



# WASTE NEWS

WASTE 10TH ANNIVERSARY, 2002 - 2012

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## 2002 - 2012: 10<sup>TH</sup> ANNIVERSARY OF WASTE

The International Master Study Program WASTE was founded in the year 2002, ten years ago. It is one of eight International Master Study Programs at the University of Stuttgart with a high demand of students. The *fathers* of the WASTE Study Program, **Prof. Dr.-Ing. Oktay Tabasaran** (former Head of the Chair for Waste Management and Emissions at ISWA) and **Prof. Dr.-Ing. Günter Baumbach** (Head of the Department of Air Quality Control at IFK), initiated this study program at our university in the environmental fields of air quality control, solid waste and waste water process engineering. **Dr.-Ing. Michael Waldbauer** implemented the WASTE Program organizationally, he was the first Course Director of WASTE from 2002 till 2009, and he accomplished the successful accreditation of WASTE. The intention for establishing this study program was the increasing awareness of environmental problems worldwide and the necessity of their solution. Many environmental problems have a global extension e.g. air pollution, solid waste and waste water problems worldwide in growing cities and metropolitan areas, global warming, scarcity of clean potable water etc. and thus these problems have to be solved worldwide everywhere. Since Germany is one of the leading countries in invention and application of environmental technologies and strict environmental policy, the *fathers* of the WASTE program realized the worldwide demand of environmental technology *made in Germany* as well as the demand of experts with a good educational background *made in Germany*. Therefore they initiated the International Master Study Program WASTE.

WASTE started in the year 2002 with 35 students from 12 different countries. The number of applications and students increased permanently. In September 2011 a number of 66 new students started studying in the WASTE program. For the year 2012 we received a number of 260 applications and we expect a number of 50 to 55 new students for the upcoming winter semester 2012/2013. Up to now 222 students graduated with master theses on important environmental issues. The rate of students who did not finish their studies has been relatively low with 15%.

WASTE students came from 57 different countries



from four different continents (Africa, America, Asia and Europe) starting with „A“ like Azerbaijan and ending with „V“ like Vietnam. The graduates became very successful engineers. They either continued their scientific career by doing a PhD either in Stuttgart, at other universities in Germany, in their home-countries or in third countries. Other graduates work as engineers in German or international companies in Germany or abroad or in companies or administrations in their home-countries.

In the year 2003 the WASTE Club Stuttgart e. V. was founded. It is a network of students, alumni, lecturers and protagonists of the study program. Among others the purpose of the WASTE Club is to stay in contact with the alumni and to exchange information. The WASTE Club also supports the printing and distribution of the WASTE Newsletter as a mean of platform for the exchange of information. Many of the extra curricula activities like WASTE Intercultural Meetings and other come-togethers are supported by the WASTE Club.

The highlight of the extra curricula activities in the yearly cycle of the WASTE program is the graduation ceremony. This year's anniversary graduation ceremony will take place at Saturday Nov 17<sup>th</sup> on the campus in Stuttgart-Vaihingen. this ceremony will be combined with a colloquium with the topic "International Prospects - Environmental Engineering in University education".

The colloquium will start in the afternoon with lectures of different guest speakers and will then continue with the official handover of the certificates to the WASTE graduates (generation 2010) by the dean of the faculty of Energy Technology, Process Engineering and Biological Engineering, Prof. Dr.-Ing. Schmidt. The anniversary celebration will continue with an appropriate festivity.

The members of the WASTE office and all persons in charge of the Study Program will do best efforts that the WASTE Study Program will continue as a very successful International Master Study Program in the field of environmental engineering and that their graduates will be well prepared for the tasks of the environmental challenges!

- Prof. Dr.-Ing. Günter Baumbach, WASTE Study Dean
- Dr.-Ing. Ulrich Vogt, WASTE Course Director

## MINING IN COLOMBIA AND THE FALSE DILEMMA ON GROWTH

Since some years ago, in Colombia, has been an unprecedented growth of mining activities. There are different factors involved in this growth but two of the most remarkable are the high minerals demand worldwide, that pushes the prices to the top, and the improved security conditions in Colombia, a great concern for the people in the country, not just for obvious reasons, but also because the role that this factor plays in order to attract foreign investment.

Just for quoting some examples, Colombia exports coal in an amount that places it tenth in the world, and represents 88% of its total mining activity; the country is exporting also nickel and gold to the international markets, contributing with 4.53% of nickel world production, and to the 1.2% of world production of gold.

As the former Minister of Mines and Energy of Colombia said, "our mineral exports reached levels of 8 billion dollars, which represents 25% of the total Colombian exports, and at the same time, the foreign direct investment has increased from 470 million dollars in 2002 to 3.2 billion in 2009". This huge incoming flow of money represents an enhance of nearly 1.5% in the weight of the contribution of mining activities to Gross Domestic Product (GDP) during the last decade.

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Therefore, the Colombian government, which is responsible for the fourth biggest economy in the region has referred to mining industry as one fundamental economic locomotive, since from its campaign to elections in 2010 the present government brandished a thesis based in five locomotives that's supposed would boost the economic growth of Colombia; these are innovation, housing construction, building of new infrastructure, mining, and agriculture. The strengthening of these five locomotives would allow Colombia a place in the privileged group of economies with economic growths above 5% annually.

### It seems an unsolvable dilemma.

Colombia is a nation with lots of unsatisfied needs, for example a safe drinking-water supply in the whole country, suitable infrastructure of roads and transportation to comply the requirements of new free trade agreements, adequate access to the public health services, reduction of unemployment etc.. All the promises around how is going to be achieved the improvement of the life conditions, specifically those related with the development locomotives, sounds very encouraging, not just for the government, but also for the academics, economists, analysts, and the population that is the most concerned sector in this case. Nevertheless, there is a very strong skeptic feeling in the air related with the very negative effects that the mining activities can lead.

The exploitation of minerals requires a deep intervention, even aggressive on the environments in which these are stored. It is necessary to excavate and remove vegetable and mineral layers, including the rich biodiverse environment, currently in the surface. The presence of mining activities in these places could mean the extinction of an immeasurable number of species, and natural habitats, without mention the disappearance of key sources of water for the human consumption and the possible irreversible deterioration and contamination of the air, surface and groundwater, soil and subsoil.

This situation seems an almost unsol-

vable dilemma or at least one very difficult to sort out. Because the incomes generated by the businesses, economic goods and services associated with mining industry could mean a very "powerful fuel" to the economy. On the other hand, it is not conceivable to think in destroy and miss this wonderful and unique natural heritage, of which we are just temporary owners.

### Does Thermodynamics have something to say to us?

Is really feasible get a sustained economic growth indefinitely? Since this is a process limited by the restrictions established in the second law of thermodynamics. According to this, it is not possible to obtain higher **useful** work for our society than which we are allowed to get from our present sources of energy and the rest of the energy will be not available for further transformations.



In words of **Nicholas Georgescu-Roegen**, economist that wrote in 1971 in **The Entropy Law and the Economic Process**, this means that **useful, low-entropy energy** and materials are dissipated in transformations that occur in economic processes and they return to the environment as high-entropy wastes. The amount of energy is the same at the end of the process, but the availability of useful energy is lesser.

In consequence the Gross Domestic Product (GDP) cannot increase eternally. We are condemned to go just till the second law of thermodynamics and the scarcity of resources enable us. According to this, the achievement of a prolonged improvement of the life conditions in our societies is just possible in a limited horizon of time.

Besides, the potential damage to the environment, in case of an arbitrarily and careless exploitation of the resources, will be maximized. Even in the best case, a situation of deterioration of the environment is unavoidable.

### It is necessary to do something in order to satisfy present needs.

Is our society ready to change course and stop growing and at the same time willing to meet the minimum needs of all its members? It is not practical and realistic to think that mankind would come back to

the caverns. Even in that case, it would be impossible to come back to the initial state of the system, or in other words, to return to the zero damage environment. By the way, this is another form of the second law.

Zero economic growth is another idea from some economists and scientists. It bases on that since there is no possibility to reverse the system, to maintain a constant size of the economy in order not to affect and compromise the availability of energy and resources and not to affect very deeply the quality of the environment.

The success of this last thesis depends on a very complex relationship between different aspects, for example the population growth, the capitalist system itself, the intrinsic perception of humanity on the environment, and this is the most relevant obstacle for achieving a zero economic growth. It seems to be a very desirable state, but even without violate the physics laws, it is almost an idealistic state.

We cannot disobey the second law of thermodynamics, but is impractical to think in coming back to the idyllic good savage way of life; and a zero economic growth scheme of our society is a starry-eyed concept. Therefore, in the context of the capitalist system, it is necessary to achieve economic growth in order meet the improvement of almost all of the most pressing needs of the population.

Of course, this economic growth cannot be allowed without restrictions to the damages on the environment. Even, contrary to the general idea that tends put the economic growth against the environmental quality, economic growth can be beneficial from the environmental protection.

There is no dilemma, economic growth is necessary in order to enhance life conditions. But, for sure, this cannot be achieved to any price. The Colombian case is paradigmatic, big companies interested in the extraction of oil, coal, natural gas, nickel, and another different mineral ores. A state with a very deep conviction that the "mining locomotive" is a key in the strengthening of the Colombian economy; a very fierce opposition of the public opinion, especially concerned about the natural habitats and resources that can be damaged by the uncontrolled activity with occurrence of the mining projects. Which leads to a questionable ability of the environmental authorities to control these activities, and finally a huge amount of problems to solve. All these factors provide an opportunity to do something better than just opposing to any project, but to develop suitable tools and effective mechanisms for environmental protection.



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**Industry, the real boost of the economy.**

Nevertheless, traditionally the mining industry is not one that characterizes by its very huge contributions to the development of the directly affected communities. Additionally, the money and investments of the royalties, derived from different sources, in Colombia, are characterized by corruption in its use. According to the National Department of Planning (DNP) in

Colombia 746 municipalities that receive royalties, none of them has the minimum coverage in water supply and sewerage.

Besides, one can think that the mining industry is not an indispensable activity. The real boost to the economy has to come from the strengthening of productive industrial sector that generates new, innovative and valuable goods for the society. This makes a lot of sense if one thinks that Colombia have chosen to be immersed

in different free trading agreements that forces the country to do things better, and promotes self-improvement and competitiveness. This should be the most important locomotive, which turns the country in a restless and productive society, unlike those who focus their development in activities such as mining.

• Oscar Alberto NORENA TRIGOS,  
student of WASTE generation 2011

## Studying WASTE

### EXPERIENCE FROM A TUTOR IN THE WASTE PROGRAM



During summer 2010, before the examination period started, a HiWi-job opportunity was announced on the WASTE website which required someone with a strong engineering background. This someone would give tutorials to students of the WASTE generation 2009 on subjects that they felt further explanation was necessary, in order to be well prepared for the exams.

Being both chemical engineers, my

colleague Jorge Toro and I felt confident enough to apply for the HiWi position. Luckily, we got the job and we were given the responsibility by Mr. Vogt to give tutorials for the subjects of Mechanical and Thermal Process Engineering.

It was a great deal: on the one hand these tutorials would also help Jorge and me to study for the exams, and on the other hand we would get some extra cash. Thus, we prepared several new exercises which were not solved during the classes, as extra-study material for our classmates.

The tutorials were very successful as a great number of students attended them, obtaining better results on their exams compared to previous WASTE generations. Because of this, Mr. Vogt trusted us with the responsibility of carrying out the tutorials for the WASTE generation 2010 and eventually for the WASTE generation 2011

(but this time with my colleague from generation 2010 Arif Karahaliloglu).

Even if at times we felt that it was going to be difficult to be in front of a full classroom (one time more than 60 students at once) and explain an advanced engineering subject in a language different from our mother tongue, it was a once in a life time opportunity for which we are very thankful for. The tutorials were an excellent way to maintain the acquired knowledge fresh in our minds and also a great way to reach out to our newly arrived WASTE colleagues, to share our experiences of both the master program and of our lives in Stuttgart. Teaching tutorials is a very rewarding experience that I highly recommend.

• Rodrigo HARO DE LA PENA,  
WASTE alumnus generation 2009

## IFAT-ENTSORGA 2012: "A WORLD OF ENVIRONMENTAL SOLUTIONS"



The magnificent environmental trade fair "IFAT-ENTSORGA" has taken place in Munich during the second week of May of the present year. After the event, a record never seen before has been reached with a total of about **125,000 visitors and 2,900 exhibitors from 54 countries** who presented their products, innovations and services on 215,000 square meters of exhibition space in "Messe Munich"<sup>[1]</sup>.

The prestige of this event is not only highly scored and recommended by the visitors but also by the industry participants. IFAT-ENTSORGA officially known as "the world's leading trade fair for water, sewage, waste and raw materials management", it is definitely one of the most relevant events worldwide in the environmental

sector. Fortunately, I had the opportunity to be there during one day (9<sup>th</sup> of May) courtesy by the logistic of the University of Stuttgart. There were four buses offered to the students of the international master programs WAREM and WASTE as well as to the German study program Umweltschutztechnik. Although I am not a student anymore, it was particularly important for me to gain a brief insight of the environmental technology trends, thus, obtaining an "update" of the industry interests. As a graduate, of course it was of an advantage to be able to interact directly with the exhibitors and trying to get the business card from "potential" employers.

Additionally IFAT-ENTSORGA offers a wide range of products in the environmental market, which in my opinion; it satisfies the expectances of the visitors. Some examples: Water and sewage treatment, sewer modernization, flue gas cleaning,

power plant technology, incineration, biologic waste treatment, noise reduction, refuse collection, recycling among others<sup>[1]</sup>. I would definitely go back to this event and I would suggest it without any doubt to all the WASTE students and Alumni. If you have the opportunity to be there more than one day, do not hesitate to extend your stay in Munich. Due to the magnitude of the event, one day is not really enough.

If you are interested in taking a look at who has participated in this event, it is possible to find them under the following link: <http://www.nfm-ifat.de/nfm/1655/1671.php?suche=aktivieren>

The next IFAT is already scheduled from May 5<sup>th</sup> to 9<sup>th</sup>, 2014 in Munich.

• Diana Marcela FLOREZ CORTES  
WASTE alumna generation 2009

[1] Webpage: <http://www.ifat.de/en>, (consulted: 12th June, 2012)

## CHALLENGE FUTURE IN SLOVENIA -- A WASTE STUDENT IN TEDxBLED



TED stands for Technology, Entertainment and Design. TED is one of the world's largest conferences that bring together fascinating thinkers and doers from around the world. Under the mission of "ideas

worth spreading" TEDx stimulates ideas exchange in a local level.

On March 18th the TEDxBled was held in Slovenia the annual summit of the world youth organization: Challenge Future (<http://challengefuture.org/>) which sponsored the execution of the first TEDxBled. This event gathered young change makers from more than 80 countries and

community members from Slovenia, including the press and several decision makers, like its President Dr. Danilo Türk.

My name is Johanny Perez Sierra from the Dominican Republic and I am student of WASTE generation 2011. I participated in this summit and contributed with a speech in a multicultural public of more than 600 people. I talked about "Solutions for my Planet", an environmental competition that I, joint with a colleague, founded and developed among 100 children in 5 rural schools in Costa Rica. This idea aimed at providing knowledge and raising awareness about the status of pollution in the surroundings of their communities. At the end of the contest, children presented projects to develop in conjunction with their parents and teachers in order to recycle, compost or biodigest their waste.

This project was the first in its kind

in this community and it reached 2000 people indirectly. This is an example of how far ideas can bring a person when persistence, creativity and ingenious are combined with inspiration to change the world. Some schools installed compost piles and biodigesters to treat their solid and liquid organic waste, while other schools installed recycling - urban agricultural gardens to grow vegetables to be consumed in breakfast and lunch by the children. At the end of my studies, me and my colleague received the "Sustainability Award" prize offered by EARTH University and the Sustainability Laboratories, due to the impact this project made in this community.

• Johanny PEREZ SIERRA,  
student of WASTE generation 2011

Video of the speech: <http://www.youtube.com/watch?v=GgFlwtM2dLI>

## STUDENTISCHE HILFSKRÄFTE (HiWi) GESUCHT!



*When you want something, all the universe conspires to help you achieve it... "Alchemist"*

**Student Job:** A very large range of possibility. I must say very difficult to define it.

The job related to research with any professor or with any Phd scholar is also a Student job called HiWi-Job. Sometimes several companies offer some job with name of Werkstudent for Students to perform his/her skills to earn some experience with money. Jobs which are offered by the companies as unskilled labor also are advertised by the name Student Job. Sometimes volunteer works are also being paid and named as student job. Some of my friend works in different restaurant as a helper in kitchen or at cash counter is called student job. So one has to decide which type of job he/she wants.

Let me help you with my paradigm to shorten the definition, Yes it's true that you might not get the student job of your study related field but definitely you will

learn and it's very good to learn new things which you might not know. But you have to do it in a frequent manner or I can say on a daily basis.

The easiest thing to find a student job is to visit the pin boards either online or offline. There are several pinboards in the whole university in different department but the one in Pfaffenwaldring 9 is the hub for the whole news near the cafeteria. You have to look on the each portal of different departments of the university. <http://www.uni-stuttgart.de/home/fakultaeten/index.en.html> This link is really helpful. Start from the very first department and look for the current news or vacancies. It's always updated.

Apart of that you can find the student job in different companies as well. Register with some job portal like <http://www.stepstone.de/en/> and make your selection like student job only such that they will send you information only about student job or Hiwi for a specified period of hours every month. But keep updated your profile and be updated with the news. The best thing I can say is to find something in companies such that you will get to know about working culture here in Germany.

Choose a field of interest and look for

the professor who used to work on those fields and go directly. But I believe not to trust on electronic communication (I would like to add it helped me a lot). Go directly to the person and knock the door. You might wait for a long time for an appointment but if you will find the appointment then you can show your passion for that field which you can't show in a letter. "PASSION" that's all those passionate people want from you. They don't need your professional background; I strongly believe that they (Professor of your chosen field) look for the zeal for the field.

One can also find a job in restaurant, but for that you have to choose the strategy of knocking every door one by one until you get one. The jobs in restaurants are also good in my opinion because you have to work on weekends, despite the fact that learn for your engineer's career.

Nothing can substitute for the information from friends & someone who is currently working in. Talking to someone in the field gives a real sense for job and about the availability in different departments. Networking always helps to land in a job in the future.

• Mohammed Tabish ALAM,  
student of WASTE generation 2011

## DATES TO NOTE

- Waste Intercultural Meetings "WIM" in upcoming winter semester every 3-4 weeks
- 20 Aug. 2012 - 15 Sep. 2012: Exam period
- 01 Sep. 2012: Arrival of new students, generation 2012

- 15 Sep. 2012: Welcome excursion and BBQ for new students of WASTE generation 2012
- 01 Oct. 2012 - 12 Oct. 2012: Re-exams period
- 01 Oct. 2012: Application beginning for

winter semester 2013/2014

- 15 Oct. 2012: beginning of new semester
- 17 Nov. 2012: : graduation ceremony of WASTE generation 2010
- 27 Dec. 2012 - 05 Jan. 2013: Christmas holidays



## THE GREAT EXPERIENCE OF BEING IPSWaT SCHOLARSHIP HOLDER

Three years ago I received with great pleasure the positive response of being part of the IPSWaT (International Post-graduate Studies in Water Technologies) scholarship program.

IPSWaT supports outstanding students for Master or Ph.D. degree, whose programs are international, related to water technologies, taught in English and at a German university. With this support, IPSWaT looks for international transfer of technology and knowledge, integration of potential decision-makers and development of long-term contacts around the world, all in order to form a basis of cooperation for the future.

The students can not apply directly to the BMBF to be part of this scholarship program. First, the students must apply to the Master program. Afterwards Course Directors of the Master programs send the applications of suitable candidates for the scholarship to the BMBF. An external and independent panel of experts selects the candidates and the BMBF informs the university about the results. In the year 2009 five students of WASTE, including myself, were selected.

IPSWaT is an exceptional scholarship. During the Master studies, we received an allowance sufficient to cover the living costs, health insurance and an accident and private liability insurance. We received as well the round-trip ticket from home to

Germany, the tuition fee for the first semester and one month of intensive German course before to start the Master.



Germany, the tuition fee for the first semester and one month of intensive German course before to start the Master. On the other hand, not only we received support in order to study the Master, but we also had benefits that helped us in our professional development. We received free subscription to one of the journals of the DWA (German Association for Water, Wastewater and Waste) and partial support for attending conferences. Moreover, since the middle of 2010, IPSWaT started to help us with the costs of German courses, which was very important due to the relevance of this language in our daily life and as a preparation for the continuation of scientific career for our professional life in Germany.

There is a meeting of the IPSWaT scholarship holders every year. My gene-

ration (2009) had the opportunity to be in two of them, in Leipzig (2010) and Bonn (2011). During these annual meetings we got to know the scholarship holders around Germany. Additionally there were stands of institutions and companies giving different information to water related topics. Master and Ph.D. theses of scholarship holders were presented in oral presentations on posters. This kind of meetings was very important for our professional development and integration of the scholarship holders.

In addition to the grant of two years scholarship for the Master studies, we can do an internship for three months. I had the opportunity to do an internship in the waste water and sludge incineration plants of Bonn city. This internship was a very enriching experience, not only due to the important knowledge acquired, but also because I got to know better the daily life in a German environment authority and I could improve my German language.

Thanks very much to IPSWaT scholarship program, you give us the opportunity to be able to study here in Germany, to share our cultures, languages, experiences and to have the possibility to do something better for our environment.

▪ Hasbeidy Carolina DIAZ CASTRO,  
WASTE alumna generation 2009

## EXCURSION TO HOLCIM



On July 6<sup>th</sup>, 2012, we attended a really unforgettable excursion to Holcim with Prof. Baumbach.

Setting off from IFK at about 8:30, we arrived one and a half hours later at Holcim GmbH. After a warm welcome, we watched a video introducing the developing history and the main industrialization niche of Holcim. It was impressing that they would like to improve their process in any area to protect the environment. The nice thing was that one colleague from Holcim asked us to introduce ourselves

and tell about our career plan. I was really full of ideas and the experience on that day is like an inspiration for me to think more and do more.

Then we were lead to view the fossil museum right in front of the factory. The museum is formed of the fossils which came from their mines on the mountain. The fossils were beautiful and old, millions of years old. They even had one of the dinosaur fossils. To be honest, it was the first time in my life to see a dinosaur fossil.

After the visit to the fossil museum, we went into the cement factory. We went through a whole production procedure. From the materials they use to how they deal with the emissions. Everything is done under full control. Also, everything which could be used for a second time is made the best use of. During the visit, we saw everything we knew from the paper in a real industrial scale and our confusions were completely cleared. I think that is exactly how excursions work, making things on the paper alive and solving all problems

by experiencing on our own.

The light spot of our excursion was the visit to Hohenzollernburg after we left Holcim. We climbed a hill and visited the castle there. The afternoon was so cozy when sitting together with Prof. Baumbach and a few friends, talking and laughing.

Hoping to have such a successfully excursion again!

▪ Longyuan BAO,  
student of WASTE generation 2011



## BEFORE AND AFTER – How IPSWaT HAVE CHANGED MY LIFE COMPLETELY



I would like to present the impression of my professional carrier before and after I received the scholarship from IPSWaT (International Postgraduate Studies in Water Technologies).

In 2007 I finished the Master Study Program Water Resource Management in Lüneburg, Germany and then I returned to my home country Colombia with very high expectations to contribute in some topics related to my master studies. The job offers by projects associated in the water sector were diverse, but most of them had a very short duration and low perspective for deepening in a research field in a long period.

After three years with many short contracts related to environmental issues by both, public and private employers, I realized that I will not become expert in any field working in projects without a structure and any vision for a long term. Moreover, many times I felt unable to really contribute in an organized way solving a small problem in the water sector in my country, because neither stakeholders nor politicians or the public community have implemented any of my technical suggestions. Then, I felt like a bug generating maps and information nobody will ever take notice of.

From 2010 up to now (2012), thanks to

IPSWaT, I feel that the research of my PhD thesis has a sense, because it can contribute somehow to solve a specific aspect of the water management, which could help not only my country but also to be transferred to other regions. I am developing a methodology for analysis of the physical flood vulnerability of buildings in large river floodplains using remote sensing data and GIS techniques, with the supervision of Prof. Jochen Schanze at the TU Dresden and Prof. Norbert Haala at the University of Stuttgart.

Moreover, I am very enthusiastic after the annual meetings of IPSWaT, because I met with Ph.D. and Master students of different parts of the world, who have similar interests like me. For example, all of



them are interested in the environment in general and water issues, especially many of them come from developing countries where alternatives for receiving a financial resources for research are limited. Likewise, many of them are excellent people, and have high academic level as well. They are young people open to share personal experiences and academic developments.

Besides the presentation of the scholarship holders which were on a high scientific level, the meeting offers examples and points of view in research and projects in the water sector by experts with the highest qualification. These presentations have opened me the spectrum for new alternatives and new interests, as well as motivation to continue in this field. For example a conclusion of the presentation of Prof. Dr. András Szöllösi-Nagy has marked my thought, he points out that “besides the scientific approaches, the IPSWaT fellows have the responsibility to connect and communicate the scientific results to the political level in order to be implemented in the society”.

Then, I understand why in the period before IPSWaT from 2007 - 2010 I was disappointed with my work, because I was not able to transmit the importance of my work, my maps and my reports to the politicians and stakeholders. I know for learning how to do it, there is a long way to walk. But this motivation became for me a new milestone in my carrier!

Frankly speaking, IPSWaT changed not only my professional, but also my private life. I met the man of my life in the last annual IPSWaT meeting in Boon in 2011. Now I am the happiest person of the world, married with the course director of WASTE!

• Angela Blanco-Vogt,  
Friend of the WASTE Program

*Note: It is a pity that the IPSWaT program will not continue after the year 2014 in the actual way, because persons like me with the interests named above will not fulfill his/her professional expectative and his/her expected contributions in the water sector will not take place. The structure will not be used anymore and the network which was built up since the beginning of IPSWaT will not be further more expanded. Such a successful program like IPSWaT MUST be proceeded!*

## Recent events

### GRADUATION CEREMONY 2011

Two years ago the WASTE generation 2009 started the new adventure: our master. During these two years we attended lectures, solved problems, finished exams, made reports, projects and presentations. And happily, at the end of the road, it was time to celebrate.

It was at the beginning of November 2011 and all our talks were about how to present the results of our master thesis and to look for the best outfit for our graduation.

Some of us were done with our thesis, other ones were doing final investigations and some others were looking for the ideal subject. However, all of us were organizing our agendas to pick up our families at the airport, sending music to the DJ in order to dance all together on the night of November 12<sup>th</sup>. And even we all were very excited about the party, a closure feeling was floating in the air.

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## >>> GRADUATION CEREMONY 2011

*Llegó el esperado sábado. Nos empezamos a preparar desde temprano. Los que tenían visitas familiares tuvieron que arreglar sus agendas para poder ir a pasear por Stuttgart, arreglarse y llegar a tiempo al Edificio de Maschinenbau.*

It was Saturday night, although getting ready started in the morning already. Those friends with friends and family over had to manage to go visit Stuttgart, get ready and be on time at Pfaffenwaldring 47, where the graduation ceremony took place this time.

The first impression was amazing. Students of WASTE generations 2010 and 2011 made a great effort to turn a University building into an elegant lounge. Food was ready, the bar with the famous caipirinhas, the tables prepared to receive a lot of guests and obviously the dance floor was waiting for us. Oh, please don't forget a very nice surprise: at the end of the salon blank posters with our pictures were hanging along with pens waiting for us to write nice words and goodbye wishes. I still have mine hanging on my room with all signatures and nice wishes from my dear WASTE friends.

And the Ceremony began. Prof. Baumbach, our Program Coordinator, reminded us the responsibility we know have as environmental engineers. After a

short but very nice musical break by Marini, Arunee and Sumate, our dear Course Director Ulrich Vogt, together with Prof. Schmidt, called us one by one to hand us the print of our effort over the last two years: our Master Certificates. And of course, the best effort has to be acknowledged: congratulations Jay, she won the prize for the best grade in our generation!



After a great musical break, Rodrigo and I had the honour of telling the adventures of "Susy", a imaginary WASTE student of the generation 2009. And because new traditions are always good, our generation chose our lecturer Detlef Clauß as Godfather, who ringed us a bell about the work we still have to do as professionals responsible for the environment.

The Ceremony was closed by another great surprise from generation 2010: we watched a video with pictures of our WASTE life. Great job, thank you!

Thus, we were ready for dinner: a great international buffet was waiting for us. We could taste dishes from all over the world, with amazing colors, scents and tastes, really delicious.

After dinner, it was show time: classic songs, skills with Chinese swords and dances with fire. And of course, what better way to celebrate than to pure Colombian style: our dear Colombian friends started the dancing mood with the rhythm of La Pollera Colorada, a traditional Colombian dance called Cumbia.

The party went on until the last minute, dancing, taking pictures, talking, drinking, eating and enjoying the culmination of a wonderful step in our lives.

For me, the night of our graduation was magical. It was a night that will always remain in my heart as the grand finale, the closure of our Master and the celebration of great friendships that will last a lifetime. Specially thanks to the WASTE Club, the WASTE Office and of course the students of generations 2010 and 2011 for all the effort they put into making this night unforgettable. And above all thanks to my classmates of generation 2009 for making the Master Study a life memory.

• Maria BLANNO VIDAL  
WASTE alumna generation 2009

## „THE GOD FATHER“ OF GENERATION 2009



I remember when I was in my first year of school and my teacher told us that school was our second home: we should take care of it since our schoolmates were going to be our new brothers and sisters, we should pay attention and learn because our teachers were going to be our guides in the world of knowledge.

When a child is born, the tradition explains that the parents should choose so-

meone to look after the child in case they were missing. The choice of this guardian is made considering values such as trust and reliability. After this model, in some Universities the tradition has been extrapolated to the relationship between student and professors.

Thus, WASTE generation 2009 decided to name Detlef Clauß as our Godfather, our teacher of International Waste Management and Design of Solid Waste Treatment Plants after secret election. Thanks to him we learned not only in the class room how to be better engineers but also his continuously support along our studies helped us to grow up as people. His commitment with his profession was an example for us to understand what it

means to be environmental engineers.

It was an honor for the generation 2009 to have Mr. Clauß as our teacher and mentor during our studies. We believe that him as Godfather of our generation can be a great first example for future teachers of our WASTE Program to continue the tradition not only of being named Godfather but also to act as one: as a mentor and guide for us during our way to become better WASTE engineers.

In the name of generation 2009 I would like to thank our Godfather Mr. Detlef Clauß for his support, kindness and knowledge during our master studies.

• Maria BLANNO VIDAL  
WASTE alumna generation 2009

## WHEN ALUMNI TALK!

It was December already, and many of the new WASTE students still did not have a clear idea as to what they would be doing after graduation. We needed a solution, as alas, what could be better than meeting the WASTE alumni! The idea of meeting the alumni sounded good to us as a WIM event, and we contacted Dr. Vogt to give us a go ahead. Main job for the meeting was to invite the alumni, which of



course Dr. Vogt did very efficiently and we had some ten alumni from in and around Stuttgart who came to attend the meeting. We were overwhelmed with the response, the turnout was better than expected! We saw the variegated academic and regional backgrounds of which the previous generations of WASTE were comprised of, and got an amusing insight into the development of the WASTE culture.

The main idea for arranging this meeting was to give the current students a flavor of post MSc life, but we were quite pleased that the alumni took out time to give loads of valuable suggestions for the during-MSc life as well!

I would try my level best to summarize all the info and enlightenment that we were showered upon that evening in this small article. First things first, the professional life is very different from the academia, and the sooner you realize that, the better! After a few talks, it became rather evident that its a fact that most of the students don't have a very specific idea as to

what they are going to do after their graduation. Ergo, one of the most striking lines I remember was from Mr. Rentea, alumnus of generation 2008, who said „never miss an opportunity even if it doesn't fit well with your background. You never know what the future might hold for you!“ We came to know about the various research interests of various institutes in our University, varying from microbiology to oxyfuel combustion! One thing became clear for sure, that doing a PhD is no easy task, and it requires dedication and perseverance to do justice to a doctoral position. One should join as a doctoral student only if he/she is really determined to do so!

Academia apart, some insight was given into the corporate environment by Ms. Acuna Caro and Ms Kostieva. A major point one which everyone stressed was to work as much as one can during the studies, by the means of Hiwis, Student research project, Master Thesis and if possible, internships. These experiences not only widens the skill set, and paves way for making good and informed choices in the future, but also helps building a strong professional network. Another thing on which stress was given was to constantly work on the quality of CVs, cover letters, emails and other means of communications, since they give the first impression about a person.

Ms. Kostieva was also very kind to share with us some ideas on brain map-

ping in context of how to prepare for the exams efficiently and how to lead a more focused life in a general sense. Suggestions were given to the WASTE office to include more management and soft skills related subjects in the curriculum.

Everything said, one very important thing on which everyone, and even Dr. Vogt again stressed on was to learn German as fast as possible, since we are in Germany and it will immensely augment our options.

After the talks and presentations, drinks and one-on-one talks carried on.



I could see the excitement and eagerness in many a student's eyes while they were imbibing knowledge from the more-experienced! Over and all, it was quite a successful event and we hope to repeat the same again sometime, at least once for each generation. We are also considering asking alumni in different countries to give talks via video conferencing. If you are a WASTE alumni and wish to share your experiences with us, please do get in touch!

• Devansh SHARMA,  
student of WASTE generation 2011

## WEIHNACHTSMARKT 2011 IN LUDWIGSBURG

The relish of Glühwein, Maronen und Lebkuchen still lingering on your tongue, thousands of neon Lamps always blinking in front of your eyes, the lively melodies of Christmas songs all along ringing in your mind, these are the cheerful and impressive scenes from Ludwigsburg Weihnachtsmarkt that we, the WASTE students, have experienced all together before the approaching Christmas Days.

When we were wandering about, we would find that we had already stepped into a child-fun paradise which is full of toys, cookies, sweets, amusement, which immediately kindle a spark of excitement inside both kids and kid-adults, of course including me, SUPER! Meanwhile, the market is a good collection of practical houseware, traditional German "Handwerk", unique ideas of anonymous design-



ners which were labeled with "Handmade in Germany".

Here comes the very interesting discussion with Senior Daniel, who refuted the concept of "Handmade in Germany". He insisted that in fact most of this handicraft is imported from China. With the support from analyses of the materials of such

handicraft which had been carried out several years ago. Yes, maybe it is the truth. In great extent this concept dramatically increased the added value for the gifts. However, in some circumstances, better just keep on believing what you believed in, especially as a visitor. Just like we prefer to believe that joyous, white-bearded Santa Claus wearing a red coat, black leather boot, riding on nine flying reindeers, delivers presents from door to door on the single night of Christmas Eve.

It is a little pity there was snow on that day. Anyway, let us start to look forward to Weihnachtsmarkt 2012, then hopefully filled with flying snowflakes spending the Christmas time together with each other once more.

• Shengsheng HE,  
student of WASTE generation 2011



## SUMMER PARTY 2012

WASTE generations 2010 and 2011 got together to organize the Summer Party 2012. Divided into several groups, students took over duties such as decoration, food, grill, games and cleaning. The party was on the 20<sup>th</sup> of July, despite being in the middle of summer, it was a rainy day, for this reason the party was this year held inside the IFK building, taking advantage of this situation, different locations were used for specific activities: A buffet area, a grill, a dining room, a bar, a Shisha place and a dance floor were set up. The decoration was Hawaiian style and a lot of colorful paper flowers hung all over the place, and adorned the tables.

The guests were the students from

generation 2010 and 2011, former students, some of our teachers and many relatives and friends. The party began with dinner, which included different salads, grilled meat and sausages and muffins for dessert. Prof. Baumbach used this time to give a speech in which he thanked the organizers for the party and mentioned some general issues of the master program. Then, attendees began gathering at the bar and the shisha area where they were offered cocktails like caipirinha, cuba libre, mojitos and even non-alcohol drinks. Also different shisha tobacco flavors could be chosen. Some attendants were asked to join the games prepared which included an obstacle race and a hula contest; later people stayed par-

tying until after midnight. The next day the cleaning team met at midday to clean and organize the entire place which ended as if the party never happened.

• Maria Carolina VELEZ RINCON,  
student of WASTE generation 2011



## Life after WASTE

### PHD AT IFK: 1. GREGORY DUNNU, WASTE ALUMNUS GENERATION 2004

After my graduation in February 2005, I got the opportunity to work at IFK (Institute of Combustion and Power Plant Technology) with my research focusing on co-combustion of biomass and solid recovered fuels in pulverized firing system. It was basically a continuation of the topic I chose for my Master Thesis which was exactly what I wanted to do after my



interest was lit during the course of the WASTE study programme.

The working atmosphere here is very collegial and I cannot imagine that I have already spent 7 year-plus working here. Anyway, my doctoral thesis has been submitted and I foresee my final exams before the end of the year (2012). I will be working here at IFK till the end of Sep-

tember 2012 after which I will start a new job at a company that manufacture power plants that is located in Stuttgart.

What I vividly remember during the WASTE study time are the kitchen-Parties in the Allmandring dormitory which we did during birthdays and other accomplished milestones. They were small but great parties.

Thank you WASTE! Thank you for this great study programme and the great opportunities I got!

### PHD AT IFK: 2. AARON FULLER, WASTE ALUMNUS GENERATION 2004



After graduating and working in the engineering industry in the USA, I choose to continue my studies in an environmental engineering field. After receiving my acceptance to WASTE, in Feb. 2004 I arrived in Stuttgart for participation in the WASTE program. I received great hospitality from the former course director Dr. Waldbauer and others in the WASTE office and international office in ensuring I got settled and all the logistical matters associated with moving to a new country were completed. It was a very welcoming expe-

rience. Moreover, the diversified group of individuals coming to study in the WASTE program from all over the world created a very positive and fulfilling unique and an enriching atmosphere with very good long lasting friendships and memories.

After I completed my WASTE course work I was offered a master thesis topic at IVD, nowadays IFK (Institute of Combustion and Power Plant Technology) at the University of Stuttgart. It was a pleasant working environment and experience and a nice group of people to work with that I eventually inquired about a possible PhD position. After completing my master thesis, I was later offered such a position, which thrilled me totally.

My PhD work is in the field of co-combustion of biomass fuels in pulverized fuel power plants, focusing on fly ash formation and possible utilization routes from co-firing high thermal shares of biomass fuels beyond conventional practices. Since working at IFK I have had the opportunity increase my knowledge in combustion

technology through conversing with other colleagues and the institute's technical engineering staff, which is very supportive. In addition, I have had the opportunity to manage European projects, which has resulted in learning new things everyday from participating on research teams conducting measurement campaigns in both laboratory and large-scale facilities and from conversing with project partners throughout Europe. Furthermore, I have had the opportunity to increase my knowledge base by travelling to project meetings and conferences in some of the most well known cities and conferences throughout Europe and the USA.

I would like to take this time to say thank you to those that labored and worked to create the support for starting the WASTE program making my experiences at IFK possible. Also, thanks to those who continue to work and ensure the WASTE program is ongoing and progressing and to those individuals who work at IFK providing technical engineering support.

### PHD AT IFK: 3. AJAY BIDWE, WASTE ALUMNUS GENERATION 2006



It was in August 2005, I got my admission letter from WASTE office. At first I had hardly any clue that next 6-7 years of my life I will come to the WASTE office / IFK building every day. I had completed my bachelor of engineering in chemical branch from Pune University in India. I worked in India for five years in engineering companies related to biogas plants and waste oil recovery.

After finishing my Master Thesis at IFK, I got a chance to work further on the same topic of my Master Thesis further into a doctoral study. I think my background with chemical engineering, my industrial experience of 5 years and application of knowledge acquired during WASTE courses is what helped me getting this doctoral position. My research theme is to study the hydrodynamics of the dual fluidized bed reactors, which are mainly

used as main reactors in calcium looping and chemical looping combustion. These processes are the types of CO<sub>2</sub> capture processes. This topic is directly related to the mitigation of global warming and climate change problems.

For the past 4 and half years I have been working on this topic and results are fruitful ones. The working at IFK is full of challenges, but the working atmosphere is just simply great. Therefore never felt under duress. I am currently planning to finish the writing and submitting my work. I still remember the day when Dr. Waldbauer (former course director of WASTE) did my introduction to Dr. Berger (former head of department at IFK) which was the beginning of my research career. For this I have just word to say to the WASTE office. "Thanks".

### PHD AT IFK: 4. GOSIA STEIN-BRZOZOWSKA, WASTE ALUMNA GENERATION 2006



In January 2006 I arrived to Stuttgart with one suitcase and a big backpack. In couple of days the pre-courses were to start... Among great friends I learnt in WASTE we were supporting each other, encountering Germany and studying together not rarely until the dawn...

More than a year of hard work but also of a great time among wonderful people passed quickly by and it was high time

to start looking for an interesting master thesis project. I was just about to finish my independent study at the Institute for Internal Combustion Engines and Automotive Engineering (IVK) in CFD simulations, when I got an offer to stay longer. Although the topic was very interesting for the Master Thesis I wanted to be back at the real flames. I asked Prof. Seifert if he had an interesting topic in combustion of Refuse Derived Fuels (RFD) and a couple of months later I was standing at the reactor in FZK nowadays KIT.

After one of the lectures, assistant of Prof. Seifert, seeing I was interested in Solid Recovered Fuels, offered me a HiWi position in this field at IVD nowadays IFK. That was when I entered IFK's laboratories for the first time. It helped a lot while I was applying for the PhD position here. Though those days the dreamt activities were in biomass and RFD combustion,

I was moved to the field of oxyfuel combustion and further to fireside corrosion. New challenges and opportunities arise often at Pfaffenwaldring 23. Within demanding projects one learns a lot every day. And that + a great work atmosphere is what makes IFK one of the leading institutes worldwide in our field!

I have been at IFK meanwhile 4 years executing and coordinating European and national research projects in the field of corrosion and oxyfuel. This year I am hoping to write my dissertation. The work itself - I "jump" between the laboratory set-up, which I designed and built with support of my colleagues, electron microprobe where I analyze samples, our 0,5 MW combustion rig, pilot facilities and power plants within Europe. It's a great job and I love it and to all those who have made it possible, I would like to say "Thanks a lot!".

### PHD AT IFK: 5. MIGUEL ALAIN DOMINGUEZ MENDOZA, WASTE ALUMNUS GENERATION 2006



I decided to study chemical engineering in order to get a good background that could allow me understand many aspects related to environmental engineering which has always been interesting for me.

When I finished my studies in Mexico I realised I

still needed to increase my knowledge in the environmental field if I wanted to follow that direction in my professional career. After finding out about the WASTE Master program and the great possibilities it offered in environmental engineering courses as well as internationalization I applied to it and got accepted as part of generation 2006 starting a new chapter of my life.

My first contact with IFK was because of the lectures I had at the institute. Later on I finally got more involved with it when doing my master thesis, which was about the analysis of the particles hydrodynamic

behaviour in a cold model of a novel test facility for carbon capture and separation (CCS) that was being built at IFK. I got the opportunity to learn not only about theoretical aspects of CCS but actually help constructing the cold model (scaled-down version of the facility) and afterwards be involved in the actual test facility assembling. Never before in my life I had spent so much time in a work shop or at a facility site constructing things which regardless of how tiring it was sometimes I enjoyed and learned a lot from it.

>>> continue



## >>> PHD AT IFK: 5. ALAIN DOMINGUEZ MENDOZA, WASTE ALUMNUS GENERATION 2006

After finishing the Master I was invited to continue working at IFK this time with a project called BIOCOOL which is the cooling generation using waste heat. A very interesting concept for warm places that require some type of cooling with the additional advantage of lowering the high electricity demand and using low calorific value liquid biofuels by means of flameless

combustion. Once again I spent a couple of months building a small test facility which now has as the main objective the optimization of a burner for flameless combustion to reduce CO and NO<sub>x</sub> emissions using different types of liquid fuels, specially low calorific biogenic ones. I never pictured myself working and researching at an Institute in a German University with so

many friendly and helpful colleagues creating an optimum working environment. I'm glad I chose to be part of the WASTE master program and later on of IFK.

Thanks a lot to everybody at the Institute and naturally to the WASTE former and actual administration for making this an enriching and unforgettable experience.

## PHD AT IFK: 6. MARTA ESCOTO DE TEJADA, WASTE ALUMNA GENERATION 2006

In December 2007, after two amazing years living the "WASTE experience", I went back to my home country, El Salvador. Almost immediately, only after some short but well deserved holidays with family and friends, I started to work again at the University where I did my bachelor studies and where I was working before starting my Master study in WASTE (Central American University "José



Simeón Cañas – UCA). There, I had the opportunity to apply some of the new skills and knowledge acquired during my stay in Germany. I got to participate in different projects carried out in collaboration with industrial partners and governmental bodies and had a great time sharing with the undergraduated students who attended my lectures, worked with me in different projects or simply

came to my office to have some advice on how to find opportunities to study abroad.

In March 2011 I was informed that I was granted a scholarship from DAAD (German Academic Exchange Service) to continue with my PhD Studies in Germany. After two exhausting months of preparations and four intense months of intensive German course, I started my PhD in October 2011 at IFK, Department of Firing Systems (KWF) on a fascinating topic: oxy-fuel (co-)combustion of biomass. Although I have learned a lot during this first year, there is still a lot to learn and tons of work to be done!

Now (talking to myself) go for it!

## SINGAPORE INTERNATIONAL WATER WEEK 2012



Someone said once: *"...more often in life, we end up regretting the chances in life that we had, but didn't take them, than those chances that we took and wished we had not..."*

Hence, a couple of months after receiving my WASTE M.Sc. degree certificate, I fulfilled the plan to move to Singapore, far away from my home country, Mexico. I must say, though, that I was very lucky to land a job just a few weeks after I moved.

As one of my new responsibilities, besides dealing with the design and installation of industrial wastewater treatment plants, I was required to take part in the Singapore International Water Week (SIWW) 2012, to make contact with potential suppliers of water treatment machines and equipment, and meet with current ones.

The SIWW is an important trade fair in Southeast Asia (very similar to the IFAT fair in Munich, taking place every 2 years) with exhibitors from all over the world. Germany was of course one of the most important countries present at the convention. Among some other German universities, research institutes and several German companies, the University of Stuttgart



was part of the German delegation.

A nice coincidence was to meet there both my friend Asya Drenkova (WAREM Gen. 2008; Research Associate at ISWA) and one of WASTE's lecturers, Dr.-Ing. Ulrich Dittmer (Design of Sewer Systems lecturer; Head of Department, Chair of Sanitary Engineering and Water Recycling – ISWA). Coincidentally enough, this occasion allowed me to meet with Prof. Wolfram Ressel (Rector of the University of Stuttgart) and Dr. David Phillips (Senior Advisor to the Rector on International Issues). Prof. Ressel in turn introduced me to Mrs. Theresia Bauer (Minister of Science, Research and the Arts, Baden-Württemberg), visiting the German pavilion at the time. This was for me a great honor.

I couldn't miss the opportunity to

share with both Mrs. Bauer and Prof. Ressel that I was a proud WASTE Graduate student from the University of Stuttgart, currently working for a Singaporean company, applying the knowledge I acquired throughout the M.Sc. study program. In addition, it was a really good opportunity for me to practice the German language once again, which was so difficult to learn and that I was starting to forget!

Rodrigo HARO DE LA PENA  
WASTE alumnus generation 2009

If you would like to know more about the Singapore International Water Week, I suggest referring to their web site [www.siwv.com.sg](http://www.siwv.com.sg).



## THREE YEARS AS HIWI OF THE M.Sc. WASTE PROGRAM

This article is dedicated to the 10<sup>th</sup> birthday of the international M.Sc. Program WASTE.

My name is Zhuguo Zhang, you might know me by writing emails to the WASTE office. By the time you read this article, I am no longer a Hiwi of WASTE. Still I think myself as a member of the big WASTE-Family.

Until today I could clearly remember the time that I received the email from Mr. Vogt, he asked me for a personal interview after receiving my application for a Hiwi job. During the interview I tried to prove that I am a very clever person by showing him how fast I was with my Diplom study. But actually he was looking for someone who could work for him for a relative long time. I have just done the opposite.

Luckily a few days later, I got his email again for a second interview with my ex-colleagues Mona and Tobi, who worked as Hiwis in the WASTE office for three years before I started. They were very kind to me, so surprisingly I got this Hiwi job. Although until today I did not find out, why Mr. Vogt chose me at that time. After these 3 years his choice is proved to be right, at least I think so.

I started my job at 1<sup>st</sup>. September 2009, at the beginning I did not have any idea how I should do my job. It sounded very easy, in fact it is not. Usually either I or my colleagues check our email box everyday. We try our best to answer the email as soon as possible, so that people could get the information they need before losing their patience. But sometime it does not work, for example, since all the three Hiwis are also students of the University of Stuttgart. Besides this job, we have to concentrate on our studies, especially during the exams period. Meanwhile at that time, there are lots of emails which should be replied, because it is the end of the application process, and almost every applicants want to know the result of their application.

WASTE is becoming better and better, that is why we receive more and more applications, in 2010 we had only about 130 applications, and one year later, in 2011 we had around 250. This year, we received even more. I am really happy that more and more people came to realize that with the development of economy, our environment also deserves to be protected. This also means, after the beginning of application, there would be more work to do.

Compared to the other international study programs at the University of Stuttgart, WASTE is relatively big and we

also have some traditions to celebrate. For example, summer party and graduation ceremony. The summer party takes place on the last day of the lecture time. After a semester of hard work, there is enough reason to celebrate and to relax a bit. Not only the WASTE students, but also their friends, alumni and lecturers come to enjoy the sunshine (or the stormy weather in July), the food, the music and the games. It is like a renaissance of the big WASTE-family.

Graduation ceremony is another big event, which usually takes place in November. Students from younger generations prepare food for the graduates. This tradition is kept year by year. It is really encouraging to watch the students receive their certificate. The most moving moment you can ever imagine. After two years of studying, they are now a good engineer and could finally do something to save the environment.



From my point of view, as a former Hiwi of the WASTE office, I do not like these big events so much. Although most of the work is done by students, there is still a lot to be organized. Food, decoration and other stuffs have to be bought. Drinks have to be prepared and provided, and as WASTE Hiwi you have to be one of the first to be there, help with the setup and the last that leave the party, help with the cleaning. Anyway you have a good feeling by watching people enjoy the party and you are very proud of yourself for doing such a good job!

Like me, after these three years of work, I have to leave. This feeling is complicated. On one hand, I am glad that I have

finished my own study (I studied the German study program Umweltschutztechnik) and on the other hand I wish I could stay. Anyway I think my colleagues will continue and do the jobs in a way, so that WASTE will continue to be a successful study program.

At the end, I would like to thank Mr. Vogt, who not only gave me this job but also helped me a lot during my study. I would like to thank my colleagues, from whom I have learned a lot. I would also want to say thanks to my girl friend Lu Liu, who supports me a lot.

I am happy that I could be one of Hiwis in the WASTE program during the first ten years of WASTE. I wish the WASTE program all the best for the next ten years!

Happy 10<sup>th</sup> Birthday!

Zhuguo Zhang,  
former member of WASTE-Office

## WASTE NEWS

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

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