

INTERVIEW WITH CAROLE HARRIVELLE (GEN 2012) AWARDEE BEST MASTER THESIS

Thesis Title: The impact of heat buffering on continuous biogas upgrading with concentration swing adsorption

What made you choose the topic of your master thesis?

It deals with energy, the environment, and it's a new process. And the interesting thing is this process is very cheap, so that it can be used for biogas plants on a smaller scale. For biogas plants, usually they produce little amounts of gas and there isn't enough money to invest into the huge processes. They are used in industry and power plants. The process that we generated is for

small scale industries. It operates under normal pressure, and produces no toxic substances.

The main thing that made me choose this topic was this is a very simple process and it can be commercialized very easily. I had an opportunity to do my PhD in it as well.

Did you do your Student Research Project in the same topic?

No, it was about hydrogen storage. It involved a lot of research and literary review. But it was not related to Biogas.

Were you interested in doing your PhD before starting your thesis as

well?

No, I wasn't sure. But if I get an opportunity then I would like to go for it.

Since you did your research project in another field, were you interested in this topic before your thesis?

Yes, I was. Because I was working as a HIWI in this topic with different instruments and so on. So I got to know about this research and I was truly fascinated by this field. So when there was an opportunity the supervisor suggested this to me. And having good grades is also important.

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News and announcements



GRADUATION GENERATION 2012

„WASTE Family“ is probably the first thing that comes to mind for most of us when we think about the beginning of our WASTE experience. It was the defining note in Professor Vogt's welcoming presentation. However, I don't believe that most of us fully understood what it meant at the time. Perhaps for some it even sounded somewhat like a cliché. Last week though, I witnessed something beautiful happening. Last week we experienced something so remarkable that any shadow of doubt was extinguished from our hearts and we all understood: "We are no cliché. WASTE truly is a family!"

I am talking, of course, about Saturday, November 29th's Graduation Ceremony, and just as important, about all the preparation behind it. I can honestly say that it was an honour for me to participate in organising this amazing event. I had the chance to see people, who barely knew each other, work together like a well-oiled machine. We all had our tasks, everybody did their part, and it was a blast! I think everyone would agree that by the end of it all we had done much more than just organise an event. We built relationships, we made new friends, and one might even say that we became a family!

The highlight of the night was obviously the very purpose of the event: the formal graduation ceremony. We had the chance to listen to some very insightful and enlightening speeches, and more importantly to witness the joy of the Generation 2012 students as they officially became graduates. I would argue that a very close second was, of course, the food. It is difficult to find words fit to describe such a culinary experience: there were so many amazing dishes that it felt near impossible to decide which to try. If I would have to pick a few words though, they would be the same I would use to describe our WASTE community: diverse, cultural, flavorful, and happy.

The party itself was a roaring success! The de-

corations were beautiful and uplifting, the whole place looked amazing!

After enjoying some outstanding singing and dancing performances, we all flooded the dance floor. Little did we know, there was one more surprise performance coming up though! An amazing flashmob choreographed by the students from Generation 2014 was the delight of the crowd. To sum it up, we ate, we drank, we danced, we all had a great time and we can't wait to do it again!

"Great job!" is what we were told afterwards. And truly it was, but I can't help but think that for me it didn't really feel like a job at all. I think I speak for everybody when I say it was our great pleasure and honour to make this happen for our older "brothers and sisters", and we are thrilled to know that one day soon others will do it for us as well. All that is left to say is: "Congratulations WASTE 2012!!!"

• Victor NEAMTU

WASTE Student Generation 2014




>>> INTERVIEW WITH CAROLE HARRIVELLE (GEN 2012) AWARDEE BEST MASTER THESIS

Are grades very critical to get a good thesis?

You can't say that. If you have 3.0 overall definitely it is not the end of the world. Then you have to look through the topics which are really interesting to you, and which you can do well and prove yourself.

WASTE is a program where student study a variety of areas. And if a person is good in one particular field but overall he has relatively lower grades because of other fields, does this affect his chance?

Definitely not. If a person has a 3.0 overall but has shown a big interest in the topic of the thesis or the research, definitely he would be considered. The background of your Bachelor also plays an important role. Especially for chemical engineers like me, subjects like thermodynamics or flow with heat transfer are already covered. So I could concentrate more on subjects like sanitary engineering etc..

So I would say if you want to pursue your research in any area related to chemical engineering or chemistry, it's ok if you hadn't done exceptionally well in subjects like sanitary engineering.

What grades should one have to be admitted for a PhD in IFK?

1.0 – 2.0 is fine. But your Master thesis is crucial. Of course you have to go to classes and learn things, but in your thesis you are doing the real research. It is the best way to prove yourself in the field which you are interested in.

So let us assume that a person gets 3.0 as a cumulative for the first 3 semesters and get a 1.0 in his thesis. So overall grade will come to 2.0. So how is it treated for the further research?

Yes. The Master thesis is the real time research and it is a six months of hard work. So if a person grades you 1.0 in your thesis, definitely we understand the amount of involvement you have in the particular field. It is always better to prove yourself in your thesis and having this kind of grade rather than ending up with the same grade by getting 3.0 in your thesis and 1.0 in all the subjects.

How would you describe your working habit?

Start studying from the beginning. Work every day. Because doing my Bachelor in France was similar to Germany. We have exams at the end of the semester. So it is always better to start at the beginning of the semester. If there are some questions,

rather than copying from the people or getting answers from others, look for the answers by yourself.

How many hours you devote every day for studying?

Not to stress myself during the weekends, I would work 1 – 2 hours every day.

How was your working habit when you started your thesis?

Yeah, it was slightly different. Here also it is really very important to start working from the beginning. Because we will be reading many articles, it is good to start writing the things and your report. So when we are reading an article it is better to take the notes or write the things that we need immediately. Because when you want to re-read you have to again look for the entire article which is a waste of time. So take notes, start from the beginning and manage your references very well, because at the end it is really very difficult if you have to find 100 articles.

What took most of your time? Research or paperwork?

Writing of course. And I was writing in German too. Because there were lots of articles in German. So I didn't have to translate the things from English to German. But when writing the experimental work, everything will be easier when you divide it into smaller batches. So if you start from the beginning you have six months to write.

For me personally, I don't feel comfortable if I do the same activity for a long time. So I spend 2 hours on literary review and then I go and do the experiment, then spend some time on report writing. This way I divided the task into smaller groups every day and worked.

Are you continuing to work in the same field after your Master thesis?

Yes, I am in the same field after my Master thesis.

What advice do you want to give to the younger generation?

First of all, don't decide your search topic by something that offers more jobs. You have to choose something in which you are very interested in. Choosing something just because the job prospects are high will make you unhappy in the end. So if you choose something within your interest and you are very good in that field, people will still hire you even if there are fewer openings.

What general tips would you give?

To give more importance to time management. And to know how to write in a structured manner. Whenever you are writing a report it should be structured and per standard.

And reading. Reading many articles will help you, especially when English is not your mother tongue. Reading articles can help you understand the current research and also can help you understand how to write in a structured manner.

So English or German? Does that make any difference?

Yes (Laughs). You shouldn't be afraid to write in German. You can also try. For me, I got the chance to work in the field of biogas, and this research is going immensely well in Germany. So there are plenty of articles in German already. So you can start, and at the end you will learn the vocabulary and the structure of the thesis. So of course you can try to write your thesis in German. It would be a great chance to improve your German as well.

Could you speak German before coming to Germany?

Yes. I learned German when I was in France. But I didn't take any classes during my Master's program, because it was taught in English. I was, however, speaking with people and practicing. Since you are in Germany you can't avoid speaking in German. So if you are really sincere and practicing, you can really achieve higher levels and end up speaking better than me.

How much importance is given to German language along with your subject?

German is significant in this research area. I would say 40 – 50 % importance is given to German language because all the research is going on in the German language. Because you have to work with the people who speak German, and go to conferences where they speak in German. But don't worry, with practice it can come really, very easily.

The motivation is essential. If you are interested in a topic, even if you don't know what it is about, your curiosity will drive you to do the work. You can use this opportunity to learn some new software programs and things. And then there is the internet. On internet we have a lot of material to learn from. I did this before I started my Master thesis, since I didn't know much about the topic. So I spent my time on reading articles about my research topic to get an idea and getting ready.

You can give it a try and find out whether it is for you or not. Although it is not good for the person who enrolled you for the thesis or research work, but you give it a try and decide in the beginning whether to do it or not.

Is the supervisor an important criterion for the successful completion of any project or grades?

Yes. It is difficult to judge any person, but be careful. Whenever you do some work, if you get stuck don't just go and tell I don't know this or I don't know that. Just try to find a solution, work on it and tell them this is what I have done and this

is where I need help. Take initiative. It is normal to ask many questions in the beginning, but after 5 or 6 months you should know the topic you are working on. Also, take notes whenever the supervisor tells you something or gives some input.

How often should we meet our professor?
Once a week is fine.

Does the number of times you meet the professor have any effect on your grades?

It depends on the field that you work in, whether you are doing experiments or theoretical work. Because sometimes you don't have to meet him as much, but

the work that you have to do consumes more time, and after the completion you can show the progress. But it is important to make the supervisor know that work is being done.

So it is necessary to work hard. For me I knew that here there are opportunities, so I took this as a good chance to prove myself.

So work hard and make it.
All the best.

• Sheik Mujahith SONNI MOHAMED HANIFA
WASTE Student Generation 2014

WASTE ARBEITSKREIS

The WASTE study program has some new developments in its committee structures.

In German universities the students are represented in the administration of the university by three bodies:

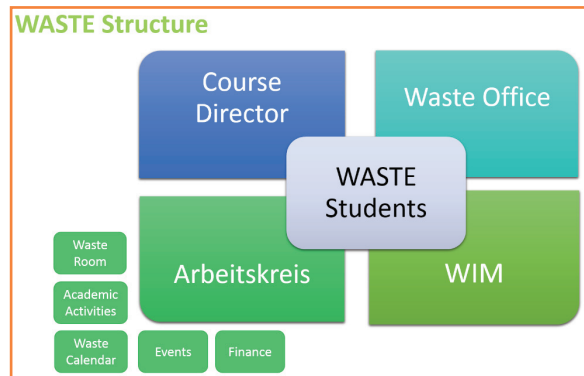
- STUVUS (representing the students in the academic parliament)
- STUKO (our class speakers represent us here in academic decisions)
- Fachgruppe (trying to make the student life as convenient as possible with parties, advice, and special services)

Until now, the students of the WASTE study program had no connection to the respective Fachgruppe, which is responsible for us. WASTE students belong to the Mach&Co

Fachgruppe. To connect with the Fachgruppe and the rest of the university, the WASTE Arbeitskreis was founded as part of the Fachgruppe Mach&Co.

The WASTE Arbeitskreis substitutes the former task force and is responsible for the following:

- Event organization
- Financing of Events
- Organizing the WASTE room
- Organization of Academic Activities such as workshops and excursions
- WASTE calendar



Since the Arbeitskreis is a new structure, every suggestion and idea is welcome in order to improve it and make it as useful for the students as possible. If you would like to organize and help to improve the WASTE study program further on, just come to the meeting hours Tuesdays at 1pm (during lecture time). See you there ☺

• Imke WESSEL and Rebekka BÖCKLING
WASTE Student Generation 2014

Funny Story

GO WASTE

YES TOGETHER, GOO WASTE!!!

TOGETHER sun and winter time,

TOGETHER we will do just fine,

TOGETHER where the skies are blue,

TOGETHER this is what we're gonna do.

I am sure by now many of you know this song. But you may be wondering why this photo is shown. It was a sunny day on a hiking trip with friends from my church



youth group. I had my WASTE bag with me. As this was also just the end of the

winter season, I suddenly remembered some words of our "Theme Song" and also the nice time with my friends in WASTE. So with my fellow classmate Jane there, we decided to take a photo. This is just a representation of the unity and the bond many of us have developed throughout our time in the WASTE program. Though many of us are now distances apart, this bond is still present, we are still together,

YES TOGETHER,
GOOO WASTE!!!

• Don-Hugh GOODEN
WASTE Alumnus Generation 2011

Summer Parties

2014

On the 25th of July just before the beginning of the exam preparations, our program held the long awaited summer party. A chance for the students to relax after a stressful semester.

The afternoon began slowly with a few people, enjoying food prepared by the students and drinks from our very own bar. As more people gathered, the planned activities and talks started. Our course director Dr. Ulrich Vogt used the opportunity to announce some changes in the program due to Prof. Baumbach's retirement.

We got introduced to and welcomed our new course director Ms. Jessica Hahn-Ebner and congratulated our new

study dean Prof. Kronenburg.

Although the weather was not exactly perfect, some of the highlights of the night



were: Prof. Baumbach's efforts to destroy (unsuccessfully) the Piñata, an entertaining tug of war which revealed that some of us are not really in shape, the very successful shisha corner (also referred to as water pipe), and the always great food and meat prepared by our barbecue team. The night ended just past midnight with fireworks.

It is always nice when we have these rare chances to socialize with both generations of the program and I am sure after that party we got a push to begin our two months of studying in the heart of summer.

• Kristo LAKURIQI

WASTE Student Generation 2013

2015

Every story has so many perspectives and it really depends from which side you are looking at it and our legendary summer party is a great example of that. The sum-



mer party, like every other WASTE event, just doesn't happen overnight. It started from one Arbeitskreis (AK) meeting, when we, as AK members, got together and thought about possible ways to pull off this party. Gradually each week and after each meeting, we came to our senses and realized that even having the party is a huge deal of work for so few people and pulling it off, WUUUUUSH, we are too old for that.

It was decoration, estimating amounts of food, choosing what food to serve, finding the best coal to keep the BBQ warm as long as possible, what side dishes to have, who is going to make them, handling the Shisha lounge, coming up with fun games, setting up the bar, what cocktails to serve, what about music and DJ, shifts etc. In the beginning, we all felt overwhelmed by it, we had two options, to just forget about it or keep our act together and make it happen. While we were having countless mee-

tings to distribute the tasks between ourselves, reality hit us hard. On the week of the summer party, it was not only deadline for the presentations of the Air and Water core module projects but also some of us had the Industrial waste exam on the exact day of summer party, things couldn't get worse.

After a week of working hard and helping each other with the tasks and also buying all the food we needed, the day of the summer party arrived. In the morning, I was running through the forest to ISWA to attend my exam and I kept thinking about the busy day we had. Immediately after the exam we got together and

went to IFK, where the party was supposed to be, and of course the weather was sunny and warm, which meant after working 6 hours under the mid-day sun, we finished just on time with the set up and preparing the food and we all attended the party with massive sunburns on our backs.

We worked so hard but now it was party time. The BBQs were handled so greatly with a lot of effort by our classmates, bars and drinks were all ready. Tents, banks and benches looked beautiful, everybody was there, students from generation 2012, 2013 and 2014 were all joined together, alumni, professors and so many friendly faces from all around the campus

and the city. Shifts were perfectly followed, the dishes were frequently collected, and washed in the dishwasher, the DJ was doing an awesome job and don't even get me started on the cute cozy Shisha lounge of ours. We couldn't be prouder of our well-functioning group.

With the party going on, nobody remembered how hard and stressful it was to have it all perfectly handled. We just danced all night with each other, with the great food on the side, following news of the Fußball tournament and watching while we went to grab a drink. After we ate so much that nearly burst into pieces, professor Kronenburg as the study Dean gave a speech reminding us that we are in this



together, that we need to know that life is not always about getting degrees, we need each other and that's what these events are for. We felt so close and so loved, the whole WAS-

TE family was now making more sense than ever. It was not just a concept that we remind to ourselves, but it was the reality.

Maybe we don't have a family here, but we made our own family. We are all members of the proud, awesome WASTE family.

• Golnoosh MAHAMI

WASTE Student Generation 2014

Recent events

48TH WIM - IRANIAN NIGHT

From the very beginning of my experience as a WASTE student, WIM activities stood out for me as a significant difference between our program and the others. We took it as a great responsibility to use this chance to introduce our country, Iran, to our fellow classmates.

With sweets called Baghlava fresh from Iran and traditional black tea with cinnamon, we greeted our guests at 6pm. Thanks to Milad and Payman, our class was decorated with colors of red, white, and green, accompanying a flag of Iran. Before starting the presentations, the audience was asked to state every word that reminds them of Iran.



Reyhane and Ida explained all the words including Persepolis, Persian cat, Argo, Pretty women, Crude oil, strange letters, etc. This was followed by a short video to give a first impression of Iran. The presentations began with general information about Iran such as size, population, climate, language, traditions, and calendar. As a break, we tried to teach how to beshkan first by showing a how-to video and then by making a contest out of it.

The second half of the presentations was started with a video introducing music and culture of different parts of Iran which was followed by a review of history

and controversial issues regarding Iran. Everything was followed by a question session, answering all the doubts about revolution, religion, and the current situation in Iran. Just before dinner was served, I tried to show a little bit of traditional Iranian dance with a performance to traditional music. Dancing continued with two Turkish and Kurdish group dances.

As the delicious part of the night arrived, everyone was handed a yellow smiley face plate which was filled with Mirza Ghasemi, two kinds of stew with saffron rice, and Shirazi Salad. Dogh was served as Iranian drink, and Sholezard and Halva as deserts. We enjoyed ourselves with more dancing and eating throughout the evening.

By the end of the night when we were on our way home, I could not help but feel blessed to have this cultural and interesting experience with my friends.

• Sadaf KAMDIDEH

WASTE Student Generation 2013

50TH WIM - AFRICAN NIGHT

Starting with the phrase "HAKUNA MATATA" taken from "The Lion King" (Walt Disney rights reserved); we all knew that we would have an amazing evening, and so it was.

Our African classmates from generation 2013 and 2014 gave us an unexpected and amazing presentation. Emmanuel Ndukwudimma and Uche Uzoigwe talked about Africa had the first evidence of human existence in Ethiopia (fossil "Lucy") and about the slavery made by the Portuguese, occurred between 16th and 18th century. During the conquest of America, the

slavery increased, especially in South America. In 1865, slavery was abolished in North America but at the same time it was still allowed in other parts of the world.

Finally after World War II, the struggle for independence started, with Libya becoming the first African country to get independence in 1951. After 10 years the whole continent got their independence.

Africa is a continent full of diversity, more over 2000 native languages, culture, wild life and resources. Nowadays, several African countries are among the current fastest growing economies.

My favorite moment of the evening was when Vital Nsengiyumva spoke about forgiveness and reconciliation



after the Wanda genocide. He told phrases that we all from all over the world should apply: Strive to forgive and when possible, reconcile with your friend ...live in peace with everyone!

Our classmate Emiru Moges showed how is a typical dance from Ethiopia.

At the End, we had a spectacular dinner, the food was so delicious. Thanks to our African classmates, it was such a pleasure to have the African night!

• Nuria Belem CARRANCO TOLEDO

WASTE Student Generation 2013



54TH WIM - VENEZUELAN NIGHT

On the 22nd of May 2015 our fellow students Hildemar Mendez and Marcel Sanchez from Generation 2014 organized a „Venezuelan Night“ in order to celebrate our 54th WIM.

The decoration consisted of small pots with a Venezuelan flag in the center of each table and artwork from Oscar Olivares who is a young Venezuelan artist who decided to im-

press the national flag colors to each of his painting inspired by the difficult situation today in Venezuela. Hanging his pictures serve as a natural representative from this great country.

At the beginning they presented different regions of the country, the economy, sightseeing, gastronomy, natural resources, and culture. For example, in the west coast there's an atmospheric phenomenon of lightning with around 181 discharges/km²/year, 260 times per year and up to 10 hours. Amazing, isn't it? There are, as well, some places that have been declared as World Heritage by UNESCO, like the city

Coro and its Port, Ciudad Universitaria in Caracas and some of the Tepuis (A Tepui is a table-top mountain) in Guiana Shield.

To continue the marveling and wishing even more to visit this amazing country, did you know that the landscapes of the movies *Dinosaur*, *Up*, *Avatar*, and *Dragonfly* were inspired by Venezuela?

We also got to know more about important Venezuelan people, like Baruj Benacerraf (Nobel Prize in 1980), Humberto Fernández-Morán (Invented the diamond scalpel), and Jacinto Convit who worked on the development of the vaccines against Leprosy and Leishmaniasis.

They closed the night with a sweet Venezuelan touch. There was traditional and delicious food: Arepas Dominó a traditional Venezuelan Arepa stuffed with black beans and white fresh cheese, Are-

pas de Queso, a traditional Venezuelan Arepa with cheese, Empanadas de Carne con Arroz filled with meat and rice, Empanadas de Queso filled with cheese and Tostones con Ensalada de Repollo y Zanahoria which are some plantain (some type of banana) slices with a salad made of cabbage and carrot. This was all complemented with Papelón con Limón (a refreshing beverage made with raw hardened sugar cane juice, water, and lemon) with milk rice as dessert.

Last but not least the music started and we continued having a nice time together listening to some Latin-American music and learning some salsa steps.

• Lilia Itzel ACOSTA MUÑIZ
WASTE Student Generation 2014



Studying WASTE

VISTING BOSCH

On July 18th, 2014 we visited BOSCH, which is the global supplier of technology and services located in Weilimdorf, Stuttgart. It was a bright sunny day. We started our trip from the S-Bahn station with Dr. Vogt, and after a long journey to the factory we were warmly welcomed by the company members.

A presentation about the company was shown in the beginning wherein we got a better idea about the company's workings. They explained to us the role of

environmental engineers and the emission testing techniques.

We were further divided into three groups – each group was taken to visit the plant by their respective guide. We walked around almost the whole plant and learned about the function of the plant. Our guides were very cordial. They explained to us, how emission testing is done, which instruments are being used and how the calibration is done. We noticed that the task is not an easy job – it needs a fair amount of

effort and knowledge.

In the end of visiting the plant we were offered delicious food by the company. So we sat together munching our meals and discussed what we saw.

I would like to thank our professors for arranging these types of industrial visits as they are very helpful for a better understanding of what we study.

• Meghana KRISHNAMURTHY
WASTE Student Generation 2013

Office News

Since the publication of the last newsletter, we have had a few changes in the WASTE Office:

Associate Dean for Graduate Studies:
Prof. Dr. Andreas Kronenburg

Study Course Director:
Jessica Hahn-Ebner

Hiwis in the WASTE Office:
André Maffert, Felix Wellenreuther,
Hoda Tajrobehkar, Ricardo Dias,
Sarah Bentoua

TRIP TO A MONITORING STATION IN THE BLACK FOREST

The excursion to the monitoring station in black forest took place on February 13th 2015. As per the schedule we were asked to reach the Commundo Hotel inside the University by 7:30 in the morning. The bus arrived perfectly on time and we started from the university at 7:30 a.m. sharp. It was a three hour journey and most of us were sleeping.



Around 10:30 a.m. we reached the monitoring station. The whole view of black forest was fascinating. We were welcomed by the person working there and he showed us around. We had a look at their equipment, certain projects done by universities, and we had a look inside at their measurement devices. PM sampling (Low volume and High Volume sampler)

were mostly done along with Ammonia measurements. We had a look at the yearly trends of various pollutants graphically. A lot of questions were asked by the students and the person in charge explained them all patiently.

After two hours of full knowledge of what was going on in the monitoring station we had to leave and were very thankful as they gave our department two gadgets to be put in use.

We decided to take a walk to the top point to have a full view of the place. Believe me the path we walked was risky and slippery but it was exciting and filled with fun. Mr. Vogt accompanied us all the way up and we discussed the inversion level and climatic conditions on our way.

Many photos of the beautiful scenery were also taken. We reached the top point and climbed up a tower to see the whole view. It was breath-taking and an experience of a lifetime. After we spent a few minutes there, we walked (actually slid) down in the snow. After this adventure we were very hungry, as planned we stopped at a restaurant and had delicious food. We also did not forget to try the black forest cake.



At the end of the trip it was time for a group photo and then we boarded the bus. Everyone was really tired after hours of walking and fell asleep on our way back. We safely reached the University at 6:00 p.m. Great thanks on behalf of the students to Mr. Vogt, who arranged the trip, the person who explained everything that was going on in the monitoring station, and also the person who drove us up and down safely.

It was definitely an unforgettable experience and it will be cherished for a long time.

• Kavitha SHANMUGAM
WASTE Student Generation 2013

TRIP TO HEIDELBERG CEMENT PLANT

The road to having fun while acquiring knowledge started at IFK, Stuttgart University in the early hours of the day, when we all stayed outside the building chatting and making new friends while waiting for other students to arrive at the departure venue.

After a few minutes of waiting, our group head, Professor Baumbach instructed us to get prepared to embark on the journey to knowledge acquisition.



Inside the bus, Professor Baumbach gave us a pre-orientation on what we should be expecting at the cement plant, he also tried everything possible to make the trip fun-filled by telling us stories and his-

tory about every structure we passed, even as little as trees and flowers we drove pass. We had fun, asking him many questions while learning. It was as if we were in the classroom, even when we tried to pretend like it was an extracurricular activity.

When we finally arrived at the company where the cement was being manufactured, we waited for a while to get permission to enter. It was an interesting waiting time because we took advantage of it by continuing the conversations among ourselves, and the most interesting part was when students that have never talked to each other since our matriculation, started chatting and smiling at each other.

We finally gained admittance into the site. Our tour guide did a presentation about the cement factory, on the process beginning with the limestone cracking to the final cement production, after which we went to see the facilities used in the production - KILN, control room, raw ma-

terial storage site etc. It was so interesting because we had learned about them in the classroom but did not really know what they looked like until that day.

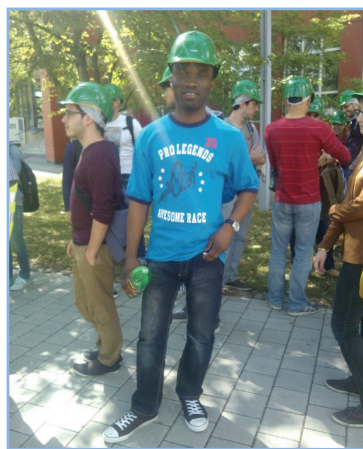
After the site tour, we were taken to the canteen, where we were offered a delicious German meal for lunch together with soft and chilled drinks to calm our nerves.

Professor Baumbach and our tour guide exchanged pleasantries and we left for our bus back to the university.

It was indeed a worthwhile experience outside the classroom. We gained a lot, not only academically but also socially.

Thanks to WASTE Master Program for such a wonderful opportunity to learn and share knowledge!

• Emmanuel NDUKWUDIMMA
WASTE Student Generation 2013



EXCURSION TO ENERGIE BADEN-WÜRTTEMBERG AG - ENBW

None of us knew what to expect from the excursion and that made us more excited for the experience. The 25th of June was a nice cool Wednesday and the weather was great. We all assembled in our classroom at the IFK to get mobilized for the excursion and in the process ate some snack prepared by the Thermal Excursion Team.

Afterwards we all progressed to the train station and were en route to Bad Cannstatt. It was quite a long walk down to the facility but we were thrilled by the beautiful view of the Neckar River as we walked by.

We assembled in a conference room where we had a warm welcome and nice refreshments to go with the little presentation they gave us on the history, production and mode of operation of the EnBW. We got to know a lot about the energy firm from its year of establishment to the



amount of waste received and amount of energy (heat and electricity) produced from the power station itself.

Afterwards, the people of the plant took us on a tour around the facility. We saw the large boilers and furnaces, and the turbine room. We were shown the offloading site where the waste is brought from outside by trucks, where they were sorted out, and where it was fork lifted into bunkers which prepared them for the furnaces to be incinerated.

We also got to see the three furnaces where waste is burned. Overall it was an overwhelming experience, first of its kind for me, and I would be thrilled to go through the process all over again.

• Charles OKUOYIBO

WASTE Student Generation 2013

WELCOMING OF GENERATION 2014

On Saturday, the 13th of September 2014, WASTE students of Generation 2014 had the first meeting with the WASTE Office Team and students from the higher semesters. The first part lasted about 3



hours, during which Dr.-Ing. Ulrich Vogt, along with the new Course Director Jessica Hahn-Ebner, presented the basic information about the WASTE program and life in Stuttgart. Moreover, we dedicated some time to choose our class speakers, WIM coordinators, Task Force Members, and people responsible for the newsletter. After a short photo session, we were ready to start our excursion to Schloss Solitude.

The walk to Schloss Solitude started at IFK and continued 6 km through the forest. Unfortunately, it was raining and chilly, but even in such unfavorable weather we had

a lot of fun marching together. When we finally arrived at the castle, our guide was already waiting for us and soon after she started talking about the story of

the residence of Duke Carl Eugen von Württemberg. Being guided around the place, we could appreciate the unique interior of the castle and exquisite ornaments and pieces of art. After visiting Schloss Solitude we came back to IFK for the barbecue. Some

of us decided to take a bus but others were determined to walk back the 6 km. Needless to say, the walking group was exhausted and when we finally got to the Institute, we couldn't have been



happier! (Also we couldn't wait for the barbecue to start).

It is a tradition that the senior students throw a welcoming party for the WASTE freshmen. Everything was perfectly organized and we had an opportunity to try a variety of grilled meats and vegetables, salads, and sweet treats. But wait, there was more! Afterwards, we had a great party during which we danced a lot and played games. Thanks to the senior students and WASTE Officials we will remember that day for a long time!

• Aleksandra KAMIŃSKA

WASTE Student Generation 2014

UBA MEASUREMENT STATION ZUGSPITZE

When we received the invitation to participate to the excursion to the UBA measurement station Zugspitze, we could not have imagined how good it would be. Excursions are an important part of the WASTE Masters and the Umweltschutztechnik study programs. We students appreciate the practical applications in our field of interest, in this case Measurement of Air Pollutants, but these two days we were not only learning about measurements. We also had some adventures in the mountains, enjoying nature, making new friends, and of course having a lot of fun.

We met early in the morning in order to take the train from Stuttgart Hauptbahnhof. After changing trains a few times we

reached the little town of Garmisch-Partenkirchen, in Bavaria, southern Germany. We were impressed immediately by the mountains around the town and the flowers garnishing the houses. From Garmisch-Partenkirchen we took a cog railway directly to the Schneefernerhaus at the upper slope of the mountain of Zugspitze, where the UBA measurement station Zugspitze is located.

It is easy to imagine that the highest mountain in Germany offers the best conditions for air measurements and we felt them. Since the place is far away from industrial or traffic emissions, not as our air in city center of Stuttgart, the Zugspitze station measures background air pollutants.

Its objective is to investigate climate developments with worldwide comparable measurements of climate gases. Therefore, since 1999 this station belongs to the international network "Global Atmosphere Watch" (GAW) and it is the most modern one in Germany.

The measurements are also not that simple, and they require costly calibration of the systems with standards from the National Oceanic and Atmospheric Administration (NOAA) located in Boulder, USA. Several measurements are performed as global long-range air pollutants, atmospheric greenhouse gases to aerosols as methane, carbon dioxide 12 and carbon dioxide 13, gases changing the ozone layer, particulate matter and other radioactive pollutants as radon and beryllium.

Another interesting thing is that we were impressed about the facilities of the Schneefernerhaus. This house was originally built in 1931 as a former hotel in the Alps and is now used only for environmental research. As long we were inside the building and the windows were closed you can forget that you are in the highest mountain of Germany, if you are not so sensitive for the low pressure effect in your head.

In our first evening Dr. Ludwig Ries showed us the measurements rooms and explained in detail how the equipment works. For me, it was like going back to the lecture of "Measurements of Air Pollutants" and we asked about doubts he had. Yes, every single one imaginable. We had dinner at the casino of

Schneefernerhaus, talking about life, environment and discussing why to be a vegetarian with Prof. Baumbach and Dr. Vogt. We were lucky to stay there overnight, because suddenly the nice weather conditions changed to clouds and thunderstorms.

The next morning all clouds were gone. After breakfast we went to the top of Zugspitze at 2964 m to visit the meteorological station and to enjoy the view from the top. We had two alternatives to get there.

The most brave ones walked through the rocks to the top, and the rest took the cable car. The 360° panorama view on the top was amazing. After the cleaning thunderstorm during the previous night, the sky was very clear and it was possible to see up to 120 km to the Austrian snow and glacier covered mountains. We were amazed with this scenic view, despite the fact that the glacier at Zugspitze is melting rapidly and the view over the glacier will be history soon!

The Zugspitze Meteorological Watch Office station has been in operation since 1900 when no cable car existed to reach the

top. It continuously measures the weather for weather forecasting, climate statistics and research tasked in the battle against climate change and the local effect over the glaciers in the Alps.

The parameters observed in this station are air pressure, temperature, humidity, wind speed and direction, precipitation, height of snow, sunshine duration, turbidity, global radiation and radioactivity of the air. They explained to us the radioactivity measurement was implemented after the Chernobyl accident. According the Deutsche Wetterdienst, in this station it is also possible to observe natural phenomena like volcanic eruptions, Saharan dust events, St. Elmo's fire, and aureoles.

After visiting the Zugspitze Meteorological Watch Office station we started our way back home. From the top, we took the Eibsee Cable Car and in only ten minutes it helped to descent 1950 meters to the Eibsee. Since the temperature in the valley was much higher than on top, we spent some minutes to relax in the lake and take a swim, even though we later had to run to catch our train to Stuttgart.

Finally, I should say that this excursion was one of the best excursions during my time as a WASTE student.

I have to say thank you to Prof. Baumbach and Dr. Vogt for organizing this activity that helps in our learning and makes



our masters program special. If you are student from abroad like me, you should not leave Europe without visiting the Alps and the top of Germany: the Zugspitze.

• Adolfo URIBE POBLETE
WASTE Student Generation 2013

MERCEDES BENZ SINDELINGEN TRIP

It was a beautiful morning. A little cold for 7:45 am. The gentle breeze brought the sweet smell of beautiful flowers that decorate the surroundings of the IFK.

It was more crowded than usual, and a fire was burning inside the young minds. Everybody was fit and healthy this early in the morning and ready to do something curious or adventurous. Dr. Vogt was in perfect shape.

But, why? When the birds were wondering about the sudden merriment in IFK on this Friday morning; there were two buses. Yellow and blue in color. Yes, it is the much awaited excursion to Sindelfingen Daimler Benz Plant.

There started the journey; with the heroes of the future world including the smartest and handsomest boy (It's me!!!). After 30 minutes we were there—the Daimler Benz Sindelfingen plant. Here the Mercedes Benz E class vehicles are manufactured. We went inside and started; being the energy people, we started with the power plant.

The Mercedes Benz plant in Sindelfingen is the largest plant in Germany. It has an area of 3 km². There are 37,000 people working in the plant. And near by the plant there is an open country area where around 100,000 people live. Because of the nearby inhabitants, noise and vibration are the most important factors to be considered. There were 3,500 sources of noise identified and acted upon to avoid the noise pollution.

The plant celebrated its 100th anniversary last year. Sounds pretty old right? There is a parking facility for 400,000 cars. Out of 37,000 people working, 20,000 people are coming by cars and 10,000 people use the public transport.

This plant uses huge amounts of re-

sources including steel, water, etc. There is a huge consumption of steel. Around 11,000 tons of resources are brought in by trains or trucks each year.

In Stuttgart, the plant has access to the second most mineral and nutrient-rich water in Germany. The source of mineral water is Bad Cannstatt. And there is a lot of challenges for environmental protection and emissions reduction, such as the solvent emissions from the paint shop, the wastewater that is coming out of the plant,



the engine oil from packaging areas, and the products of fuel burning, etc.,

The plant uses 1.2 million m³ per year of water and 40 % is for direct consumption. There is a wastewater treatment plant inside, which treats the water that is released from the company. The plant treats about 20 % of the wastewater that is coming out, and the remaining is sent to the municipal wastewater treatment plant. Because half of the total water consumed is used for sanitary purposes and 30 % is used for cooling process, the waste water plant treats about 200,000 m³ of water every year.

There is a huge open area beside the plant, however there is no current plan to expand. The company deals with more than 6,000 hazardous materials, and each product has had some internal permits. The chemists look through the data and issue the permits to people who can handle the respective products.

The company has a great responsibility for ecological sustainability and it uses

Green Technology Leadership for achieving this. It considers all the social aspects, receives complaints from the neighborhood, and takes measures to avoid them. There are other legal requirements like EMAS/ ISO 14001 etc., and other internal requirements as well.

For emissions, the company has certain guidelines and criteria for the environment and to produce in an environmentally friendly manner. The Green Production is stressed in all steps of the company. Even

if you open the website the first image you would see is the green production.

The company has received many certificates for environmental protection. In 1995 a part of the company had to have the Environmental Management Manual, a certificate that is in line with EMAS and ISO 14001.

In 2012, the certificate for Emission Management ISO 15001 was acquired.

Then we had a visit to the power plant where the electricity is produced with a gas turbine and boiler set up. There is a gas turbine which burns natural gas to run. The emissions and NO_x are treated by re-burning of the products.

The hot exhaust gases are used to heat the water and to produce the steam which in turn again is used to produce electricity.

Then we had a nice lunch. Surely delicious. Especially the fish and chili sauce was the star of the meal, at least for me.

That was it! The visit ended and the time to return back had come. With a cold heart and feel in the eyes we returned.

SCHARNHAUSER PARK

As a part of the course “Design of Sewer Systems and Stormwater Treatment”, the students of generation 2013 had the opportunity to visit Scharnhauser Park in Ostfildern. Scharnhauser Park is a district which was developed keeping in mind the advantages of having energy efficient housing and a sustainable urban drainage system.

It was this new urban drainage concept that we learned about on the excursion. Before we started out on the excursion, we were shown a map of Scharnhauser Park where we could see the path that followed by the rainwater to be drained. We then walked around the district, and we

were given information about and shown the urban drainage system.

In this system, the stormwater from roofs and green areas, which is not polluted, directly enters a nearby creek through several discharge points. The more polluted stormwater from streets and open paved surfaces flows through a gravel filter. There are retention basins provided which integrate with the surrounding landscape from which the water drains into the nearby creek.

For stormwater runoff from streets that have a high volume of traffic, is directed to naturally designed sedimentation basins that remove the pollutants from the

stormwater before it is infiltrated into the gravel filter. Several homes also have green roofs, which not only reduce the intensity of the runoff, but also improve the climate and have aesthetic value.

Overall, it was a great experience to see up close all the stormwater treatment systems we learned about in the classroom. I am very thankful to the professors and people responsible for organizing this interesting and informative excursion, and I am eagerly looking forward to the next one.

• Parineeta KASHIKAR

WASTE Student Generation 2013

Life after WASTE

ONE ALUMNUS' STORY

After graduation from the WASTE program, I wasted plenty of time seeking a decent job in Germany. But even after hundreds of applications, it just didn't happen. *Absagen* were the only letters in my mailbox.

I was completely disappointed with my applications and was about to give up but as you know, *man soll nicht aufhören*.

At the time I was working in Burger King with a low salary and in a Turkish Kebab at Rotebühl Platz. Life was very stressful and it reminded me to let God take control of everything.

Maybe I was one of the luckiest Wastes that among all rejections won a USA Green Card through a DV program. It was a blessing, a new hope for the upcoming future.

It is a long story, which I could write a book about, until I could touch the Green Card. Before moving to the US I did my GRE and applied for a PhD program at Old Dominion University in Virginia, where two friends of mine were already studying.

Now one year has passed since I moved to the States. I am in the second semester of my PhD, I got a job offer from the municipality of Virginia Beach City and I work as an engineer.

Even though I am still working on my weekends in Starbucks as a Barista, not for the money just to not forget what way I passed to come here. My life is pretty stable now and I am grateful to God.

WASTE is a great program and Germany definitely is one of the best countries

in the world, but everyone has a place in this world to settle down in, for me it was in the USA and I feel at home here rather than where I was born in Iran.

I learned a lot from the Germans and I always feel I am somehow Germanized in some ways of life.

I always felt that doing my master thesis in the Netherlands was one big mistake that I did during WASTE program, though I learned a lot there. I hope all of you know the value of what you have now and what you learn in WASTE. I wish you success in your careers and in life.

• Hamidreza SHARIFAN

WASTE Alumnus Generation 2010

Where to go in Europe?

TRAVELLING AROUND EUROPE



When someone talks about travelling around Europe, it's almost impossible not to think about cities like Paris, London, Berlin, Rome, Amsterdam and that's only to name a few. If you are not from Europe and you have never been there, there is so much to discover. Nevertheless once you visit them, you will realize that there are more amazing places than you could ever imagine. If you have the chance to live in Europe for a while, it sounds like a great idea to spend

some of your days off by getting to know some European cities.

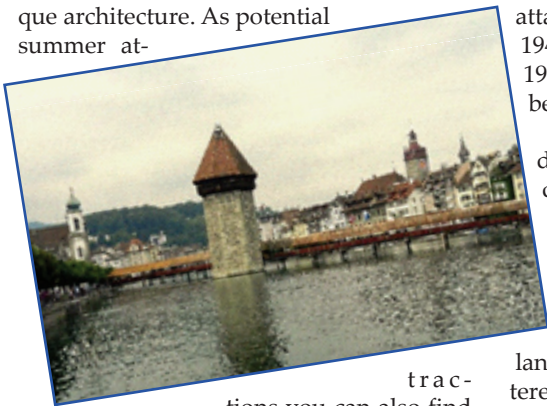
Therefore, I want to present to you three wonderful cities, full of history and beautiful views, although some of them may not be big metropolises, you won't regret visiting them:

Let's start in Austria with Salzburg, which is the birthplace of the famous composer Wolfgang Amadeus Mozart. It is located on the banks of the Salzach River, 150km east from Munich and 300km west from Vienna.

>>>continues

>>> TRAVELLING AROUND EUROPE

With its baroque architecture, Salzburg's old town was announced an UNESCO World Heritage Site in 1996. The main tourist attraction is the Hohensalzburg Castle, which is the biggest fortification in Europe. Inside it has a permanent Fortress Museum, where you can take in a breathtaking view of the city. Mozart's birthplace and living residence are nowadays popular museums that are worth visiting. In the Dom Quartier Salzburg you can find the Residence State Rooms, Residence Gallery, St. Peter's Museum and the Salzburg Cathedral, which has a remarkable baroque architecture. As potential summer at-



tractions you can also find the Hellbrunn Palace, famous for its trick fountains, and the Mirabell Palace which is a popular location because of its beautiful gardens. Salzburg is also famous for a confectionery product made up of pistachios, marzipan and nougat created by Paul Fürst in 1890 and named in honor after the composer, the Mozartkugel (Mozart Ball) is worth a try.

Lucerne is a really, really wonderful city that ranks amongst the world's prettiest cities. It is situated relatively near to Stuttgart and it lies in the German-speaking part of Switzerland on the shore of Lake Lucerne. One of the most remarkable sights is the Chapel Bridge, which was built in the 14th century as a part of the city's fortifications and has become one of the most famous landmarks in the city alongside with the Water Tower.

In Lucerne you can also find one of the world's famous monuments carved out of natural rock, which was described by Mark Twain as the saddest piece of rock in the world. It is called "The Dying Lion of Lucerne" and it was carved as a memorial of the heroic deaths of the mercenaries at the Tuileries. Another monument, The Musegg Wall, consists of nine towers, which form a part of the historic fortification



built around Lucerne. The city's oldest clock is located in one of them. From the four towers that you can visit you can enjoy the view of the city surrounded by the Mount Pilatus and Rigi in the Swiss Alps. Not to be missed are the Jesuit Church, Franciscan Church and Hof Church, each of them have their own special charm.

Not forgetting about Germany, let's talk about a stunning city: Dresden. It is the capital of the State Saxony, situated on the banks of the River Elbe. It is one of the most important and historical German cities. During the Second World War, it was attacked seven times between 1944 and 1945 and in the evening of 13th February 1945 the inner city was largely destroyed because of the attacks.

Among all the buildings destroyed during the attacks was the Frauenkirche. In 1994 began the reconstruction of the Frauenkirche, which was almost entirely funded by private donations from all around the world and it was finished in 2005 with an approximate cost of 180 Million Euro. It is the main

landmark in the city nowadays. Some interesting facts about the reconstruction are that they used the original plans from 1726 and also they combined original stones, which were in good conditions with new ones to rebuild the church.

Another beautiful site in Dresden is the Zwinger Palace, built between 1710 and 1728 with one of the finest baroque architecture in Germany. As part of the old town you can find the amazing Semper Opera, built in 1841 by Gottfried Semper. The Opera was completely destroyed in 1945 and reopened in 1985 with the acting out of the same play, which was the final play before the destruction.

In the Brühl's Terrace located between the river Elbe and the old town, you can discover some of Dresden's most beautiful architecture, including the Royal Art Academy and the Albertinum Museum, which offers one of the most beautiful sights, and these are not to be missed during a stay in Germany.

If you enjoy the outdoors and nature, you should not miss the National Park of Sächsische Schweiz, on the border with Czech Republic, where you can find the Bastei Bridge and Königstein Fortress. The Neustadt

Quarter is a must if you are looking for something modern. There is all kinds of international establishments to make sure you have a really good night out. Its popularity comes from the tradition, which has been around ever since 1990, on the third weekend of June the Bunte Republik Neustadt (BRN) (Colorful Republic Neustadt) is celebrated. It is a culture festival that you definitely have to be there and it is not to be missed!

Now, it is time to embrace new experiences. Take your backpack and start travelling! No matter how, when or where. Just do it!

"Twenty years from now, you will be more disappointed by the things you didn't do than by the ones you did do. So throw off the bowlines, sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover." –Mark Twain

▪ Lilia Itzel ACOSTA MUÑIZ
WASTE Student Generation 2014

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