellow classmates from more than 20 different nationalities.

After the graduation I intended to stay in Germany, as I wanted to extend my experience abroad. It was however not an easy task looking for a job, as I was still not proficient in the German language. Nevertheless I didn't quit (I hadn't come all this way to quit) and kept doing German inten-

sive courses to improve my German, and sending „Lebenslauf“ and „Bewerbung“ until I got a positive answer from the company Wehrle Umwelt GmbH. I moved then to the lovely and extremely environmentally friendly city of Freiburg and was actually thrilled with the idea of living so close to the Black Forest!

The company where I work, the Wehrle Umwelt GmbH, is one of the leading engineering companies in what concerns Membrane Bioreactor Technology (MBR) for wastewater treatment.

>>> continue

## >>> WORK IN WEHRLE UMWELT GMBH



I started to work in the company in the department "France & Mediterranean Area". As the name itself says, this is the department in charge for all projects, development and commercial activities in countries like France, Greece, Tunisia and Morocco, among others. I started to work in a project in Tunisia for the construction of a leachate treatment plant, which was quite a challenging project, involving very different technologies like MBR, Reverse Osmosis and sludge dewatering and stabilization. As a project engineer, I took part in the project development, as well as plant installation and commissioning.

In the beginning of 2010, Wehrle Um-

welt GmbH won its first project in Brazil for the construction of a MBR plant for industrial wastewater treatment. Being a Portuguese native speaker with both Portuguese and Brazilian nationalities, I was immediately invited to develop this project. Since then, and due to the emerging potential of Brazil's market, I have been in charge of developing our activities in Brazil, developing projects, preparing new offers, giving presentations at workshops and seminars. Currently, we are developing our third project in Brazil, and I must confess it is quite an excitement to be developing a project!

Through my work I have had the opportunity to travel to Tunisia, Greece, through Germany, to Brazil and also to

Portugal, since it is also one of my goals to expand our activity to the Portuguese market. It is a very international work atmosphere, as our clients and some suppliers are spread around the world, and also in the company we are colleagues of different nationalities.

For all these achievements I have to thank WASTE, which was the first decisive step of my journey! To my fellow classmates and other alumni I hope that you all are happily and successfully developing your activities. To the new generations I wish you all the best and that you all enjoy as much as I did (and do!) being part of the „WASTE Family“!

• Tatiana MEDON

WASTE alumna generation 2006

## IGNIS -- A RESEARCH AND DEMONSTRATION PROJECT OF BMBF



It has been four years since the last time I wrote for the WASTE-Newsletter, when I shared my experience as an instructor at Universidad de los Andes (Uniandes) in Bogota, Colombia, and wrote about the possibility of going back to Germany to pursue my doctoral degree. It has been three and a half years, since I returned to Stuttgart in February 2008, on a scholarship sponsored jointly by DAAD and Uniandes to work on a topic, under the supervision of Prof. Martin Kranert (modelling and simulation of waste management systems), which at the moment, would have no practical application and would only take place in the theoretical and conceptual level. However, as luck tends to be on my side, by July of the same year I was working as a research associate for the University of Stuttgart in a very practical project funded by the German Federal Ministry of Education and Research (BMBF) within the scope of Future Megacities program. The project is called "IGNIS - Income Generation and Climate Protection through the Sustainable Valorization of Municipal Solid Waste in Emerging Megacities" and it is a case study of the capital of Ethiopia, Addis Ababa. The project consortium is composed of four German and four Ethiopian partners: The German partners include the University of Stuttgart, AT-Association, the Institute of Future Energy Studies (IZES),

and the Federal Institute for Occupational Safety and Health (BAUA), while the local team is composed of the Environmental Development Action for the Third World (ENDA) Ethiopia, Addis Ababa Environmental Protection Agency, and the Addis Ababa University with its Institute of Technology and its Institute for Local and Regional Development Studies.

The goal of the IGNIS project is to identify and test strategies and technologies that lead to the improvement of waste management, to climate protection, and job creation at the same time. Decentralized pilot projects that recover materials and energy from municipal waste operated by entrepreneurs and grassroots groups have been envisaged in order to achieve this goal. The foreseen pilot projects include windrow composting, anaerobic digestion, paper recycling, and charcoal production from biogenic waste. The pilot projects include also technologies that help improve productivity and reduce the health risks of primary collector and informal resource recovery workers.

In order to guarantee the success of the pilot projects, however, appropriate technologies by themselves are not en-

ough. Understanding of the local culture, of the overall municipal waste management system and of the boundary conditions that influences the waste generation rates and that enable or constrain marketability of the products created by the pilot projects are equally important. This is why our work at the University has been focused, among other things, on characterizing the waste management system, collecting data regarding the socioeconomic level, and analyzing the waste streams generated by households and other sources. As in many developing countries, the waste management system is composed by a formal sector, which in this case manages to collect up to 70% of waste generated for disposal, and by an informal counterpart, in charge of value recovery from waste. In Addis Ababa, that what the 5,000 valuable material buyers do not recover, is disposed at the city's 45-year old dumpsite. Since municipal waste is up to 65% organic matter, the emissions that affect local and the global environment are significant.

The experience of the project has shown that initiatives by NGOs, entrepreneurs, and grassroots groups need to be supported by governmental policies and market structures that guarantee that the decentralized projects can be viable financially, and that essential resources, like land, are also available. It also requires understanding that waste management is part of a larger complex economic, social and ecological system, and acknowledging that the decisions made by the different actors in the system influence the success of the pilot projects.

>>> continue



## >>> IGNIS -- A RESEARCH AND DEMONSTRATION PROJECT OF (BMBF)

Within this domain my PhD research is being carried out, in which I will bring together the experience gained during the field surveys with the knowledge elicited from stakeholders during interviews and workshops using a modeling methodology for complex systems known as System Dynamics. The objective of the modeling process is to help the city design policies

that induce the introduction and expansion of separate collection capacity, treatment plants, and of the demand for secondary raw materials leading to higher performance in the recovery of nutrients, materials, and energy from waste. This in turn would result in the creation of job opportunities, the reduction of waste disposed, and the emission of greenhouse gases. Hope-

fully, the interventions identified will be helpful not only for Addis Ababa, but for other current and future megacities, in order to ensure the wellbeing of their citizens as population grows, the pressure on ecological services increases, and the availability for natural resources declines.

Nicolas ESCALANTE  
WASTE alumnus generation 2003

## Funny stories

### STORIES WITH WASTE



#### The Bund

It is not my dream to travel around the world. Before I came to Germany, I spent almost my first 25-years-life in my home city, Shanghai. So it is not strange that I love it, and decided to make an advertisement for WASTE Program of Universität Stuttgart in front of the one of its most attractive landmarks.

If you plan to visit Shanghai, you should not miss this very famous place. The Bund stretches one mile along the bank of the Huangpu River. It houses 52

buildings of various architectural styles such as Romanesque, Gothic, Renaissance, Baroque, Neo-Classical, Beaux-Arts, and Art Deco. On the other side of the Huangpu River, the so called Lujiazui-Area is the commercial and business centre of China.

I got this WASTE T-Shirt from the Course Director Dr. Vogt as a Christmas gift, and during my visit in April 2011, my father made this picture for me.

I like travel, although I do not plan



#### Pisa

Every-one heard the story of the Tower of Pisa. I went there and enjoyed making variable poses with the leaning tower, which I think maybe the best model worldwide.

travelling around the world. And I always have my WASTE bag with me, with that I do not have to use plastic bags. As an environmental engineer to be, it is important that you can do something to protect the environment, even a tiny one. My girl friend took this picture for WASTE.

Zhuguo ZHANG,  
Member of WASTE-Office

## WASTE NEWS

Newsletter of the international study program WASTE and the WASTE Club Stuttgart e.V.

### PUBLISHER

Ulrich Vogt

### CONCEPT

Michael Waldbauer, Keng Been Ang, Christine dos Santos Costa, Student task force 2006 and 2007 of the WASTE program

### DESIGN AND PRODUCTION

Zhuguo Zhang, Tobias Bunk, Julius Ranghieri

### AUTHORS

see articles

### PICTURES

respective authors of the articles, Wikipedia and WASTE Office

## THE BICYCLE, GOOD ENVIRONMENTAL FRIEND

We have to move from point A to point B, and if this distance is not too distant, the best way, considering health, environment and budget, is riding a bicycle.

Cycling, also called bicycling or biking, is the use of bicycles for transport, recreation, or for sport. Persons engaged in cycling are cyclists or bicyclists(Wikipedia).

Cycling provides mobility and independence, it is a very environmental friendly form of transport, its passenger are its engine but most of all it's great fun.

You will not regret it if you get one, especially while living on Campus.

Here are my advices for beginners:

1. Keep in mind where you park your bike, at the beginning it can be difficult but later it becomes automatical,

2. Remember the number of your locker, write it somewhere just in case, and remove the sticker with the lock number from your locker,

3. Try to avoid talking on your cell-phone while riding (25 Euro fee in case they catch you).

Just get it, you will not regret it!!!



Getting a bike changed my life, more often I notice day's sensations; colored sky, bright sun, warm breeze, windy, crispy mornings, and so on. It helps me to focus on the moment, and I am mentally far away from civilization's elses heart.

• Ivana CACIC, generation 2009

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

Dr.-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