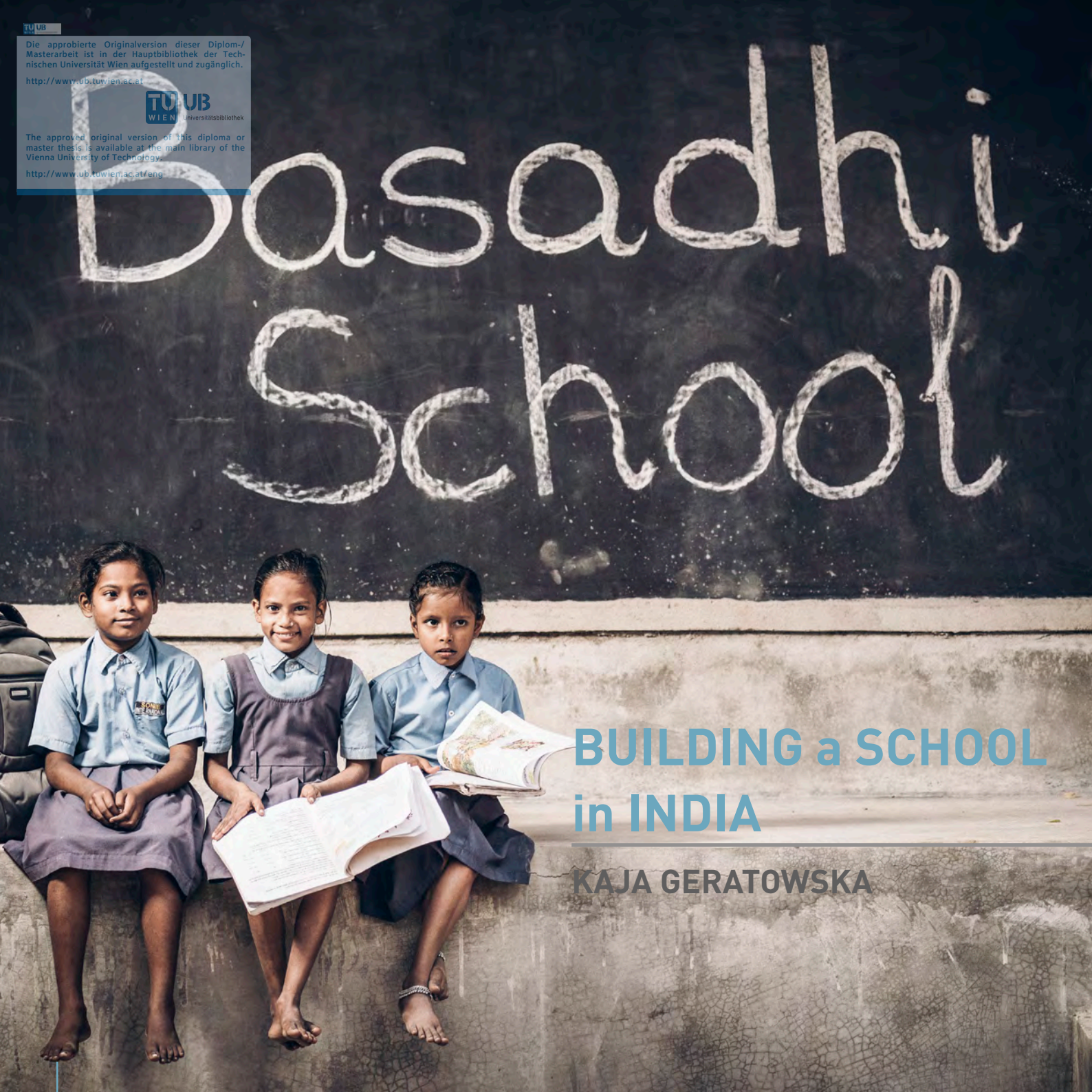

BUILDING a SCHOOL in INDIA

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DIPLOMARBEIT

BASADHI SCHOOL
-
BUILDING A SCHOOL IN INDIA

ausgeführt zum Zwecke der Erlangung des akademischen Grades einer Diplom-Ingenieurin

unter der Leitung von
Ass.-Prof. Dipl.-Ing. Dr. techn. Peter Fattinger

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Manoj
Family
AZ 4

and to all the others, who shared their knowledge and their support, either morally, financially or physically.

Multifunctional courtyard of the school

ABSTRACT

The topic of this paper is the conception and realization of a school building in Basadhi, in the Eastern part of India. The school was designed after a thorough research on site and built in cooperation with an Austrian and Indian project associates. In total I spent 9 months in India, where I took the role of an architect, a construction site manager and connection point between Austrian and Indian partners. The purpose of this book is to give a description of the building process in an international context, however also to share my personal experiences during construction works, where striving for building, in which natural materials in view of traditional constructions played an important role and were handled on the same level as sustainability and identity, was essential.

The book also deals with interactions in this for me new reality with a completely different mentality, an unusual sense of time, working policy and in particular the Indian way of life, which makes certain aspects simple, but also complicates others in many ways. It is an insight to the thoughts and observations of architecture, building in a completely different country and the influence, which social structures and different cultures have on the role of an architect. It is a collection of experiences and adventures and a trial to process my experiences. I would be very pleased, if anyone with similar ambitions and ideology could derive benefit from these captured thoughts.

ZUSAMMENFASSUNG

Thema des Buches ist die Realisierung des Schulbaus in Basadhi, in Ostindien, die auf der Grundlage einer sorgfältigen Recherche vor Ort entworfen und in Zusammenarbeit mit Österreichischen und Indischen Entwicklungsorganisationen gebaut wurde. Insgesamt habe ich neun Monate in Indien verbracht, wo ich die Rolle einer Architektin, einer Bauleiterin und einer Kontaktperson zwischen den Österreichischen und Indischen Projektpartnern übernommen habe. Das Ziel des Buches ist eine Beschreibung des Bauprozesses im internationalen Kontext, so wie auch eine Reflektion meiner persönlichen Erfahrungen während den Bauarbeiten. Essenziell war das Streben nach einem Bau, in dem ökologische Materialien und Umgang mit der traditionellen Bauweise eine große Rolle gespielt haben und auf der selber Ebene wie Nachhaltigkeit und Identität behandelt wurden.

Ebenfalls befasst sich dieses Buch dem Miteinander unter den für mich neuen Lebensumständen mit einer gänzlich neuen Mentalität, einem ungewöhnlichen Zeitmanagement, einer anderen Arbeitsweise und einer besonderen Indischen Lebensart, welches manches vereinfacht, aber auch einiges komplizierter macht. Es ist ein Einblick in die Gedanken und Beobachtungen über die Architektur, das Bauen in einem anderen Land unter dem Einfluss, welche Kulturen und soziale Strukturen auf die Rolle des Architekten haben. Es ist eine Sammlung von Erfahrungen und Abenteuern und der Versuch die gewonnenen Erkenntnisse aus dem Projekt zu verarbeiten. Es würde mich freuen, wenn andere Personen mit einer ähnlichen Ideologie, welche Ähnliches vorhaben, aus diesen festgehaltenen Gedanken für sich einen Nutzen ziehen können.

Sitting groups were specially designed
to offer a place to chat, relax or do homework

CONTENT

View from the office to the nursery class room

BACKGROUND INFORMATION

In this section I will give you a short description about my motivation in getting involved with the project. You can also read hear about the history of the project and how different parties came in cooperation.

INTRODUCION AND WHY I DECIDED FOR THIS PROJECT

At the end of my master's studies of architecture, I decided to design a project that not only I will profit from. In fact only a minority of the world`s population can afford healthy and safe built environment and access to decent architecture is considered as something exclusive and luxurious, while actually it should be a basic right. (cf. Sinclair 2006) The opportunity to abolish the stereotype and contribute to improvement of the situation, while using my gained knowledge appeared, when the NGO in Vienna, I voluntarily was working for, found out that one of the schools they are supporting, has to be rebuilt. The school was supposed to be built in the federal state of Bihar in Eastern India, which is regarded as the poorest and least developed state of India.

Education is another basic human right, which from my point of view is the only factor that can contribute to the sustainable social development and empowerment of the backward regions. Education can secure children's future, provide better chances in life and stop transmitting poverty from generation to generation. It's been proved that, as well as various aspects of the built environment have an impact on the people living in buildings, the school design can influence pupils. By the different design parameters such as classroom orientation, temperature or air quality, not only their well-being, but even their results can be effected (cf. Less 2015), which is making appropriate learning conditions even more important.

From this major thought my personal requirements developed. I tried to meet my demands in providing a building with suitable technical conditions, which have a positive effect on the learning performance of students, while creating a representable appearance and playful atmosphere to encourage students to attend classes. Moreover like every donation based project, the required building had to be affordable as well. Due to this reason the major role took the reasonable handling with resources, in the same time proving that an inexpensive building does not automatically mean compromising on creative and child-friendly design became an important requirement. As a solution the choice of affordable, natural materials became clear, which helped in

School of Basadhi before the construction project

achieving the best results with the restricted budget. Additionally the materials fulfil the requirements of sustainability and ecology and contribute to healthy indoor air quality. (cf. Minke 2009) My personal concern in this project was also a particularly gentle handling of the culture and history of the area with the pursuit to achieve the required social sustainability of the project. During my second major, Sustainable Urban and Regional Development, I was able to consolidate the theoretical knowledge on topics of social and environmental sustainability, developing countries, globalization, environmental conservation and geography, which I'm sure helped me during the realization of this project and in the trial of accomplishing my set goals. The initial part of the research and the design phase was done with participation of Karolina Bartnik, who later resigned from the further cooperation due to personal reasons.

The practical site of the project was an extremely important aspect, since only the direct cooperation in the realization of a project could make the necessary identifications and understanding of the project possible. The presence of an architect on the construction site during the whole building process could enable the quality of the school building. Moreover it was a very important experience for me, as a future architect. The implementation of my own project, from planning to the final completion, was a great possibility of my intern and professional development.

Children in Basadhi

PROJECT PARTNERS AND BACKGROUND INFORMATION

Thanks to Austrian help, children of Bodhgaya in Bihar and the nearby villages have an access to basic education since 1999. The project was initiated by Doctor Fridolin Stögermayer and is continued by SONNE International since 2012. In the village of Basadhi, which is situated near Bodhgaya 90 children were taught. Now though the school has lost its license and the status of a public school due to requirements restrictions. Children cannot be taught outdoors anymore and untill the new building is accomplished, on the land that is the school's property, children cannot get final certificates from this educational establishment. In December 2013 SONNE International has acquired a suitable plot of land. The plan and construction of the missing building were my role in this undertaking.

ME AND MY STORY

I've knew for a long time that I want to combine architecture and development cooperation in my future life. On one hand I developed an interest in the social projects through both of my majors (Architecture and Sustainable City and Regional Development), on the other hand it grew during my journeys. As a passionate traveller, who loves getting to know other cultures and searches for adventures and new challenges, and an architecture enthusiast, with appreciation for aesthetics, who knows the power, which surrounding us buildings have on us, I wanted to combine both of my passions. The final decision was made after I participated in a university project of Mojo Fullscale Project NPO in Tanzania in 2012. The project was run by Architect Gernot Kupfer from Technical University Graz. Therefor the first time, I had the opportunity to see the realization of a project from the idea to implementation, what brought an enormous motivation and was a huge learning process. The fortunate consecutive occurrences led me to India, where I wanted to face the challenge by myself, to initiate, coordinate, run and accomplish the project.

FRIDOLIN STÖGERMAYER

1999 an Austrian doctor Fridolin Stögermayer went on trip following the path of Buddha. During his travel he came to Bodhga-

Happy final of the project

ya to see the place, where Buddha achieved enlightenment. Coming out of the temple, he met Pramod and Salendra – young men with a lot of motivation, who wanted to improve the educational situation amongst the poorest in their village, by starting to give classes to a small group of students in a temple. Fridolin was fascinated by the idea and the selfless attitude of the two, helped them establishing an organization ‚Siddhartha Free Education Centre', which doctor Stögermayer was supporting since then. Visiting the school almost every year and helping financially by collecting money among his friends in Austria, he could see the project growing from year to year. In the beginning only a few students were taught under a free sky, today about 270 children in 3 branches profit from the organization. The goal has always been to enable the disadvantaged children from the underprivileged families of Dalits the access to education. In the beginning of 2012 doctor Stögermayer handed the project over to SONNE International, a Vienna based NGO, since it overgrew his possibilities. His wish was the establishment of a new school building in the village Basadhi and gaining back the teaching license for the school. Thanks to his donations the plot of land for the construction site could be bought.

SONNE INTERNATIONAL

I heard about the projects of SONNE International, when I moved to Vienna and decided to help the NGO, in any way I could. What started as small graphical tasks, ended in realizing a big, ambitious and long-term project. SONNE stands for 'Support Organization for Non-formal Needed Education'. It is an Austrian development organization, which since the establishment in 2002 has as a main focus on education and training for disadvantaged children and adolescents in developing countries. Furthermore the NGO in also involved in health care and rural development projects. The organization supports projects in Bangladesh, Ethiopia, Burma and, since 2012, also in India. (cf. http://www.sonne-international.org) At the end of October that year Dr Stögermayer handed his Indian project over to the NGO with a request of building a new school in Basadhi. When the organisation found out about the construction task, I was asked for help. The organisation was responsible for collecting funds and buying land, where the school could be build. Due to the local problems the construction site was finally bought more than a year later. Only after having bought a building site SONNE could apply for donations for the building

Doctor Fridolin Stögermayer in Sujata

costs. The biggest contribution came from Fair Styria – Entwicklungszusammenarbeit, a development cooperation organization from Austria, which positive decision and confirmation of the donation came in May 2014. Support also came from Projekt Kinder and private sponsors. Half of the land was bought by Doctor Fridolin Stögermayer as his contribution to the realization of the project. The donations reached India after a few months.

BUDDHA EDUCATIONAL FOUNDATION SOCIETY

This Non-Governmental Organization is responsible for the schools in Bodhgaya, Sujata and Basadhi. It was founded by Pramod Mishra and Salendra Pathak, whom Fridolin met in 1999. Pramod took the role of a secretary in the organisation and Salendra, his friend and neighbour, became the NGO's president. The two worked voluntarily and are responsible for the organisation and the collection of donations to maintain the schools. 'Buddha Educational Foundation Society' was founded with the help of Dr Stögermayer as an umbrella organisation of 'Siddhartha Free Education Center' to enable the future expansion of activities. Thanks to BEFS many children, mostly of the lowest social stratums, receive education. Moreover they run a small orphanage, where 9 boys are accommodated and obtain an overall care.

The initial motivation for the project was education of the children

Sponsors and project partners were commemorated on a marble board at the entrance of the school

RESEARCH
AND PLANNING BASIS

The purpose of this chapter lies in presenting issues such as geography, climate and history, however also in aspects like social structures and technical possibilities of the place. Not only the knowledge gained before the start of construction appears in this section, but also information expanded during the several months stay in Bodhgaya.

METHOD: PARTICIPATIVE OBSERVATION

During writing of this paper I was thinking, how to present my collected observations. Due to the very special place and conditions of this unique project the results cannot be confirmed or negated. The opinions that I state here are also not possible to verify, since I was doing the project only by myself and not many similar project in similar places have been done and no standard results can be delivered. In sociology the way of how I gained my knowledge about the region and its people is called participative observation. (cf. Häder 2006) In this situation I was simultaneously and observer and a member of the group.

The involvement with people in their natural environment over an extended period of time permits detailed insights and should enable obtaining of more detailed and accurate information. In India nevertheless I had the feeling that the more time I spend there and the more I was finding out, the less I understood. On the other hand this kind of observation is also connected with threats like the risk of 'going native' which is losing the distance to the group and found particular behaviours completely normal. After some time I started getting used to the fact that things simply don't work and that the quality of work is low, that things last longer, that it never comes to appointments. During my stay in India I learned, how to avoid such a state of mine and figured that outside Bodhgaya already help to solve this problem. There is also the question remaining, if the sole presence of mine as an extern contributor could have an influenced on some of the people' behaviours. Particular processes would possibly not happen or be different, would I not be active in the project. Let's think here about the discussions on the site between representatives of the highest and lowest castes. Moreover my observations persist affected by my worldview, the upbringing and beliefs that I have and my emotional attach. The interpretation could depend on the difference of culture and my perception. I'm also not an educated observer and might not be able to choose the right way of description to state my opinions.

The analysis is a retrospect and will never going to be the full description. However I wanted to bring here all my thoughts up on the one hand, not to withhold the information, on the other hand with a hope that the information could help someone with similar intentions. I also wanted to avoid the situation, where I present also the bright side of the project. I had the problem that all the papers about humanitarian projects that I was reading about, were described as done without any social or technical problems. I don't say here I didn't realize the burden that I took upon myself, however I admit I had another image of projects like this. Read more in the chapter about personal development.

Discussing plans with Naresh and Binod

Smiling woman during the first visit in Basadhi

RESEARCH TRIP

An Important step of the research was a journey which took place in March and April 2014. The purpose was a investigation of the place, where the future building was supposed to be built and the gained knowledge was to become the basis of the design. In my opinion an analysis of issues like culture of the country, availability of resources, the future user's requirements and social structures is crucial for the qualitative result and brings a positive, sustainable effect. The aim of the stay was getting in contact with the Buddha Educational Foundation Society, the future users and local operators of the building, and gaining their support. The participation of local community, both in preparations as well as in construction works of the project, was intended to establish a relationship between the user and the building. This purpose was to strengthen the necessary social sustainability and the identification of the local community with the project. Furthermore workshops were planned, which examined the needs and demands of the trust and the teachers of the school, so that the stakeholders' concerns can be largely implemented in practice. To deliver an adequate design a thorough on-site research was essential and the examination of the social and ethnological topics, as well as building techniques and building culture on site indispensable. During this journey I was accompanied by Karolina Bartnik, who initially wanted to participate in the construction of the project, but later resigned because of personal reasons. The research was possible thanks to a scholarship of Technical University in Vienna, which I was lucky to get.

Welcoming in Basadhi village

NEEDS OF THE FUTURE USERS - WORKSHOPS

Cooperation with future users was a very important part of the pre-design. IIn my opinion it is only possible to adjust the project for the needs of children and teachers by getting to know the local community. I also hope that due to the participation of the local inhabitants in the project from the very beginning, an identity with the building will be created and a sustainable relation between the users and the school develops. To achieve these goals and to find out about the needs and wishes of the future users a journey to India was indispensable. During the stay workshops with teachers, the director of the school and the president of the Indian NGO were organised. For a foreigner coming from a completely different country, it was the only method, which could provide so much information in a relatively short time. The main aim of the workshop was getting to know each other and gaining trust of the teachers, president and director of the school. The results of common brainstorming and gaining opinions of every teacher were the base for the establishment of room program and for the design itself. However it also provided interesting and practical knowledge about social structures and behaviour of the participants and future project partners.

The crucial issue and challenge in the organisation of the workshop was gaining an opinion of every person, no matter, which position in the school they take, no matter if they are male or female or from which caste they come from. Already in the beginning of the stay, it was noticeable, how strong the social hierarchy is and how much it determines, who takes voice in the discussion. Mostly the women were missed out and didn't dare to express themselves.

The workshop was divided in two parts. Since the participants are not used to taking part in workshops and these kind of brainstorming methods. The first part could be seen as a warm-up exercise, while the second was supposed to deliver ideas for the future building.

Evaluation of needs of future users during workshops

EXISTING SCHOOL: ADVANTAGES AND DISADVANTAGES - GROUP WORK

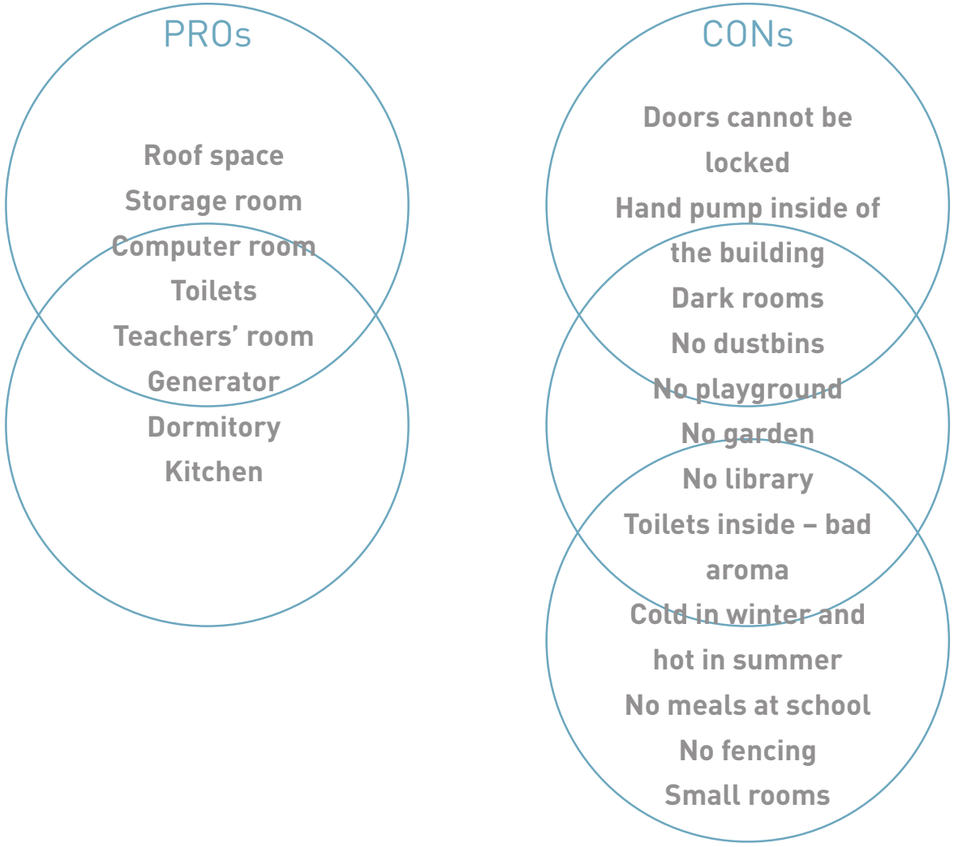
In the first part of the workshop teachers were divided in small groups (3-4 people), so that they could talk freely without being heard by the president or director. President (male) and director (female) were placed in different groups on purpose, so that they are not influenced by one another. Most important was that in small, not accidentally formed groups, also female teachers could express their opinion more freely.

In this part of the workshop, groups were supposed to think about the actual situation of the school and notice advantages and disadvantages of all three branches of the school – Sujata, Sujata Temple and Basadhi. Most useful from the architectural point of view were critical opinions on the building in Sujata, which is considered in having the best situation of all three schools. Teachers expressed their discontentment in both the construction of the building and its equipment, but also in the teaching methods, the education program and talked about common deficiencies. As far as the construction was concerned missing common room, no playground or lack of library for the children together with small, dark rooms, were just a few of many shortages, which were mentioned.

There was a significant wish for a silent and clean school in a peaceful environment. First ideas according to the room program could be collected. Wish for bigger, brighter classrooms and a big gathering hall was uttered and it could been seen that the issue of garden and playground is of a big importance. It was reminded that the climate of Basadhi often can be very tough and that safety can be an issue. Toilets were wished to be outside to avoid the odours coming into the main building. All of the wishes were considered and most of them could reflect in the design directly in a direct or adjusted form, while some of them didn't cover with possibilities or the requirements of SONNE.

Another interesting aspect is that in the results one can see the dissatisfaction with details, which actually could be changed and improved very easily, without any financial effort. As an example all of the teachers complained about the lack of dustbins and presented it as a real problem. It shows that one's

ADVANTAGES AND DISADVANTAGES OF EXISTING BUILDINGS - GROUP WORK RESULTS



own initiative is missing and creativity is not a strength here. Since even an empty cardboard box could be the solution, one could see that the ability of solving problems and providing creative solutions is not common. As with many signs, I also didn't see this as a BIG warning of what expected me on the construction site.

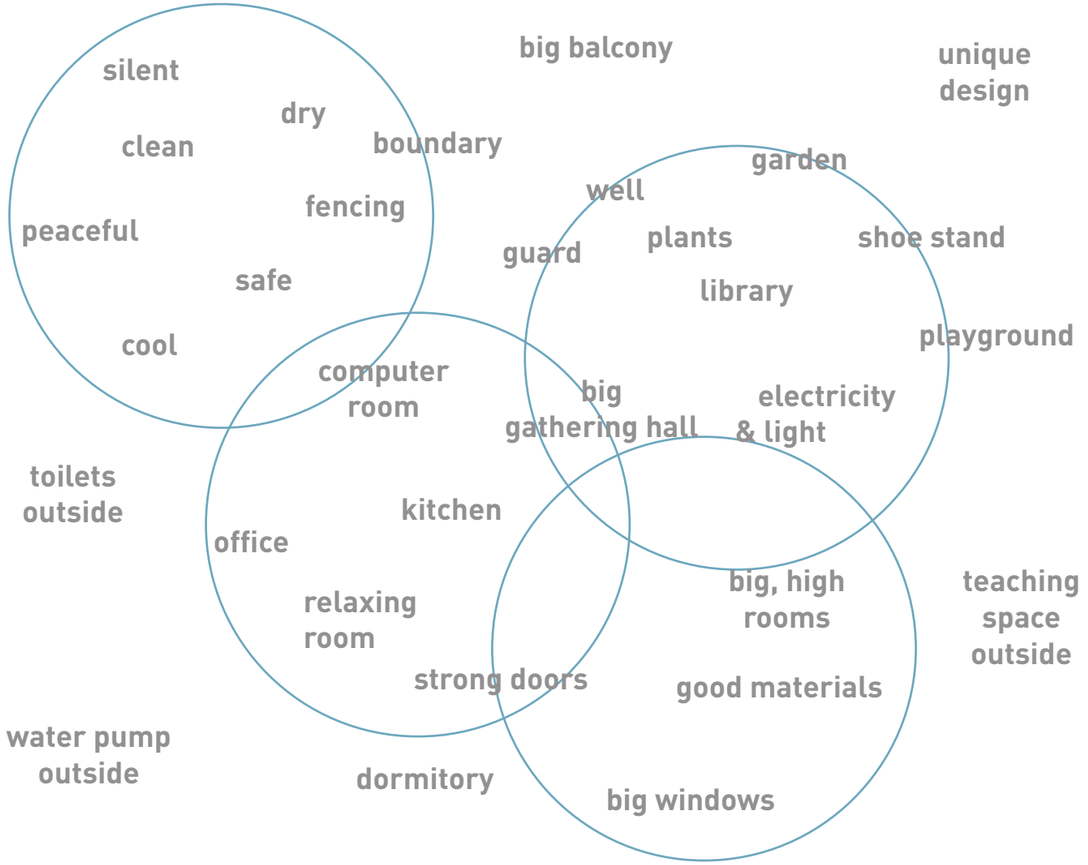
FUTURE SCHOOL WISHES AND NEEDS - WORLD CAFÉ

The warm up exercise of the first part of the workshop was a preparation and, as hoped, made the teachers more talkative and wiling to express their minds. In the second part the results of the exercise were taken under consideration. The analysis of the actual situation led to active thinking of wishes and needs for the new school building. For the main talk the method of World Café was chosen, which allowed a quick and effective brainstorming which enables winning ideas of every single participant of the workshop.

The World Café is a structured conversational process, in which groups of people discuss different topics at several tables, with individuals switching tables at regular intervals and getting introduced to the previous discussion at their new table by a "table host". Besides the conversations, individuals are encouraged to write their ideas on big sheets, so that when participants change to different tables, they can see what previous members have expressed in their own words. On every table there is also a host, whose role is to summarize, what has been happening, when new participants appear, which prevents same conversations and provokes new ideas. A café ambience is created in order to facilitate conversation and the concept is taken literally with everyone potentially talking at once. (cf. Slocum 2005)

Having a rough idea of the social hierarchy in India, I thought that, if any of the brainstorming methods can work out, it will be the playful, open concept of World Café, with its intimate atmosphere, which enhance the self-expression. Fortunately, but also to my surprise, the concept worked quite well and the, in the beginning cautious and shy participants, opened and finally presented their opinions. One could see that the employees of the school are not used to being asked for their ideas. Moreover their resignation could be noticed and the doubt that their contribution change something. Special care had to be taken of women, to encourage them to write and talk. I remem-

WISHES AND NEEDS - WORLD CAFÉ RESULTS



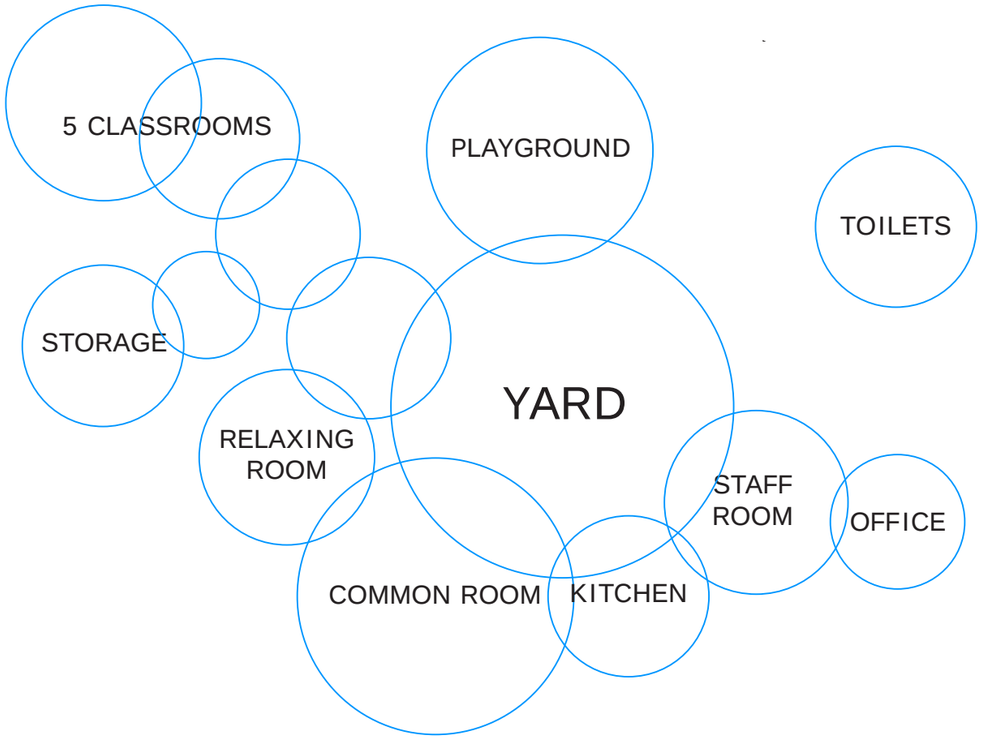
ber an occurrence, when the male president of the NGO Salendra and the female director of the school Anu ended up working at one table. It ended in a situation, when Anu, who actually has the greatest knowledge about the school, was making notes for her male colleague's ideas, who is more responsible for the financial situation and knows less about the education, children and teachers.

The second part of the workshop was supposed to result with the collection of needs for the new school building and solutions to the problems gained from the analysis of the current situation in three branches of the school. The topics were shared amongst different tables and ideas were supposed to focus on both the school generally and the classroom for small and bigger children.

The first topic about the Natural Hazards focused on geography and climate. The aim was the confirmation of theoretical information from the pre-research and finding out the possible threats for the construction. The participants were given hints including weather, insects or hygiene. These results were particularly important, since they led to the choice of materials and technical requirements. The outcome that determined the whole design was the over 1 meter high plinth, compulsory due to the risk of floods. Important result was the hint for required safety of the building and children and desired control of access to the building. Aspiration for the quality and sustainability of materials could be only partially fulfilled and was established by the available budget. The wish for a two-storey building and an accessible roof was relinquished out of economic and technical reasons. The basic profit, which would be the possibility of having lectures outside, were transferred to the big courtyard with a lot of seats. The demand for a unique design confirmed the importance of an architect in the project.

The focus on the second topic was to find out the room program of the new building and collect ideas for additional functions, which could be accommodated in the building. It was asked, how many classes were needed and what else should be placed in the school. The demand for 8 classrooms, all with 10 square meters accommodating 30 pupils, appeared. Such under-dimensioned rooms are normal in the neighbourhood and were also available in the old school. They offer far too less space for children than required, even according to the Indian law. The number of 8 classrooms of proper size could not be accommodat-

ROOM PROGRAMM
BASED ON WORKSHOP RESULTS



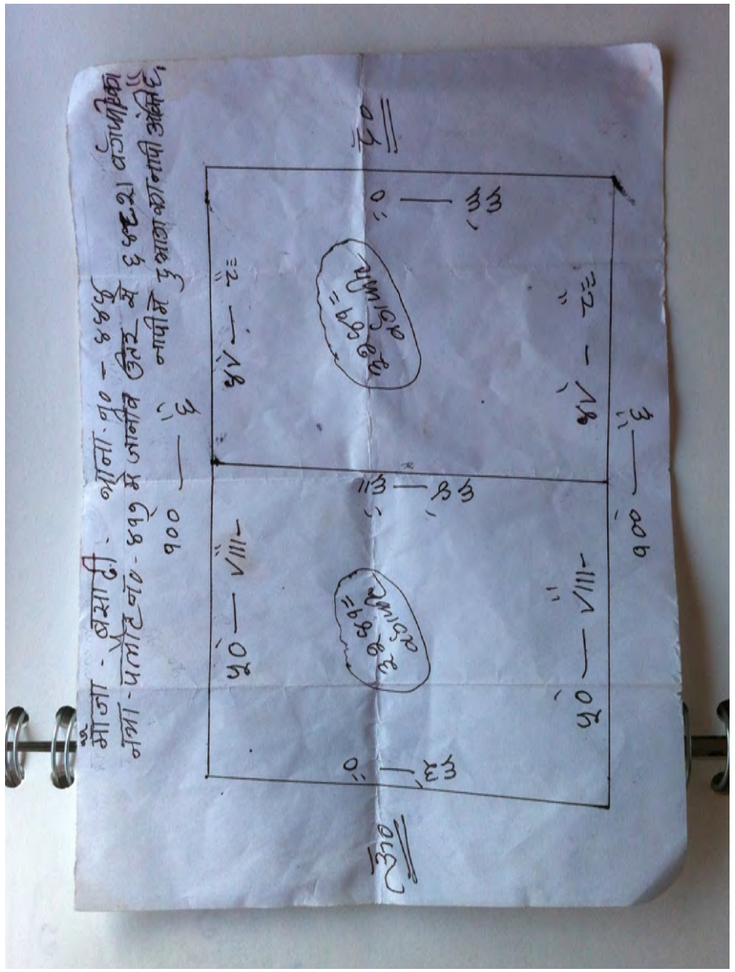
ed in a one storey building. The 4 classes that actually were built resulted from the required number of pupils. Nevertheless as I can say now the right answer should have been 5, since there are 5 levels in an elementary school, which can be run by an NGO. Additional rooms as an office, storage and kitchen were mentioned. Functions like computer rooms, a library and a break room were accommodated in a big common hall. Discussion about the additional function of the building was the wish of SONNE to enable an income generating function. Here ideas like hosting of marriage ceremonies, running a sewing centre or having a medical care for villagers appeared. All the mentioned functions could take place in the big multipurpose hall, when necessary. The importance of a garden was mentioned again.

The third topic concerned the playground, since it's the function is missing in all three branches of the school and was categorised as an important part of the project from the beginning. Here again the wish for a closed, safe building appeared and no connection to the fields outside was desired. Although the school's location in the empty fields of Basadhi, was known already during the workshop, the participants couldn't be convinced to the opposite.

Furthermore the small scale topic to state the requirements for a classroom was carried out. Different ideas were collected for nursery and regular teaching spaces. The subject considered questions of the number of students in one class, the size of the rooms, the design and equipment. From here the idea of a small relaxing room exclusively for nursery children developed. Also due to the different level of students, the need of space for children to relax and play appeared, after they finish with their assignments. This thought introduced the idea of balconies for every class.

A discussion developed during the workshop and many answers could be found, which I see as a big success concidering the social conditions and different way of work. I also was surprised by the achievement of the World Café method. Apart from achieving the main goal and finding out the requirement for the future building, the workshop was interesting to get to know the nature of people in Bodhgaya and the social structure in India. There was also a lot of useful information from architectural view, which helped develop the ideas for the new design.

Afterwards the results were discussed with SONNE International to verify possibilities, find differences and later compromises between these two parties. SONNE expressed basic wishes for the construction as ventilated and sufficiently lit building with 4-5 classrooms and presented a desired room program including a teacher's room, storage and computer room, toilets and multi-purpose room. Also a wish for usage of solar power was communicated, due to the common problem of power cuts. Dormitory and an extra room for a guard were understandably not supported by SONNE, due to the higher costs in the future. Together with SONNE the idea of two-storey building was dropped, due to the technical issues. Besides the ideas of the workshop were supported.



Official document with measurements of the building site comes from Pramod's pocket

CLASS RENOVATION PROJECT & FIRST UNSEEN WARNING

During the research journey Pramod and Salendra asked, if they could count on help during renovation of two newly rented classrooms. The rooms were dirty and covered with concrete, so that they had to be painted with primer and paint. Karolina and I were trying to check the boarders and find out, how far the organisation is willing to go. The children from the orphanage were happy with the possibility to help and the smallest kids were able to leave their mark for the posterity.

This small project was kind of a test, how cooperative and open for new ideas the organisation is. Blind for the warnings and with a lot of motivation I might have missed the obvious signs. During the work there was no engagement from the side of the school. Only the orphanage children came to help. Already then there was no help from the side of the organisation, teachers or parents. First hints could also have been seen, how disinterested the organisation was in the design. All that counts is that the job is done and it doesn't really matters how, which on one hand results with a big freedom for the architect, on the other hand though with lack of support and motivated and interested project partner.

One of the classes after renovation

GEOGRAPHY, CLIMATE AND BEST TIME FOR CONSTRUCTION

It's hard for me to write about the climate of Basadhi, since the statistical data that I have found, don't correlate with my personal experiences. Data present the minimum average temperature of 19 degrees during January and 33 as the highest average temperature of May, which might indicate a mild, pleasant climate throughout the whole year. (cf. Bihar Tourism n.d.) From my own experience though, I know, it's freezing in winter and is extremely hot in summer. I experienced 8 degrees of Celsius in December and January, which felt way colder than temperatures under the frost line in Europe. Due to a completely different climate, you miss your winter clothes from home, while the locals pack themselves in blankets, woolly hats and scarfs, nevertheless still wearing flip-flops, since 'it doesn't pay off to buy shoes'. During the month of May the temperature reaches 43, 45°C, when coming out of the house during the day, happens only in absolute necessity. In the time from July to September time of monsoon characterieses heavy rains.

Due to this fact it had to be stated that there are not many convenient months for the construction to be carried out. Digging out and drying the foundation or producing bricks makes it important to build in the dry season. Due to the extreme conditions of dry but hot summers, the time is also out of question. Even the daily wages for workers are in summer twice as high as in winter – understandable 400 instead of 200 rupies. The time of the counstruction was estimated by the Indian partner at 3 months (you will read further, how it ended). According to that the only two possibilities when to start the construction are in October or February, when the season is dry and the temperatures most convenient. Unfortunately for us the first donations came in the end of May, which meant a long waiting time till the end of September. October and November seem to have perfect weather conditions, but the pleasant temperatures leads also to festival time in India, which turned out to be a way bigger problem than the climate. The number of festivals is way higher than in other countries and during the time of preparations and the holiday itself, nobody wants to work, being busy in one's own house.

On the way to Basadhi

The Mahaney River, which lies only a few hundred meters from the plot, is dry throughout the most part of the year and honestly I never saw the river basin filled. Danger of floods cannot be underestimated though, since Bihar is the most flood-prone state. (http://fmis.bih.nic.in/history.html) Also the interviews with inhabitants showed that there is a huge threat of flooding during the monsoon months, when extreme water masses fall. The danger grew throughout the years, due to a big problem of deforestation in the region. The inhabitants, who can afford building new houses from burned bricks, build an over 1 meter plinth to prevent themselves from floods, which they also recommended for the future school.

Studies about the geography showed that the site lies in an area of moderate damage risk zone of earthquakes. The inhabitants of Basadhi and Bodhgaya didn't report any occurrence of tremors during their lifetime. Nevertheless the information was kept in mind during the design, which proved to be right in April 2015, when the aftershocks of the Nepalese Gorkha earthquake were felt in Basadhi.

Children at Diwali - during most comfortable months, major festivals take place

Surroundings of Bodhgaya,
the place of Buddha's meditation

MATERIALS, TRADITIONAL TECHNIQUES & CRAFTSMEN

Both the existing materials, as well as the technical possibilities of the traditional and commonly used regional construction methods were explored during the research journey. It was a crucial analysis, since the use of locally available materials contributes to sustainability and regionality, preventing additional costs, long transporting distances and supports the community of the region. Technical possibilities are a restriction for the design. This knowledge enabled finding appropriate solutions on the corresponding level.

I always wanted to leave the design open, so that the local craftsmen could influence it. I was expecting that in this way the building would adapt to the environment and a traditions-aware building develops. Unfortunately it was not always easy to find craftsmen, who prevented traditional techniques. India is very specific and counts to the new industrialized countries. Different states develop variously, but the excitement about newly available products is prevalent. The trend causes the know-how about natural materials to disappear, while on the other hand the new technologies have not been mastered. (cf. Sudha 2016). Forgotten knowledge is also caused by changes in landscape. In the surrounding of Bodhgaya for instance there is a common problem of deforestation. Wood as a constructive material has almost disappeared from the building industry and is used only for the purposes of cabinetry.

The forgotten knowledge made my wish for building exclusively with natural materials impossible. My aspiration of revival of old techniques could be possible, but without any left craftsmen mastering the field, it was impossible. I spent months searching for someone, who could make a roof construction out of bamboo, but it turned out that in this region it's impossible. Afterwards I was looking for a carpenter, who would be able to build a wooden construction, but here again I also had to face the same problems. In the end we had to decide for iron girders, which also were done in a poor quality. It turned out that all the craftsmen on the market are amateurs, who learned the trade methods by themselves. There is no education in this field. In the whole region, I didn't find any architect and also didn't meet any engineer, who could help out with anything but standard buildings. On the construction site no detailed plans or drawn plans of the craftsmen were used. My plans, except for the simple ground floor plan, were restricted to easily understandable sketches, which were more accessible than professional architectural drawings. No complicated materials or details were to expect. There was also no understanding of strivings for perfection or ambitions. The result was careless and fast made output, which had to be corrected and repeated to reach the required quality. Another important point was the missing organisation of the site and no understanding for coordinated cooperation.

Fortunately there were some nice surprises and elements of daily life that could be used in the design or in interior design. It turned out that the women from the poorest society spheres, mostly from the

Welder workshop

Dalit caste, are still familiar with covering huts with clay plaster. Mostly women are able to do it, since it's their task to take care of the houses.

In India and even more in the rural areas of the country the workforce is cheap and the modern technologies unavailable or unaffordable. The construction site characterized by having less utensils and technology, but a lot of personnel. The numerous workers on the site were weakly equipped and had only the basic tools. Typical was also no attention towards safety rules or clothing. The funny thig that I noticed, while writing the texts that I was touched by, what's called in sociology, the phenomenon of 'going native'. After some time spent in India I didn't wonder any more about many things. I got used to the workers without helmet, glasses or welding goggles, walking barefoot or with flip flops in all phases of work. I also stopped being surprised about the children of all age all over the construction site and sometimes even animals visiting the site.

Tin the region and those, who were working on the site demanded very often an advanced payments, since they were owning very small businesses or were simply private craftsmen, who don't have stored materials and cannot afford to pay for them out of their own pocket. It let to difficulties, since many times after the contractor got an advance payment was disappearing for few day or even weeks, living out of the earned easily money. Regular works were paid day by day, what also caused that it was hard to foresee, how many workers will come to the construction site next day.

An important part of the research was also investigation of local constructions, building companies and the search for suitable craftsmen. Although a thorough research was done, in the end one cannot explore the market during a few weeks stay on site. One also cannot find out about problems during the research itself. The numerous talks to craftsmen and deliverers couldn't reveal the problems, which can appear on the construction site. Except of the quality also social issues are important, which cannot be proved in advance. The problems with lack of know-how in handling of the materials or in their quality came out during the construction together with delays, lack of creative solution and idleness. To all the almost daily upcoming problems, I had to react spontaneously, with plans adjustments and changes.

Carpenter workshop in Sujata

BUILDING CULTURE

In addition, a detailed analysis of architecture and building culture of the region was carried out. The confrontation with traditional designs and their development, as well as with the use of space, dealing with the challenges of climate and the social structures should help with adjustment of the building to the conditions of this region.

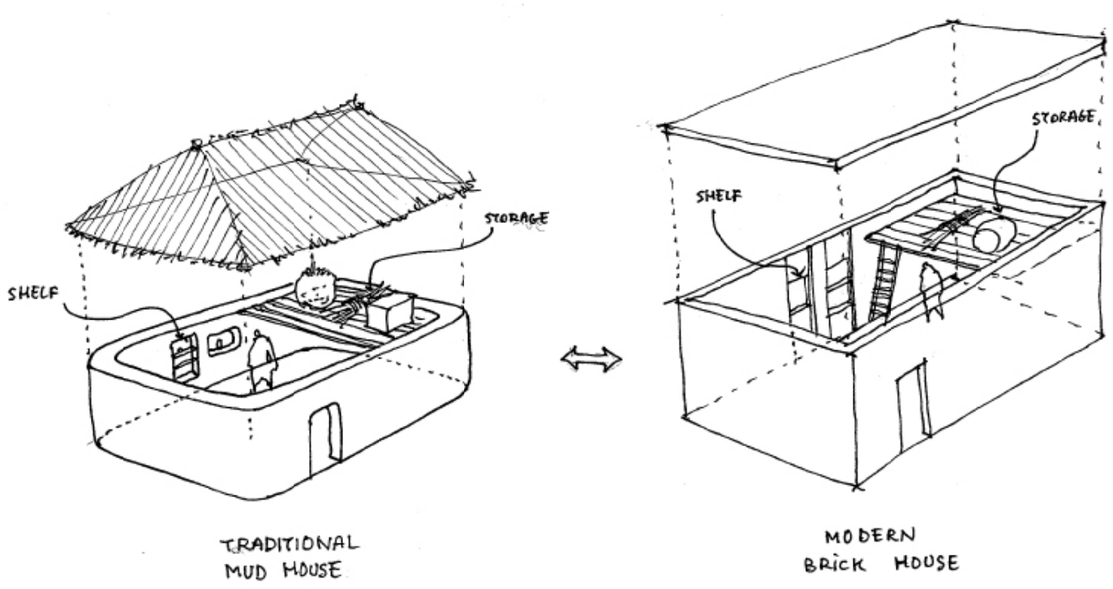
The courtyard construction of the school was inspired by buildings visited in Basadhi, Bodhgaya and other towns of India. One can see all over the country the so called 'aangan' buildings. Aangan refers to the courtyard of a house and is, mostly in the rural areas, a place, where people gather to socialize, occasionally cook and in the summer to sleep outdoors. This part of the house is seen as the heart of the house, it is the most essential and all of the household's activities happen around it. Due to its important role, it is considered a sacred place. (cf. Kumar Myneni 2013) While in the traditional buildings aangan creates a typical courtyard, in modern structures it evolved into an atrium topped with an opening, which stays throughout most of the year uncovered and functions as a ventilation and exposure. In the monsoon season the window is covered mostly by a plastic tarpaulin. The interesting fact, which comes to mind, is that already the mud houses neighbourhoods were built around courtyards, where mostly members of one family lived around one courtyard.

Another connection between the mud houses and the modern Indian structures are the storage possibilities. The typical saddle roof of a mud house construction is made out of ungroomed wooden beams. The space between the beams and the straw coverage offers storage. In the new houses, that are most of the time built out of reinforced concrete frames, filled with burned brick and have a flat roof, there is not such a constructive necessity. Nevertheless concrete shelves are still built under the ceiling and serve the same function. This nice correlation between the traditional and modern structure can also be seen in wall racks. The thick mud wall construction allows digging out the shelves directly from the walls. Nowadays in brick walls there are racks built intentionally into the constructed walls, already during the erection of the house.

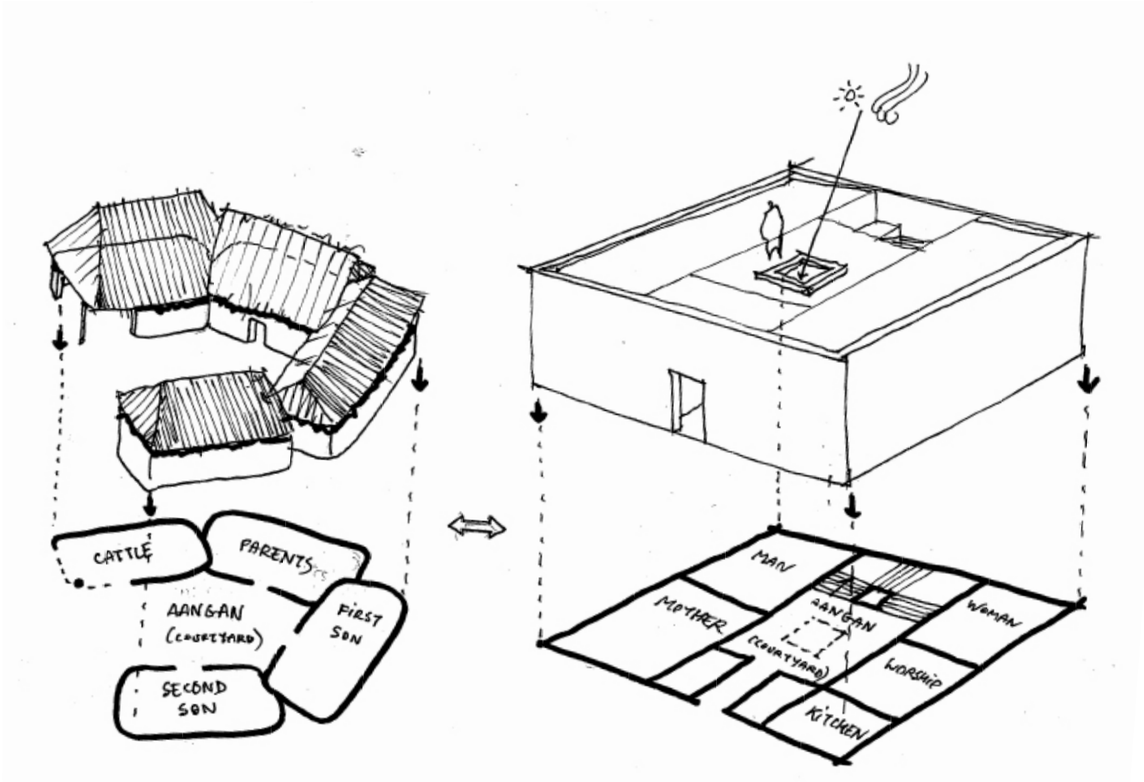
The main difference between the modern brick house and the traditional mud house is the roof. The saddle roof, made out of wood and straw in the traditional building, was replaced by a flat roof from concrete in the modern houses. The saddle form is in the Indian tradition since the climate requires it. The strong rains during monsoon can run off such a roof very quickly. The concrete flat roofs collect the rain water and due to their mostly poor quality lead to leaks and mould.

Athose connections between the vernacular architecture and the modern structures were implemented in the new school building in Basadhi. The play with shoe racks and book shelves was used in the multifunctional wall of the classrooms and additional storage for toys and educational materials were created above the ring beams.

Mud house in Basadhi



Storage possibilities in a mud house and brick house



Aangan in traditional and modern houses

REGULATIONS & SCHOOLS IN THE REGION

The Indian building system is similar to the Austrian one. There is the building law, one needs a building permission before the start of a construction site and there are controls by structural and building engineers – theoretically! In the rural areas, but also in the smaller towns, almost no one follows the rules. There is no institution that controls the site and in my case also no educated engineer, whom I could ask for advice. The differences between European and Indian standards are already visible during the first questions of building law or regulations. The question was not really understood or absorbed and the answer was always the same stating that, since it's a rural area, there are no rules considering building, construction, sizes of classrooms, which one would follow. Although there are standards for the country, indeed was never anyone controlling the site, checking the plan and there was no building permit needed.

The lack of following the building law is visible in every town. For instance the stipulated distance to the boarder of the site is never kept. It results with dead spaces between the buildings of 15 to 20 centimetres that cannot be used. The claim to the own plot is nothing obvious. Leaving the space between the building and the boarder of the plot, leads very often to losing the owed land, since the neighbour occupies the left space. Filling out the whole are of the plot was a major restriction towards the design, since keeping in mind future neighbouring buildings, it meant all the rooms have to be oriented to the courtyard.

As a reference neighbouring schools were visited. The standards varied and one could mostly state at first sight, if the building is a private or a governmental school. Governmental schools in the city are counted to the worst examples and were characterised by dark, humid, cold rooms and were made out of concrete. Their flat roofs, which due to the lack of knowledge were done carelessly, were leaking, resulting in building of mould. Even in the main branch of BEFS the classrooms were small and dark. The lack of light resulted by newly build neighbouring buildings that didn't leave desirable space to the school, while the small classes were already planned as only ten square meters spaces.

Conditions in the old school

LOCATION

This part of the book describes major aspects, main characteristics and distinguishing issues of Bihar, Bodhgaya and the place where the school was built - Basadhi. It relies on information from the pre-research, but also on my personal experiences during the time of research and construction works in India.

‘BIHAR? WHY ARE YOU GOING TO BIHAR?’

Oh Bihar! This is the really terrible state, isn’t it?”, “Bihar? Why are you going to Bihar?”, “You are working in Bihar? All the Bihari go to work in other states!”, “Bihar? Where is it?”

Depending on whom I was talking to about my work, I heard these sentences. The tourists didn’t know where Bihar was and the Bihari I met outside of their state didn’t really know, what to do with such an information, but my favourite were the reactions of other Indians, who either expressed pity and fear of me or looked at me in disbelief and just started laughing, thinking it was a joke.

Yes! I really was working in Bihar, the poorest and least developed state of India. I was asking myself hundreds of times: Why here? Why not in an easier place? But where else is a social worker/ social architect more needed?

The Economist magazine wrote 2004 about Bihar that it ‘has become a byword for the worst of India: of widespread and inescapable poverty; of corrupt politicians indistinguishable from the mafia dons they patronise; of a caste-ridden social order that has retained the worst feudal cruelties; of terrorist attacks by groups of “Naxalite” Maoists; of chronic misrule that has allowed infrastructure to crumble, the education and health systems to collapse, and law and order to evaporate.’

Bihar is one of the least developed parts of India. It is also considered as the least stable. In Bihar the illiteracy rate is the highest, so building a school there doesn’t seem to be a bad idea at all, does it? Only 63.8 percent of the population of Bihar are literate (73.4 percent men, 53.3 percent women), while the all-India average comes to 74.0 percent. The situation is even worse in rural areas and among the so called Scheduled Castes and Scheduled Tribes, which make the main population of Basadhi. Among Scheduled Castes in Bihar the literacy rate is as low as 48.6 percent. (cf. Chandramouli 2011) Almost all of my contractors, “mistri” (skilled workers) and labours were illiterate. One can imagine, how difficult it gets, when you cannot show a technical plan to people, you are working with, cannot leave them a “to do” list, understanding drawings is very difficult and imagining them three dimensionally impossible.

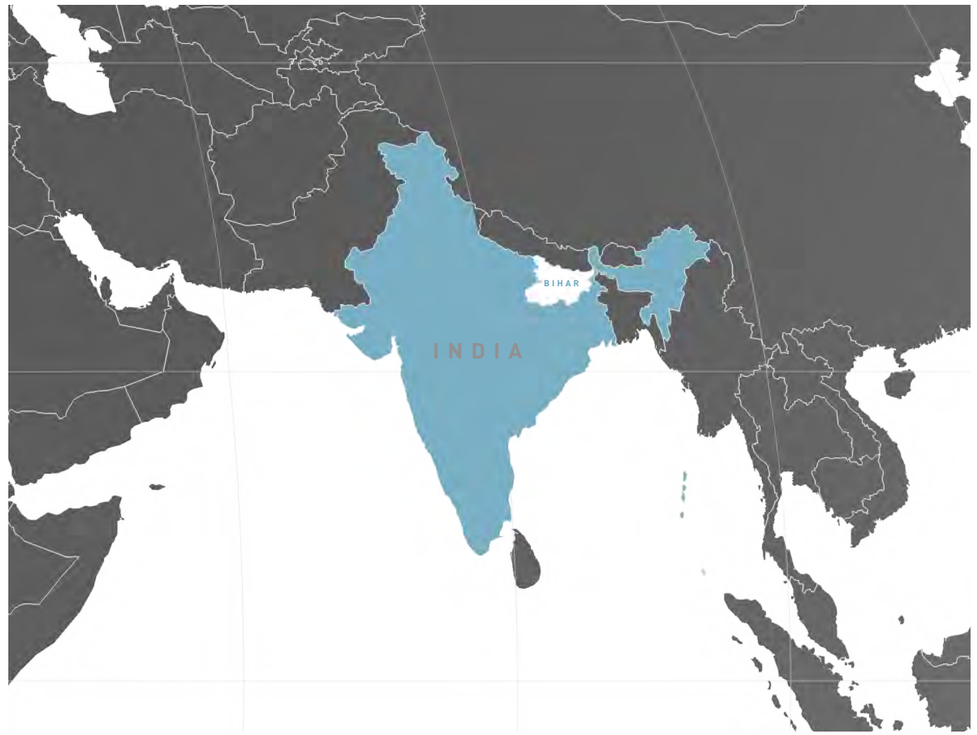
Bihar is a state in the Eastern India, which in ancient and classical India, was considered a centre of power, education and culture. Here, in Nalanda, the oldest university of the world was built, from here the first empire of India arose and one of the world religions – Buddhism – was spread. Since the late 1970s though, Bihar has lagged far behind other Indian states in terms of social and economic development, which was probably the consequence of the policies of the central government, such as the Freight equalisation policy, which put a disadvantage on reach in resources states. The change will take time. The state government is making significant strides in developing the state, nevertheless it will require an increased fight with corruption, better health care facilities and greater emphasis on education. (https://en.wikipedia.org/wiki/Bihar)

Agriculture in Bihar

In its report 'Bihar towards a Development Strategy' the World Bank believed that 'the challenge of development in Bihar is enormous due to persistent poverty, complex social stratification, unsatisfactory infrastructure and weak governance'.

According to the Indian census from 2011, Bihar has 103,804,637 inhabitants. This third largest state of the country, judging by the population (after more than two times bigger Uttar Pradesh and Maharashtra of a triple area), has also the highest proportion of young people, comparing to the rest of the country – almost 58% of Biharis are below the age of 25. The number of children surprises a European visitor, since you can see them everywhere. Another proof that building a school here is not a bad idea at all. The number of inhabitants is strongly rising: between 2001 and 2011 it increased by 25.1 percent in (from 82,998,509 in 2001 to 103,804,637 in 2011). Thus, the growth rate is among the highest of all the states in India and is above the national average of 17.6 percent. The fact wanders since it's a common knowledge that a lot of Biharis move to other states for economic reasons. Bihar is densely populated, where an average of 1,102 people live on a square kilometre. The population density is thus the highest of the Indian states and almost three times higher than the all-India average of 382 inhabitants per square kilometre. A large part of the population concentrates in the rural areas. Only 11.3 percent of the population of Bihar lives in cities. The degree of urbanization is therefore one of the lowest in India and significantly lower than the national average of 31.2 percent. (Chandramouli 2011) A serious problem is the selective abortion of female foetuses, resulting in a distorted sex ratio, where there are only 916 women for 1,000 men. It is a result of many factors. A daughter doesn't pay off and also cost more. To marry a daughter off, her family not rarely has to pay a huge dowry. Afterwards they leave home, so they cannot take care of the family for long. Additionally women don't have an income, since not many of them work.

Other important data explaining a lot of the reality shows again the 2011 census, according to which 82.7% of Bihar's population practice Hinduism, while 16.9% follow Islam. Here one can see that only 0.4% belong to the other religions and Buddhism is only one of them. One can imagine, how bizarre the fact is that the most holy place for Buddhists is surrounded by people that practice another religion. The complex social problematic of Bodhgaya might be based on this simple fact.



Bihar state in India

BODHGAYA: NOT THE KIND OF HOLY PLACE

ALL ABOUT PROFITABLE NPOS, FAKE MONKS AND MOTOR BIKE GANG

For the whole time of research and realisation of the project, I was living in one of the most holy places in the world, where Buddha meditated to find truth and finally achieved enlightenment. After hard work on the construction site and countless, never ending meetings, I was searching for my inner peace and was hoping this place will give me the patience and strength to finish my project. Unfortunately these were futile attempts and the main temple of Bodhgaya turned to have an opposite influence on me. This hectic place was filled with hundreds of tourists and at least the same number of locals trying to gain the bits from the existence of this holy Buddhist place in their town. There you could see the famous fake monks of Bodhgaya, the men who say good bye to their wives and children in the morning, put on the robes of a monk and try to look convincing enough to get a free meal and maybe find an interested tourist, who would like to pay for their stories and very restricted knowledge about Buddhism. (cf. Bramhachari 2012)

In between of this babel there were also the children trying to crash the good hearts of praying pilgrims and earn themselves some money or school equipment, which they sell to the store around the corner. Unfortunately all of the strategies work perfectly. The beggars earn more than a regular employee and for the children, the idea of going to school, lost its point a long time ago. I made a young friend, an 11 year old Rahul. He was hanging out the whole day in a restaurant that is popular among tourists. Rahul, as well as many children, was sent to his relatives in a city to get a better education. Unfortunately, he was also far away from the parents, who could control his behaviour. Rahul started to skip classes, spent more and more time with foreigners. Not a long time after he got a camera from an American tourist and a little bit later 100 Euro from his German newly made friend. Both of them wanted to do a good dead in regards to Rahul. For the information, 100 Euros is twice as much as a school teacher earns in a month. Why would Rahul like to go back to finish his education? For some parents it also paid off, when the child became 'independent' early and instead of going to school made something 'productive' like selling Buddha statues at the temple or hanging out with tourist. Another young friend of mine, Viki, started hanging out in this very same restaurant a year later. His mother didn't seem to have anything against it and watched with hope her son's 'work' from her chai shop close by.

Viki made friends with the so called 'motor bike boys', another distinguishing feature of Bodhgaya. By inviting the tourists for a chai or leading them to the main sightseeing points of the town, they were trying to gain their friendship. During the tour they tell the tourists, who don't even know they are clients, that they are social workers really committed to the community. Showing the poorest places to the foreigners, they collect donations that mostly land in their own pockets. Often they lead their clients to the NGO schools, which actually never existed. Collecting a group of children within a few minutes is not difficult in India, sometimes even a few pictures and a decent talk are good enough to earn a monthly salary of an average person in a day. The boys take tourists also to regular schools, after such a

Mahabodhi Temple in Bodhgaya

visit half of the not so small donations ends up in their pockets. These 'mafia similar structures' cause that the school either accept the brutal rules of the agents or loose the donators, which causes a vicious circle. (cf. Rodriguez 2012)

The main aim for many was to marry a foreign girl. 'Marrying a foreign girl is a kind of profession in Bodhgaya and the horrible end of the love story or happiness depends on money.' (Bramhachari 2012). Making an American, a European or a Japanese to fall in love is the jackpot. I personally knew boys, who got married just for the sake of coming to Europe and getting divorced as soon as possible. I also got to know a men, who had a wife and children at home, but used to live a fake marriage with an a much older English woman during the high season months. Like that he earned himself a new house and a guest house. She also helped him to found an NGO school, which as you can read is one of the best businesses in Bodhgaya. 'Social work is a business. Just like other businesses.' a friend of mine once said. While the married boys use to date foreigners to earn a motorbike and expensive holidays, their wives have no other choice than to stay at home and take care of the children, in a place where often they are far away from their families and a divorce is not possible.

This was more or less my reality while living in Bodhgaya, if you're interested in the pure facts, here they are. Bodhgaya is a religious site and a holy place of pilgrimage associated with the Mahabodhi Temple Complex in Gaya district. It is famous as the place, where Siddharta Gautama is said to have obtained enlightenment and became Buddha. For Buddhists, Bodhgaya is the most important of the main four pilgrimage sites related to the life of Buddha, the other three being Lumbini, where Gautama was born, Kushinagar, where he died and Sarnat, where he gave his first lecture after the enlightenment. In 2002, Mahabodhi Temple, located in Bodhgaya, became a UNESCO World Heritage Site. Several Buddhist temples and monasteries have been built in the area around the main temple. Shrines of countries like Bhutan, China, Thailand and Japan, reflect the architectural style, exterior and interior decoration of their respective countries. Bodhgaya has the population of 45,349 (2015). The tourism increases constantly and is determined by Buddhists events like Kagyu Monlam, when Karmapa gives his teachings or Kala Chakra, when Dalai Lama visits the town. In 2014, over 220 thousand foreign pilgrims visited Bodhgaya, in addition to over 1.6 million domestic tourists, since Gaya has also a significant importance in Hinduism. (https://en.wikipedia.org/wiki/Bihar)

Bodhgaya in Bihar

BASADHI: A VILLAGE IN THE SHADOWS OF BODHGAYA

In Basadhi, where my project was realised, the climatic conditions, which were studied before the research trip, were verified and the specific geographical features of the plot were examined. Moreover the urban situation, the location and the connection to the infrastructure were elicited precisely.

Basadhi is a village located about 7 kilometres from Bodhgaya, which could seem near, but to get there one has to take a tiring journey on a muddy bumpy road of 30 minutes by auto-rickshaw. There is almost no connection between these places, nobody from Bodhgaya comes to Basadhi on a regular basis, also it doesn't profit from tourism. Most of the inhabitants of Basadhi live off of agriculture, only some work in the neighbouring town. There is no grocery store in the area, but a few services like a tailor or a bank. In Basadhi there is a small but important Shiva temple - Jharkhandi Mahadev - though, which lies on Mahaney River, also being called Gupta Ganga – the secret holy river. Both, the temple and the river, are very significant places of religious ceremonies and worship of major Hindu holidays. Also on important family celebrations both of them play a central role. On the main holiday in Bihar, for instance the Chhath Puja, the whole village gathers at the river to worship the Sun God, even some families from Bodhgaya come to celebrate in this special place. On holidays such as Durga Puja or Diwali you can observe a similar situation.

Despite such few connections between Basadhi and Bodhgaya, one can notice a bad influence of the town even here. A foreigner is a symbol of wealth and the reputation of an NGO as a synonym of corruption is well known, which made the cooperation difficult.

Why do I mention all these statistics? To give you a small insight to the reality of Bihar, where the project was built and to prepare you for the further chapters. Thanks to the data you can understand the situation and stories more and imagine, why some problems, which I describe in this book, appeared.

The Buddhist Monk

DESIGN

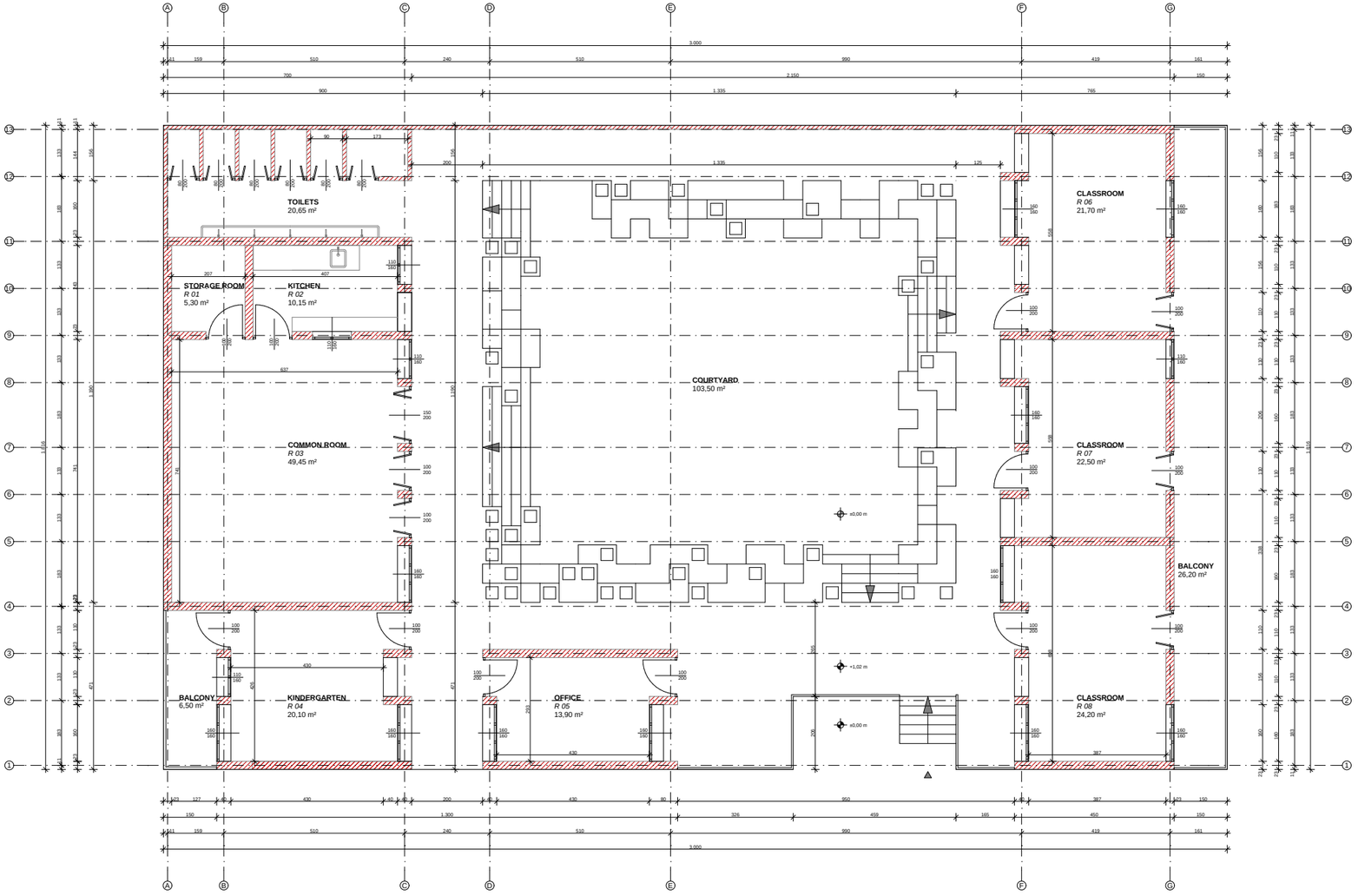
In this chapter information will be given that led to the decisions connected with the design. Here the place-specific issues are explained and it is shown how the requirements of the future operators were incorporated in the project.

CONCEPT

The idea for the design was a result of combination of the knowledge gained during the research trip and data collected on typology, India and regional conditions. The planning phase took place in Austria, under the supervision of Professor Peter Fattinger, who in collaboration with students, has already realized similar projects as part of the Design-Build Studio at the Vienna University of Technology. While I was processing the gained information and developing suitable plans for the new building in this special place, SONNE International, a non - governmental organisation from Vienna, was collecting donations. As a suitable sponsor FairStyria joined, a brand of Land Styria in Austria, which supports projects in the interest of global responsibility and sustainability. Thanks to their generous donations this project started becoming reality.

In the project, it was very important to create a convenient learning atmosphere and desirable working conditions for students and teachers. On one hand, this child-friendly building should also have an optimal indoor climate, sufficient light, heat protection and appropriate ventilation. (Less 2015) The first step was the adjustment of structure to the climatic and geographic requirements of the region and the defining of the building according to its typology, all the while, considering the specifics of the unique place. While normally the new build constructions of the neighbourhood follow one schematic plan despite whichever function they accommodate, my design was determined by the knowledge gained during the research. I held workshops with future users and this revealed their demands and wishes considering the future building. Moreover I analysed data and climatic specifics that determined the requirements and restrictions for utilising construction and materials. Further research on the buildings and construction companies demonstrated the possibilities available in the region.

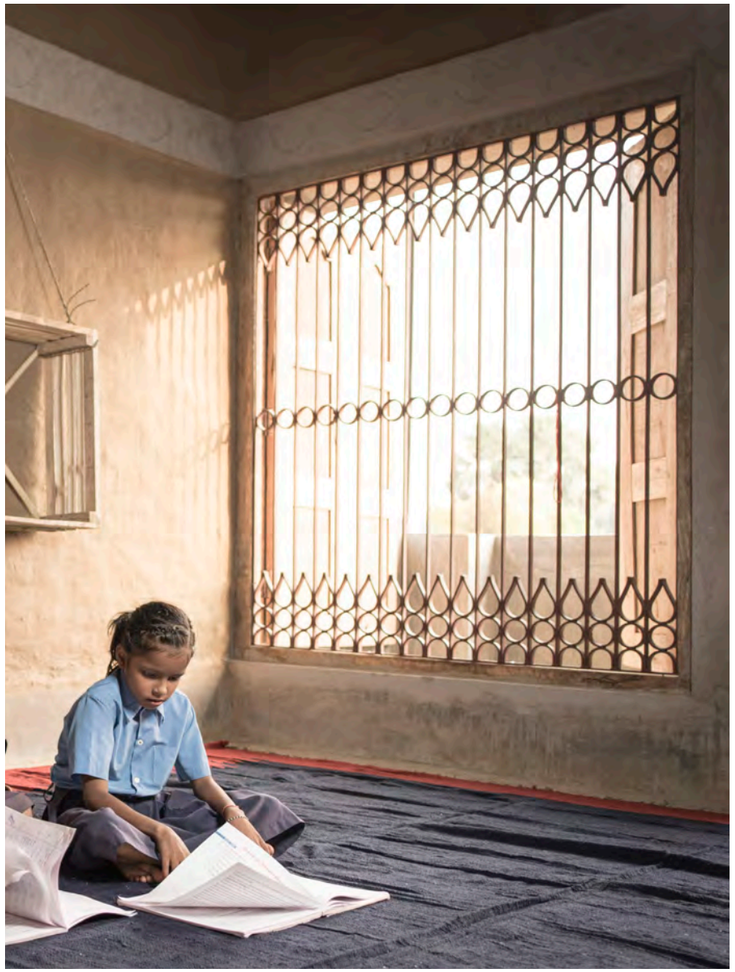
The closed structure to the outside opens to the inside



Original groundfloor plan 1: 150

REQUIREMENTS

The building is located in the village Basadhi about 500m from the main settlement, near the Jharkhandi Mahadev – temple of Shiva, and in close proximity to Mahaney River. Apart from these structures, there are no indications for the design, no contextual relationships with other buildings can be taken under consideration and there are no constraints in the surrounding area. There are no existing buildings in the neighbourhood, nevertheless the situation can change very quickly, as seen on the example of the main school building in Sujata. In that case, the building of the old school was designed as a detached house, nowadays after the area developed, only a few years later the building is surrounded on almost all sides. The result is that planned windows and ventilation holes have only limited use nowadays. Although the BUILDING LAW gives directions to keep a distance to the border of the construction site and the neighbouring buildings, it appears almost everyone in the region ignores it. One friend of mine, who has experience in building industry, situated his guest house in a stipulated distance (only on one side though) and had to regret it, when his neighbour built a new building leaving just a 15 cm gap between the façades and entered my friend's possession. You can see this occurrence all over the region, where just a space of 15, 20 cm is being left between the buildings; one cannot underestimate this problem. Keeping this issue in mind, which is a huge restriction for the design, I started to analyse the possibilities. I could follow the rules as a European architect would do, under the threat that in the future we lose the precious land bought from collected donations. Summarizing the facts I decided that the whole building site should be occupied and no distance to the border should be kept as a basis for the design. The only exception was a 1 m wide stripe on the western side as a contribution to the new road, which is proposed to be built in the future. Secondly the decision of a courtyard building became clear. The rooms were mostly opened to the patio to provide the independence in case other buildings in the neighbourhood come to existence. For the rooms in the south and north, where outside windows were placed, generous balconies were provided. The buildings of the region inspired the creation of these balconies. In the neighbouring buildings a balcony is mostly a 40, 50 cm wide stripe all around the elevation though and



Window grills were added to the initial design for safety

functions as a spacer; this prevents the neighbour from building just next to it, but it is useless for the inhabitants of the house or pupils of the school. To avoid such a situation in the newly planned school full size balconies were created, which can be used by the children during the breaks and in case a neighbouring building comes, provide the necessary sunlight and ventilation.

Due to the hot climate of India the building was designed and oriented in order to protect the rooms from sun and heat rather than for providing constant sunlight in the classrooms. It could be achieved by the NORTH-SOUTH ORIENTATION, while Western and Eastern sides, which have the highest sun saturation, were closed completely. The rooms were opened exclusively to the north, where not much sun and thus heat comes and the south, were sun is high and therefore not a threat for overheating the building. The closed wall in the West was additionally built exclusively out of burned bricks for the protection from easterly wind and rain. In this wall, since no major openings were planned, a generous 'jaali' – a perforated brick wall – was designed. The repeated elements of 'jaali' occur throughout the building and serve to ventilate the building when the windows are closed, helping in lowering the temperature by compressing the air through the holes, but also providing the children playful and interesting views to the outside.

Merged guidelines led to a structure which is closed to the outside due to SECURITY reasons but opens generously to a courtyard of the school. The security topic cannot be underestimated or ignored. Bihar is known as one of the most dangerous states in India, where lots of friends experienced break-ins at their schools. Additionally an NGO school funded by a foreign institution is regarded as being equipped with expensive goods and therefore appears attractive to thieves. From this reason grills in windows and a strong gate had to be added to the initial, more open design.

Toilets are separeted from the building

BUILDING ELEMENTS

To compensate this situation, the visible opening to the centre of the building was planned. The central COURTYARD plays a major role in the design and is the heart of the building. Here a prominent playful stair structure was created, which invite children to play, jump and climb, while the specially designed sitting groups offer place for a chat, doing homework or relax. The structure developed out of the constructional necessity of having 1m high plinth. This practical function, due to the danger of flooding, was also adjusted according to the functions specific for the place. During winter the classes mostly take place outside or on the roof, since, in spite of cold, the sun is still very strong in this time of the year. The big area can also accommodate a lot of students, which gives the possibility of many pupils being taught by only one teacher, if there is a need for it. In those cases the stairs can be used as sitting steps. The courtyard is an adjusted answer for the suggestion of BEFS of having a roof space, which was not wished by SONNE, and fulfil the same function. The courtyard can also be used as a stage during numerous ceremonies, as Republic Day or Mahatma Gandhi Birthday, which are loudly celebrated at school.

Furthermore, numerous times during the workshops it was emphasized that a GARDEN in the school would be advantageous. Unfortunately after my observations I had to state that the school doesn't take care of the plants they planted in the main building of the NGO. I decided for a solution of integrated plant pots in the step structure. This answer to the need of the users gives them on the one hand the possibility of gardening, on the other hand, if in the worst case there is no care taken of the plants, there will be no function-specific space lost. Nevertheless, if the gardening project works, student and teachers can take care of it together, which could develop the identity with the building. The plants were chosen so that they can be used for educational purpose in biology classes. Mostly ayurvedic medicine plants, vegetables and fruits were planted. The decorative plants and flowers were added afterwards on the request of the NGO, since 'a good school has to have show-plants', like Somi said. In addition dust bins were integrated in the construction to solve a problem, discovered during the workshop (see the chapter about workshop). The stair structure can therefore be seen as a playground, an outdoor class and a garden and is a direct answer to the requirements of the future users.

The choice of MATERIALS was the biggest compromise that had to be made. Initially chosen bamboo and clay had to face the reality of building in a newly industrialised country. Due to the missing know-how about traditional techniques, but also through the lack of openness towards the natural materials, bamboo and clay had to give way to concrete and steel. Although I didn't manage to convince my partners to build exclusively with organic materials, I at least succeeded to persuade them to fill the reinforced concrete structure with unburned mud bricks, where it was possible. Due to the usage of clay and raw bricks a better indoor climate in the rooms was achieved and also finances could be saved.

The design concentrates around the courtyard

Burned bricks were used in the wet rooms and, due to the weather conditions and the major wind direction, also in the construction of the whole western wall. Like that the final construction developed, so if you were wondering about the mix of used materials that's the story behind the decisions.

In ROOF construction again the positive characteristics of clay could be used. A combination of palm wood of Palmyra, bamboo and thick layer of clay was chosen. For the rain protection corrugated iron sheets were used as a covering material. Between those two separate constructions a distance of minimum 40 cm was kept to ensure a necessary air layer for insulation reasons.

For the wish of the clients the school was designed for 100 students. 4 CLASS ROOMS were planned, each for 25 pupils. The measurements were adjusted to Indian standards, but the rooms became much larger than in a regular school of the neighbourhood. One of the class room was planned directly next to the office. This class room was prepared for the children attending the nursery. Due to this connection a better protection of the small children could be achieved. Between the office and the nursery class a comfortable, intimate sitting area was designed, as a private space for the toddlers. The ventilation holes placed there offer directed, playful views to the outside. The office is right next to the entrance, as a first reception for the guests, but also from the security reasons. The possibility of controlled and restricted admission was the requirement of the Indian client. In front of the office there is a waiting area for the visitors. Additionally a big COMMON ROOM was designed. It happened from variety of reasons. On one hand this room can be used in the initial phase. It's possible that in the beginning of the school activity, there will be not enough teachers. Also it is possible that the teachers will need time to get used to the new room and divided space – nowadays 90 children are being taught in one big group by only one teacher. In the end though the common room should be used only in exceptional cases for classes and is rather planned for lectures, workshops and ceremonies. In the common room there is also a relaxing zone for children, another answer for the needs evaluated during the workshop with teachers. Children, which are faster in classes, can profit here from the planned library, moreover they can spend their breaks and time after school here. The common room also has a direct connection to the kitchen, since many Indian celebrations have as a custom sharing meals with the guests (see Opening Ceremony). From this reason a serving hatch was provided. Moreover when the school decides to generate an additional income through renting the rooms, which is the wish of SONNE, the big hall can be easily refunctionedappropriated and used for celebrations and meetings. Also a small storage room was planned in the close proximity. Toilets were placed in an extra building with an open roof in the rear part of the complex to avoid odours entering the rest of the complex. Also there, one of the hand pumps for the usage of students was placed to avoid accumulation of mud in the inside of the school. Another hand pump was placed close to the entrance, so that it can serve the neighbourhood. These solutions were based on the problems stated during the research workshops.

In many houses of Bihar one can notice integrated shelves in the walls and storage racks under the

Bamboo shelves in classrooms

ceiling. It is a remnant of the clay houses, where organic shelves were dug directly into the clay walls and additional storage space was created under a straw roof. In this project I decided to use this meaningful connection between traditional clay huts and modern Bihari houses. Shelves were created, which can be used as shoe racks before entering the class room. The same furniture from the other side of the wall serves as a bookshelf. From this element but also through the desire of giving every class an individual character, the MULTIFUNCTIONAL WALL developed. Additionally the windows were added, where the window-sills were over-dimensioned on purpose. Therefore they can be used as benches and additional sitting possibility either in the classroom or from the side of the courtyard even, when the windows are closed. Having the window-sill on the height of a seat causes that also the smallest pupils can enjoy the full window view, the more important since during some classes, mostly for the smallest, children sit on the carpet. In the construction of the windows it was deliberate that no glass was used, which happened from the economic reasons. The big window shutters can be fully opened to provide necessary sunlight and ventilation, but also to build a connection to the outside.

The furniture and details were inspired by elements that I found in the region already during the construction process. The whole interior design was done from traditional, common elements that can be found in the neighbourhood, but are losing their image being considered outdated and mostly replaced by items from new, popular, modern materials like plastic, aluminium or plywood. One can see that from that reason traditional trades and techniques die out. (cf. Sudha 2016) I insisted on wooden windows and class room doors, which were manufactured in a nearby village. Also the classroom furniture were made out of mango wood. I'm most proud of the main door of the common hall, which got inspired by the oldest houses and mud huts in the village. The doors characterise carefully sculpted details and reach iron decorations. In the mud huts in the neighbourhood it's mostly the only part that is handed over from generation to generation and while the houses have to be rebuilt the doors last for decades. The classic wooden doors are considered old-fashioned nowadays and are mostly replaced with modern aluminium ones without character. The other element I placed in the common room are the traditional 'khatiya' day beds, which are common in the villages. The way of making them has been the same for ages. They

Flower pots integrated in the stair structure

Traditional doors in the common hall

consist of wooden frames and woven coconut rope mattress, while the different imaginative patterns and designs have no end. The lamps for the building were made from common clay bowls that can be found on every market and are used for cooking purposes. The decorations and wholes were done on special order with a potter from neighbouring village. The baskets for children' toys are normally used by fruits and vegetables seller to transport their goods to the market or during religious ceremonies. During the design of some elements, while already leaving in India for a few months I inadvertently got inspired by Indian shapes and patterns. I designed elements by myself, which was interpreted as India. The window grills consisted symbols of sun, moon and diya (clay ghee lamp) and window shutters got elegant flair of Indian architecture.

Due to the restricted budget and lack of time in the end phase of the project no painting was possible. The effect was better than expected, although it appeared unintentional. The used COLOUR PALETTE made the building perfectly fits with the neighbourhood. The grey of the concrete frames imitated the trunks of the Palmyra palm trees, the beige of the doors, windows and lamps is the colour of the surrounding sandy ground, the red of the plinth reminds of the brick factories in the neighbourhood and the spot green of the plants from the garden is the connection to the rare, desert plants around.

Through all the described elements a playful character of the building could be achieved, which warm colours invite the children to enter through the elephant gate. Inside a small children world awaits the students that through the cosy and safe atmosphere will contribute to a great learning atmosphere and correct development of children.

'Katiya' day beds in the common room

CONSTRUCTION SITE DIARY

This chapter will show you the documentation of the project, from the very start, on a green field to the big opening ceremony of the school. The report will include all the ups and downs from my work as an architect and a construction manager in a country with a different mentality, feeling of time and working policy and will give you an insight to my personal experiences in India

Big courtyard of the school invites to play
and creates learning space

HERE WE GO! - REALIZATION OF THE PROJECT

The initial design was just a small part of the whole project, certainly the main task was awaiting me in India. I was prepared for hard work and aware of the challenge waiting for me due to this unconventional master thesis. I also didn't think that the realization of the project will be easy or that everything will happen smoothly and without any problems. Nevertheless, what was supposed to come, overgrew my expectations. Every single day was a challenge and every single task, decision or purchase a huge deal, the striving to achieve the planned design had to come across the reality with its numerous obstacles and I had to learn, how to manage in a place of a completely different way of working. .

Moreover two weeks before the second travel to India took place, which had as a goal implementation of the project, it turned out I had to do the project alone, not as earlier planned with Karolina Bartnik, a second master student of architecture, who participated in the research travel and the design phase. The moment I found out about it, I had to make a decision. Resigning of the project would be the easiest choice but was not an option for me. It would mean being a part of an uncompleted NGO project, which is a common issue in the development cooperation, where delegates promise help and support, but in the end it never comes to a collaboration. I have to admit, I never wanted to do such a big complex project alone, since the task overgrows the possibilities of one person only. The advantages to have someone of the same educational background on site would be enormous, while making decisions and sharing tasks or responsibilities. Feeling of responsibility towards the Austrian and Indian project partners, whose expectations I didn't want to let down, I didn't want to belong to the mentioned groups and leave an unfinished project. A woman alone managing a construction site in India sounded abstract in the beginning but luckily in the end I managed to collect the self-motivation and fortunately, probably due to my stubbornness, decided for realisation of the project just by myself. There was no time to think twice, but I'm happy I didn't give up at this point, otherwise I would have missed an experience of a lifetime and an appropriate school for the children of Basadhi would never appear.

The The building phase lasted 7 months. First part of the building works in India took place from October 2014 to February 2015. According to the estimations of my Indian partners, the building was supposed to be finished within 3 months, which turned out to be impossible. After I prolonged my stay to 5 months we were not even close to the end, the budget was exhausted and my nerves were shot. Afterwards the whole process had to start from the beginning. Again FairStyria was asked for financial support. The decision lasted longer this time, because of changes in the Styrian government and I had to prepare for a half year long break. Second part of the work took place from mid of September to the mid of November 2015 and the building was finally finished and opened on 16th of November 2015.

Israp-ul misteri led the measurung

START

CONSTRUCTION TIMELINE

Here the documentation of the whole process of realisation of the school building will be shown with help of a time line. At the same time a description of major aspects, which were important during the construction phase will follow. It is an insight to my thoughts and personal observations about architecture, building in a completely different country and influence of social structures and different cultures on the role of an architect. It is a collection of experiences and adventures, which has as a purpose bringing you closer to the project and give you an understanding of the reality. As far as the results of my observations are concerned, I speak about my personal experiences and observations and not about a full group of people or a whole specific area. India is an enormous country with social and cultural differences like no other. Therefore they shouldn't be seen as indicators for India, Bihar or even Bodhgaya and probably cannot mirror the situation of any other place or circumstances.

First delivered materials on the plot

12 | 10 | 2014

Finally! First holes of the pile foundation are being drilled! We're starting with a 5 days delay, it's called 'Indian time'

9 | 10 | 2014

Here we go! We're starting: Construction site is measured and its boundaries staked out

15 | 10 | 2014

We're beginning to hand mix concrete - 'cementy masala' - to fill the pile foundation

13 | 10 | 2014

First materials are being delivered

After the design was ready and the funds collected I went to India for the second time with the purpose of implementation and realization of the project. The beginning was slow, since one of the major Indian holidays Durga Puja took place in the beginning of October. After the holiday finished we finally managed to start hand drilling the pile foundation. In Basadhi we had to manage without drillers. All the piles were dug by four workers, who attached two bamboo sticks on a big drill. The heavy weight of the dugged-out wet earth had to be removed by man power only. This was possible by placing the bamboo sticks upon the worker's own shoulders. Also an important opening ceremony of the construction site, called Patthar Puja, was organized for the neighbors.

PATTHAR PUJA

There is apparently a ceremony for every occasion in India. The preparations for our opening ceremony of the construction site, called Patthar Puja – Ceremony of the Stone, started already days before. There were plenty of guests to invite: the children of Basadhi School, their parents, the teachers, people from the village, workers, who will help us building and of course the 'Dudun Baba' - holy person, a priest, which led the spiritual ceremony. Moreover a long shopping list was made including incense, flowers and fruits for the ceremony and the 'Patthar' a special stone, which in the end of ceremony was buried in the ground. Before the construction started, it was very important to ask the gods Ganesh and Shiva for their permission to achieve a desired success. During the ceremony special rituals were carried out. Patthar was buried, coconut was broken as a symbol of a new beginning and all the visitors were blessed by Baba. I also introduced the Austrian tradition of 'Spatenstich' - the traditional ceremony of ground-breaking, when before the construction all responsible parties dig a symbolical trench with a spade. At the end all guests celebrated together. Customary meal for every participant was necessary, apparently also a necessary part to achieve the success of the project and maybe to worm ourselves into the neighbours favour. On every plate traditional sweets 'rasgulla' could be found. 'If the beginning is good, everything is good', Pramod said, 'We'd better buy more rasgullas!'.

Puja before the start of construction

MODEL PRESENTATION

The central aspect of the event of Patthar Puja for me was a presentation of the project to the public. The inhabitants of Basadhi were told about the plan for the future school and in the end were watching with lots of excitement and interest the model of the project. Meeting the approval of the local community leads to their higher identification with the project and increases the social responsibility for it. The thought was also that the involvement should lead to the safety of the construction site. I honestly think the ceremony achieved its goal. Our construction site stayed safe from robberies and the news reached the whole neighbourhood. Almost through the whole building process we were receiving applications from teachers and questions from parents wanting to enrol their children in the school.

Model presented to the villagers

Two water buffalos bring first delivery of cement to the construction site

21 | 10 | 2014

Works on the base course begin with plinth walls. In charge: Mohammet, the first 'misteri' (craftsman) on site

17 | 10 | 2014

Levelling without modern technologies - in Basadhi laser is replaced by use of water tubes

29 | 10 | 2014

We're finishing the reinforcement for the first beam just before Diwali begins and the work has to stop

24 | 10 | 2014

Reinforcement cages and column formwork are made

Afterwards the first materials arrived: gravel, sand and cement. First bags of cement arrived by a cart led by two water buffaloes. Concrete was mixed by hand without a concrete mixer. Also by the leveling we had to work without modern technologies. Here we relied on water tubes. The work went well for about two weeks – another Hindu Holiday Diwali was about to begin, which ment work had to stop. Until than we managed to prepare for the first beam, we had the reinforcement cages and column formwork ready and waited until the holiday was over.

‘THERE ARE SO MANY FESTIVALS IN INDIA, KAJA JEE’

India seems to be the country with the biggest number of the festivals during the year and most of them are in the best time for construction – October and November. In those months there are no rains, no heat and it’s also not too cold, as in the other parts of the year. ‘There are so many festivals in India Kaja Jee’ – I heard already when I arrived in India. Due to the religious diversity there are festivals of all beliefs celebrated in India. It’s admirable, nevertheless Hindu, Muslim and Christian, together with state holidays caused delays and made matters difficult. In addition a big state election was held in Bihar during the first phase. What in Europe last one day and is held mostly on a free day, costed us a week of work. While I was motivated, ready to start immediately and I’d just run to the construction site with a shovel by myself I very often had to prepare myself for a long wait. First when we were about to start digging the foundation there was Durga Puja – a nine days festival, which celebrates the overcome of the good over the bad. This meant that actually nobody works in this time, but also before and after the festival. Additionally the members of the highest caste, including my project partners fast and worship during the whole time of the festival, what also exclude them from work. A bit later during the first phase, when we’re finishing the reinforcement for the first beam Diwali began. The Festival of Lights is very spiritual and mostly celebrated with the family. It’s a very beautiful tradition but since it includes cleaning and decorating of houses, everybody is busy working at home and doesn’t have time for anything else, which also meant a stop for the construction again. In the end of phase II of the project I could hear very often: “DIWALI KE BAT”. I couldn’t believe my Hindi skills and asked, what it meant. ‘After Diwali holiday’ Pramod answered. Great – I understood correctly. At this point there was a week before Diwali and shortly after Diwali there was time for the opening ceremony of the school. The examples have no end and as a regular traveller I’d probably enjoy the diversity of celebrations. As a construction manager though it was always a pain in the neck, since convincing people from the organization but also contractors, material supplier and producers for work or meetings was nearly impossible.

Chhath Puja in Basadhi

10 | 11 | 2014

Filing the plinth with sand

1 | 11 | 2014

Plinth pillars are filled with concrete

17 | 11 | 2014

Literally the very first steps were done! We have an entrance to the future school

15 | 11 | 2014

Reinforced concrete ring beams over the plinth are finished

Women power! Puja at work

After Diwali, the team of Mohammet and Israp-ul continued work on the plinth. Walls were erected and the reinforced concrete columns made. The plinth was filled with sand and the entrance stairs were built by Mohammet himself. During that time women started also working on the site.

WOMAN IN CHARGE – ENGINEER SIR

Almost eeveryone hearing about my experience of building a school and managing a construction site in India, asked me how it was for me, since I was a woman. I honestly think it didn't have any significance at the site. A man would not have it easier there. However strange it sounds I felt and was treated like no gender. Not male and not female, but a foreign, educated engineer, which gave me automatically a completely different position in the local society. It placed me in the highest caste and gave me rights and respect. By the co-workers I was named 'Kaja Engineer Sir' – was I being called 'Sir' and not 'madam', because it was so unimaginable for a women to fulfil a function of an architect and to be in charge of a construction site?

What was difficult for me though was not the work but life in Bihar as a woman! I couldn't behave, express or dress myself in a usual way, I had to follow particular rules not to court myself for danger. The problematic of women in Bihar is enormous and there are questions like selective abortion, dowry, domestic violence, rapes, child marriages and many more, which you can hear and read about every day. The more I was living in India, the more I was finding out about this fragile topic, which was not really easy to handle for me. However terrible it sounds, I rejected wearing a sari, because I didn't want to put myself in the position of a (n Indian) woman and being treated in the same way. In everyday life you can see the strong social hierarchy, where women are placed below men all the time in the rural areas of the state. According to the Indian Constitution 'equality, no discrimination by the State, equality of opportunity and equal pay for equal work is guaranteed to all women in India'. From my impression the reality here was completely different than theory. From my point of view, women were treated as they were made to sit at home, cook, clean and take care of the children. You can also rarely see women alone outside of their houses, they don't have their own businesses and no independency from their fathers and

Mud bricks are carried by women to the site

husbands. Of course I'm talking here about the rural areas of this least developed state of India and my personal observations of this issue. In big cities and other regions of the country the situation can look completely different. Here though having a daughter doesn't pay off. She is worthless and also costs more. This is why girls are often married off very young, which prevents them from getting education. If they are sent to school, it is for raising their value. Then having an education, the girl can get a better, richer, husband of a good social status. The education they get is mostly worse than the boys. 'Boys are being sent to expensive private schools. The girls can only attend tuitions.' - told me the daughter of a project partner. This tired, 15-year girl had to go 3 times a day to the neighbouring city to attend tuitions instead of going to a regular school. What hurt me the most was, that it was the daughter of my project partner, whom I was working with and was relying on. To marry the daughters off, also the dowry to the future husband's family have to be paid, which regularly leads to bankruptcy of the father or suicides. Additionally women don't contribute to family's economy, since not many of them work. Because of those multiple reasons a selective abortion and a distorted sex ratio is a common problem. It's simply better not to give birth to a baby girl. The situation is even worse among the Dalit caste, which makes the biggest part of Basadhi inhabitants. (cf. Shah 2006)

There were women working at the construction site, what I first found surprising and considered as a good sign of equality. Later I figured that women were only doing hard, less advanced labour, like caring bricks or bowls of sand or cleaning the site. It was considered normal by my project partners to pay them less than men. Women were also not allowed to eat together with men during the lunch break.

Summarizing the work for me was not harder or worse because of me being a women. The awareness of the facts that were happening to other representative of my gender though costed me a lot of discomfort and made the further involvement very difficult. This issue made me question, if my work made sense and if anything can change. On the other hand only the education and creation of awareness can provide improvement and here every, even small, contribution counts.

Read about Akancha, one of the workers in 'Clothes Donation' and get additional information in chapter Location.

Akancha with her children on site

Working on the base course begin

24 | 11 | 2014

Waste water treatment system is built

19 | 11 | 2014

Working on the future courtyard begins – the heart of the building

27 | 11 | 2014

Thanks to the installation of an electric pump, we can water the fresh applied concrete

25 | 11 | 2014

Construction of sitting step structure is done!

My biggest worry while designing the school was the complex stair construction of the building. It is a key element of the multifunctional countyard, where children can play, lectures can be given and celebrations held. Surprisingly making the structure didn't take long and the result was great. In the same time the waste water treatment system was built and electric water pump installed. Meanwhile I got to know the working policy of Basadhi and the particular Indian feeling of time, which required getting used to.

INDIAN TIME

Almost every day in Bodhgaya was patience training for me. There were times, when we arranged meetings with craftsmen or suppliers at 8 a.m. and the only person, who actually arrived on time was me. Sometime later Pramod and Salendra came. And the craftsmen? Sometimes at 12, sometimes at 2 p.m., sometimes we didn't hear anything from them for the next few days. One can imagine that not only the meetings looked like that. Measurement of the construction site, material and products deliveries or implementation of instructions were nearly never done till the deadline. I had to lower my expectations according to the appointed time limit and meetings. The working days started later than one would expect from a construction site and later than it was appointed. Late beginnings, no hurry and unpunctuality characterised the whole project. I failed trying to bring my standard of time management in terms of punctuality but fortunately I didn't give up on it. The result: the construction was ready a year later than planned, in Indian time, but it was completed in the end.

WORKING POLICY

One could imagine that work looks differently in different countries and working policy varies. Except for the alterations in feeling of time or different society structures, there is also the complicated working process that one cannot easily follow. The non-transparent procedures were sometimes (although very rarely) working perfectly and I had nice surprises, how easily some things worked out. Most of the times though, one could not look through the muddle, works lasted way longer than they should have or never came to the end and I had to hire others to finish them. This way it was hard to monitor progress and discern between the successful

Tradition meets technology

and non-successful tasks. I was trying to help the workers with the organisation but any this was a fruitless effort. I organised meetings with the team, but for my questions, what was going to happen within next days or even hours, I couldn't get any answers. I also tried to leave a to-do list on the site, but had to find out that there was most of the time nobody, who could read the instructions. Same problem was the cost estimation of the building in advance. The budget estimated first was in the end two times bigger than expected. Also it was hard to execute finishing the initial work first, before other tasks could be, for instance to enable following teams to work. There is no culture of preparing in advance and I noticed that mostly the easier works are done first, even though it was not advantageous for the works. It was always tried to finish work with as little effort as possible.

Although some of the work was mostly paid by time, it was attempted to to be finished as soon as possible. For instance my wall full of nooks and crannies was suddenly built straight. The wall had to be built two times, the roof, which was initially done sloppily, three times. The coverage of the false ceiling started with dry clay, since it was easier to transport to the desirable height and also way lighter. The clay spread on the ceiling had to be removed and spread again. The same happened to most of the building elements and we had to repeat works over and over again. I had the feeling that there was always a hope from the workers that I won't notice the change of plans or accept the alternated version and poor quality. There was also no learning process seen. The employed workers were not learning from mistakes and most of the time, were losing time by repeating the same works, which also meant a loss of money for them. Admitting and accepting mistakes was also a problem and discussions, if to repair the mistake, lasted very long.

Waste water treatment system

10 | 12 | 2014

The first ‘jaali’ – traditional perforated brick wall is built

4 | 12 | 2014

We’re getting higher! Building of reinforced concrete pillars

19 | 12 | 2014

Playful classroom walls with shelves and window sills are built

15 | 12 | 2014

Walls from burned brick are built

The long work on the high plinth is finally done and we're starting to get higher. The first pillars are casted and work on the first walls out of the burned bricks begins. The multifunctional wall appeared to be a big problem and had to be built twice. The requirements and the floor plan were not taken seriously and therefore unplanned changes happened during the time of work. Also 'Jaali', the traditional perforated brick wall, turned out differently in spite of long discussions with the workers.

INDIAN QUALITY

Even my Indian friends and co-workers were joking about the famous Indian quality of products and services. Mostly, only the first impression counts and it is supposed to be good enough. It doesn't matter though, if the product survives the test of time. It's also more important to finish the work faster and to take another contract, than to deliver an item of a good quality. The guarantee or responsibility after the works are finished and, what's more important, paid cannot be demanded. Moreover on my construction site most of the hired craftsmen would not be able to take financial responsibility for mistakes made. If some building part was not made according to the plans or by appointments (and some varied completely!) or was of not of an acceptable quality, I had to weigh up the arguments carefully and face a decision. In many situations the repeating of works would mean waste of time or loss of money. I had to face a decision, if the quality is tolerable or if deviations from the plan are acceptable (multipurpose was first built straight, which would change the design completely and prevent most of the functions, or when the roof had visible holes in it, when it was built for the first time). Mostly, the solution was a compromise. As far as I'm concerned the reason for the bad quality of the consequences, which can be suffered because of badly made goods as well as meagre services. The mind-set could only be changed through creation of awareness and education, though nowadays there are no traineeship for craftsmen in the region.

As for every donation-based project, bureaucracy was a very important part of works. Documentation of every rupee spent and its certification on paper featured here as another problem. Not only was the illiteracy here the issue, in India a common solution to this problem is a thumb print on a document. Moreover most of the firms were small and they didn't have registered businesses, therefore no forms of receipt.

Some works had to be done again

29 | 12 | 2014

Our clay bricks are prepared by local families only a few dozen meters from the site

3 | 1 | 2014

Mud bricks delivery

4 | 1 | 2015

Filling of further walls with mud bricks

11 | 1 | 2015

Parallel to the walls first clay plaster trials are done

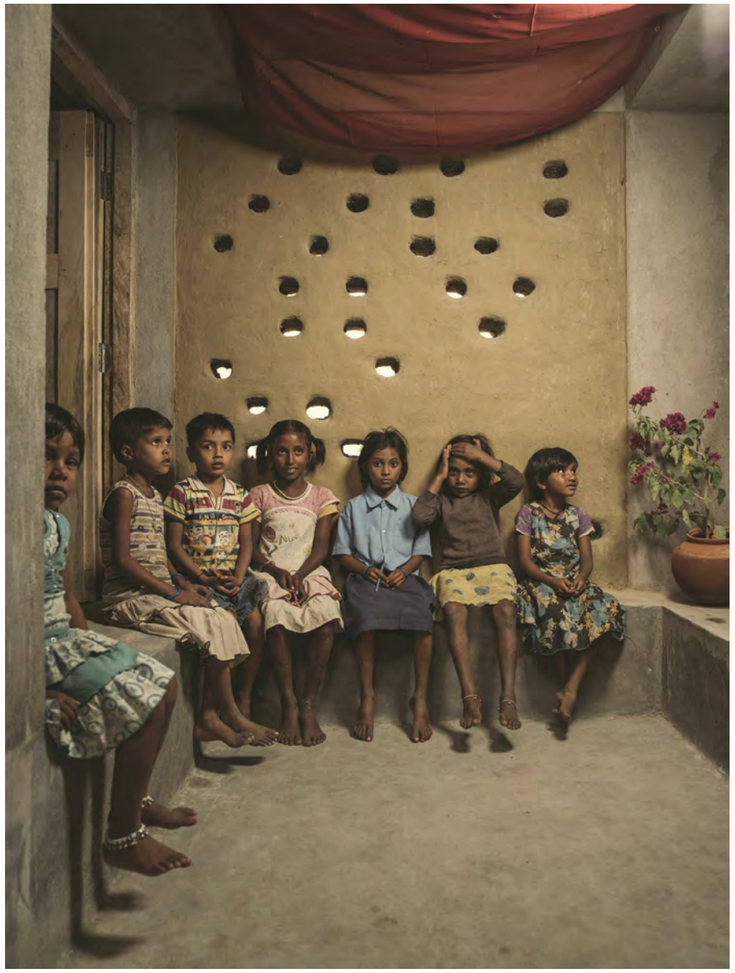
Children's smiles give me motivation for the project

Where it was possible we avoid using burned clay bricks. The reinforced concrete frames were filled with raw mud bricks, in areas with less threat of dampness, for example in the sanitary units and independent not roofed walls. This process saved money and provided a better indoor climate.

FIGHT FOR CLAY

From the observation on climate one can see that the choice of materials was extremely important to handle the extreme heat in summer and high humidity throughout the year. On the other hand due to the fact of restricted budget the materials also had to be chosen economically. All the arguments spoke for clay – a cheap, natural material that leads to better indoor climate of the buildings. (cf. Minke 2009) My wish of usage of this sustainable material had to meet its bad image as a cheap material for the poorest people. Because of it and the untired stubbornness of Pramod, who threatened that 'without reinforced concrete frames, he won't allow the construction', the final construction became a compromise between a typical reinforced concrete frame construction filled with burned bricks and a traditional clay house. In the case of Basadhi Schoo, l decided to fill the frames with unburned clay bricks and used a traditional clay ceiling construction to cover the rooms. The idea for the construction of the ceiling came from the visit at the oldest inhabitant of Basadhi. He showed me very proudly his ceiling that he built as a young man. Firstly the wooden beams from Palmyra are put on the walls. Bamboo provides the secondary construction, on which jute is placed. A thick layer of clay builds the coating. This construction is an additional advantage for the indoor climate. Corrugated iron roof is placed above to protect the structure from rain. cf. Baker 1986)

The fight for the unburned clay bricks took long but in the end paid off. Even the conservative Pramod commented in the end 'how nicely cool it is inside', when he entered the finished classroom. The climate of clay buildings is indeed very convenient and healthy. The significant climatic advantages are possible due to the greater thermal mass. The high thermal capacity of the material allows an indoor temperature regulation. The walls work like a heat reservoir moderating the high and low temperature, so useful in climates typified by hot days and cool nights typical for Bihar. Likewise it stabilize and control the air humid-



Raw brick 'jaali' in the relaxing space for nursery class

ity, because clay stores the humidity to radiate slowly when needed. Additionally it's indisputable that clay is a natural, sustainable and ecological material with its all positive characteristics. It is free of pollution and chemicals and antibacterial, what causes a healthy air quality, moreover it's diffusible, there is no waste of energy in production and it's completely recyclable. In addition of course it is an inexpensive alternative to burned bricks. Just to give a simple image of the situation a burned brick cost 4 times more than a raw clay brick that was used. To the cost of bricks the price of mortar – 'cementy masala' – has to be added, in our case the binding material, which is clay itself, was free. In social projects like mine, where the budget is very restricted, small costs are often the crucial requirement for the realization of the building.

KATCHA BRICKS

The mud bricks, we were using at the construction site were called by the workers, the suppliers and my project partners 'katcha itha', 'katcha bricks'. First I thought that, it simply means a mud brick and soon I also started using this term. Later, as my Hindi got better, I figured the description has a negative meaning and means a wrong, worthless, non-permanent brick. Simply bamboo, clay, untreated wood was 'katcha', while cement, baked bricks and steel were the materials the client and the workers wanted to use and are used to. (cf. Vibhavari 2011) This simple example mirrors the opinion the people I was working with had towards clay, as well to other natural materials we were using.

Clay lamp, 'mitti kota' & clay brick wall

12 | 1 | 2015

Toilets are assembled perpendicular to the walls.Placing them from east to west, would bring bad luck

5 | 1 | 2015

Plumbing system is installed

15 | 1 | 2015

Concrete ceiling over kitchen and storage room is made. There a water tank will be placed

14 | 1 | 2015

Development of clay false ceiling takes place together with the experienced villagers of Basadhi

Technical works like installing toilets and installing the plumbing systems were done during this phase of work.

PLUMBER

I have been trying to meet a plumber for 2 weeks now. Once I even got an appointment and was waiting for 3 hours for one, but he never made an appearance... So one can imagine my enthusiasm, when I finally managed to meet a plumber and what a plumber he was! Probably the most hilarious ever! He started to show me all the different kind of toilets squatting around and pretending to pee on walls. He used all objects in the entire office to explain his ideas. Coloured pencils to build pipes, wool for the electric wires, stamps to show where the tanks will be, gesticulating lively all the time. As soon as we reached the construction site he took over the whole discussion and was explaining my project to everybody. Nevertheless in the end it was a very successful day. My contractors, the plumber, bricklayers and I decided for appropriate solutions for the new school.

SUPERSTITIOUS INFLUENCES ON THE DESIGN

While installing the toilets I had to learn another interesting fact. This time I had to wonder, when we were installing the toilets in the school. Whoever would think, the pans of the squat toilets should be parallel to the walls of the rooms, would be wrong. Different to logic and issues like comfort and efficient use of space the bowles were installed the other way around. Why? Placing the toilet pans parallel to the walls, would mean they would be oriented from east to west, which brings bad luck. In Basadhi people believe that one shouldn't make his business to the east, where the sun comes out, to avoid ruining the freshly start of the day or to the west not to spoil a good day before it ends.

BASIC FACILITIES AS LUXURY AND SAFETY

This funny story about the toilets in the building leads to one of the darkest characteristics of the rural area of Bihar. Here toilets are a luxury. Some of the houses and most of the Dalit mud houses don't have an access to those fundamental facilities. (cf. McGirk, 1995) This leads to serious social problems. Women that don't have the access to sanitary facilities are forced to relieve themselves only early in the morning or late at night, when possible in groups. The situation is particularly difficult for the old and the sick and leads to chronic gastrointestinal problems among women. There is also a safety issue, caused by these facts. Women, who stay in the fields after the sunset are exposed to abuse. In some cases it comes to rapes, because of this issue. (cf. Shah 2006)

Dalit womam in a mud house in Basadhi

Fun during works on floors

27 | 1 | 2015

Developing spatula decorations with one of the workers

25 | 1 | 2015

Plaster of stair construction gives the first signs of how the courtyard will look in the future

4 | 2 | 2015

The only time electric tools appeared, I have to save the main bearing pillars from destruction

30 | 1 | 2015

Construction of clay false ceiling continues

THE TEAM

Some of people that I tell about my project in India, imagine I handed over my plans to a building company, picked up a bill in the end and that was it. No. There was no building company to hire, no architect to consult and no engineer to ask. I also get asked questions, how many people were working on the site. Sometime dozens, sometimes no one came to work and I was the only one at the site. One could never foresee it. The answers were different and not really plausible. Sometimes all of the workers had to go to a family celebration of an uncle of a neighbour's cousin, sometimes they suddenly got another job. Mostly I was hiring a contractor for each task that was supposed to be done. The contractors were responsible to find workers. The team consisted of day workers that were paid per day or per part of work they did. The tasks got smaller and smaller to the end of the project, since I figured that only in this way I could avoid the risks of delays.

There is also some truth in the saying that Indians never say no, because it didn't matter, if I asked, if someone comes or not – the answer was always positive. Sometimes I hired people and on the next day they didn't come to the site. When I ask for the reason, I got ensured that they will come the next day, which never happened. Also some goods were not made or products not delivered to the site, even though I got assurance about it. The dishonesty of the workers had to do, not only with the customs, but the fear and financial repercussions of losing the contract. Contractors would always assure me what I wanted to hear in order to get the job, however, they never delivered on their promises, and never on time. I had many situations, when I was given the date of delivery and when the time came, it turned out, the craftsmen didn't even start. Some workers were working some time on ordered products, but never finished them. Devnandan was asked to make a shelf for the storage room, he got an advance of 100 rupees (about 1.25€). He didn't come to work for a few days, was working for two days afterwards, but never finished, even though his compensation would be 25 bigger than the advance. I honestly never understood those kind of situations. They meant loss of time and money for the hired person. The record of delay were the ordered windows, which not only I had to order three times but which were installed on the construction site almost a year later than it was appointed at first.

Carpenter working on traditional doors

Another situation I had with Manoj, the contractor, who was working the longest at the side, when he was assuring me to be finished in a few days. The same words I was hearing for weeks. At some point I suggested hiring additional team, who help to finish the building on time. Manoj took my proposition as an offence, threatened me that he won't be working at all, if I hire another team and was abusing the other contractors. The discussion to convince him to stay and to split the tasks took hours. Finally he agreed and when I came to the construction site next day he was already there, over punctual, his team came this time way earlier than usual and was doing exactly the opposite part of the building than we appointed, finishing the plaster of the outside wall. Happily the situation could be rescued, probably because we owed Manoj the payment for already finished works. Similar situation happened with the carpenters installing windows and doors. One team fulfilled the tasks of another, although the appointments were different, because they thought that the other tasks were easier and faster to do.

To finish this chapter with some nice news, I have to admit that in the end of the project there were also some nice surprises. I used to say, I'd never hire any of the people that worked for me again! Until the last week when a young man became my electrician. He was always on time, finished his work before the dead line and did his work well. You'd think it's normal? Not here! He was the only one meeting the description. Mantu was an ambitious 22-year-old man working since he was 15 and having big plans for the future including his own company. I've also get to know a friend of mine Shiva, which recommended me an iron worker, who in the end made grills for the windows and Kirisan and his team, who were responsible for the entrance and exterior plaster. Both of them were far better that the workers that I used to work with. Shiva was not a building engineer but a linguist. Nevertheless it turned out he had building experience and knew reliable craftsmen. I'm grateful that I met him in the final spurt of the project. Pity it didn't happen earlier though.

Lunch break on site

Courtyard plaster gives the school a new look

7 | 2 | 2015

Finally a progress by construction of ‘mitti kota’, clay false ceiling - as usual we achieve our goal the roundabout way

5 | 2 | 2015

We install the first door frame (the second over half a year later)

12 | 2 | 2015

Phase I of the project comes to the end

9 | 2 | 2015

Ordering windows for the second, but not the last time

The slow progress of works is caused by delays of craftsmen, for example the carpenters, at whom windows and doors have to be reordered three times. Moreover there are problems with workers, who either trying to make their work faster, don't pay attention to the quality or plans. The misunderstandings result in addition of the social issues in India.

THE CASTE SYSTEM

The caste system is one of the most important characteristics of India and everybody knows it. One doesn't realize though, how big its influence to all spheres of life is. Also I wasn't prepared and didn't expect, how it could affect my construction. First of all one doesn't notice the strict hierarchy at the first glance. But as soon as you become a part of the community by being invited to family celebrations, funerals, house warming parties, weddings, birthdays and start analysing what's going on around you, you notice strange rules according to which the guests behave. It's never a coincidence who eats first, who prepares the meal, who has to wait outside of the house. The connection to the construction site is even more hidden and complicated.

My two project partners in India - Pramod and Salendra - were both from the highest, Brahmin caste. Due to their social status, on one hand, they enjoyed respect among the community. On the other hand one could see it was insincere and notice the jealousy towards them caused by the injustice of the society. (cf. McGirk, 1995) Understandingly they didn't have the connections to the contractors not to mention the labour. The relation to the workers was also not as it is supposed to be. During the consultations with craftsmen or experts, which had more experience than us, the conversation was always led by one of the Brahmins. The condescending tone of voice and behaviour towards the experts, who take up a lower position in the society but have way more experience and knowledge in their branch, was simply contra productive. The expert, who could have helped finding a solution to a problem, was very often too intimidated to express his opinion freely in presence of the Brahmin. His position in the discussion was basically set in the moment of his birth. In addition, all the discussions were provoked by me. Normally there would be no such cooperation between the Brahmin client and a regular labour at all. The other obstacle caused by the fact of the caste of my project partners was that they as Brahmin are rarely used to regular work, demands and rebukes for their errors. (cf. Shah 2006) My personal manner of handling with the situations was treating them as co-workers and partners, from whom one can demand to fulfil the tasks, but also in this matter I had to learn a lot and work it out. In the beginning of the construction, I was way forbearing towards their position and underwent the influence of the society. While I didn't know, how appropriate it was to demand, my partners were mostly absent at the site and works were going slower. With the passing time I changed my behaviour completely, by literally picking my partners up from home and making them go to the site daily.

Salendra

23 | 9 | 2015

Buying roof materials in Gaya

21 | 9 | 2015

Start of works of phase II of the project

26 | 9 | 2015

Manoj's team continues to work on the floors

24 | 9 | 2015

The roof team: Sanjay, Sikandar and Pintu start work. The old, wrongly built roof had to be dismantled

During the break between the phase I and phase II of the construction, I had time for reflection and preparation for the next steps. I thought the whole process through and tried to find mistakes that happen during the beginning phase. I went into the second phase with new energy and motivation. This part of work took place from mid of September to the mid of November 2015 and the building was finally finished and opened on 16th of November 2015.

PERSONAL DEVELOPMENT

The constant change of my position and role on the construction site was also a consequence of the caste system and me finding out more and more about the social structure of India. As a European, I believe that all people are equal and, although one hears different stories from different countries, one does not realise, how deep your descent can influence your life. At the beginning of construction works, I wanted to integrate in the team, to work physically on the construction site and to get to know the workers. I was thinking that earning their trust and sympathy and giving them the feeling that we're all at the same level will be an advantage for the site. My intention was to give the importance to every worker, to try to learn from their experience on the construction site. Firstly whenever I tried to help, grab a shovel or a brick, five men were there to help me, which made the work rather slower than more efficient. Secondly instead of gaining I was losing the respect of the workers. In India, however cruel it sounds, the hierarchy is so strong that either one is above or below the other person. Degrading myself to a position of a labour, I was losing my position of an architect and a site manager. The result was the loss of authority and respect, when I was about to meet decisions or give orders, which were not consistent with opinions of the workers. I led to the situation that one could start questioning my creditability. Additionally to the cast problem I'm also a woman, which made the situation even harder and the regress faster. After a long time of trials I had to face a hard decision and stop my physical help on the site. I had to become the, more or less, authoritarian boss. I was not proud of my behaviour and with such an attitude I would be probably disrespected in other countries and perhaps even fired from work. In this region of India though, it was the only possible solution and it also turned out to be working fine. The construction site started working faster, more exact and sometimes even according to my plans.

Talking to the carpenter

28 | 9 | 2015

Already in between the construction muddle, kids take classes in the common room

27 | 9 | 2015

Against the instructions, the roof was wrongly built again and had to be improved again

1 | 10 | 2015

Vikaz, the welder, at work on the roof over the toilets

30 | 9 | 2015

Manoj's team lay bricks for an incline under the roof, which replaces the girders

There were not many materials available on the market, so I got used to the necessity of finding simple solutions on the site. Some materials were also new and nobody really knew how to use them.

Making the assumption that certain materials were unavailable was wrong as we were sometimes surprised. After we were filling the plinth with sand, by manually carrying the heavy bowls for some days, Salendra asked, if we wouldn't like to hire a digger for a change. I became speechless (as often). Why did we not hire one earlier?! I didn't know there is the possibility in the region and the workers and project partners had not suggested it. The digger was finished with the work within a few hours and saved us a lot of time and costs. Another situation happened, when we were building the clay false ceiling. As always I explained everyone my decisions and why we are using clay in the construction. I also tried to describe the advantages the material has and its breathability. For the construction we needed jute cloth and a carpenter, who made the ceilings, was supposed to buy the material in Gaya. The carpenter came back with an asphaltic roof sheeting. I couldn't understand, how such a mistake could be made. Devnandan, the carpenter, explained that the shopkeeper advised him to buy it instead of jute, since it's a brand new item on the market and will be more suitable than jute.

Sceptical looks at the water level that never was used at the site

3 | 10 | 2015

Roof works start to achieve the acceptable level. Start of the class rooms' roof

2 | 10 | 2015

Roof of the common room is done

11 | 10 | 2015

Sanjay's work is finished!

10 | 10 | 2015

Corrections of the roof construction are made

One day on the construction site I saw a child at the age of 7 carrying some kind of a bundle. I got used to children on my construction site but this time, looking closer, I noticed it was not a bundle but a newly born baby. I was surprised, but when the girl said she came to her mother, who is working on the construction site, I was shocked. A woman, who gave birth a few weeks before was working physically at my construction site?! I tried to find out more about her and her family. She had 4 children, her husband was working in Jaipur only unregularly sending money. The children were not fully dressed and dirty and I was about to meet the decision. If I sent the woman home, she wouldn't earn money to feed her children. I decided to help and find another solution. In about the same time I met a Vietnamese monk, who founded a sewing centre, where woman could receive the training. The centre was by than closed for years but the produced clothes were still unused and stored there. I asked him, if I can take part of the clothes and donate it to the family. It worked so well, that I got enough clothes not only to give to my worker's family, but also to share to the whole village. I became a connection point between the monk's organization and the families in need.

Girls in their new dresses

17 | 10 | 2015

Works on interiors begin. We developed a method, which enabled an appropriate connection between the clay and the concrete parts

16 | 10 | 2015

Delivering 'kushi hathi' - happy elephants – to Rajdeu, our gate maker.

20 | 10 | 2015

Finishing works on pillars: plaster and spatula decoration

18 | 10 | 2015

Together with the potter in the nerby village, I adjusted the bowls and created lamps for the school.

CLAY POTS

To explain the reality and the supply in Basadhi, I can give you the example how the lamps in the building were made. I met a lady selling clay pots in the market. She didn't speak English, couldn't read or write, but with the help of hands and feet and my basic Hindi, I managed to have a conversation. I found out the pots and her husband was making bowls and she lives in a village closed by. I gave the woman a simple design of the lamp and we agreed to meet in a few days, when the husband would finish the pottery work and the lamps would be dry enough to be transported to the market. After the few days, when I went to the lady, there were no lamps waiting for me, because the husband wasn't sure, if he understood my project and description correctly. We made another appointment. This time I was picked up by the children of the potter and led to their village. I was welcomed as an honoured guest and was invited by the family for a chai. After meeting the whole family and the neighbours we started the work. Lots of explanations, trials and lots of laugh followed, when I started pottering by myself. Finally in a joint effort we managed to make a prototype of the lamp together.

Potter working on the lamps

27 | 10 | 2015

Manoj started work on exterior plaster against our arrangements

25 | 10 | 2015

Collection of ready gate:
Weighing with Indian weight standards (stone is 20kg, nut 5kg)

31 | 10 | 2015

Kirisan works on exterior plaster

28 | 10 | 2015

Finishing of inside walls by applying last layers of clay plaster

THE IMPORTANCE OF A PROJECT PARTNER

The most important thing that I would like to highlight is the meaning of the project partners. Both the partners responsible for collection of funds and organisation as well as partners on site should be reliable and bring experience in the given field. If one can chose the partner oneself, it's for sure worth to devote more time and efforts for the search. I'm thankful for the fortunate consecutive occurrences that led to the project, which would not happen without the idea of BEFS, initiation of Fridolin Stögermayer, funds collection of SONNE or social responsibility of FAIRStyria. Nevertheless I would withhold important information, if I said that the cooperation went smoothly and there were no problems between all the participating parties.

Analysing the built project during writing of this paper, I had to think, if I was expecting too much of involvement and support of my project partners in the project or if it would be the role of them to help me with building. On the other hand though, I was volunteering my knowledge and skills to the sake of the project, which will serve the purposes of the two involved organisations. Otherwise as with a regular client, for whose project I would normally gather a team of paid experts, in this case there were no funds for consultations. In the region there were no skilled craftsmen or educated professional from the field of, for example, sanitary or constructive issues. The communicated need of having consultants from the fields of carpentry or roofing were constantly ignored and were not taking serious. In the beginning a wish was stated that the new building should be an ecological example for the neighbourhood and receive international prizes. Also a wish for thee usage of solar power was communicated, due to the common problem of power cuts. The initial desires though didn't mirror in the engagement of the organisation. There were no trials to find experts, which could help with such issues as waste water treatment or reusable energy. In this case one also could have the feeling that the task should be done, no matter which effect will be achieved.

Indian project partners

31 | 10 | 2015

The elephants embelish the new gate

2 | 11 | 2015

The school gets the entrance it deserves

5 | 11 | 2015

Kirisan makes correction of his works

5 | 11 | 2015

Drainage ditches are dug

7 | 11 | 2015

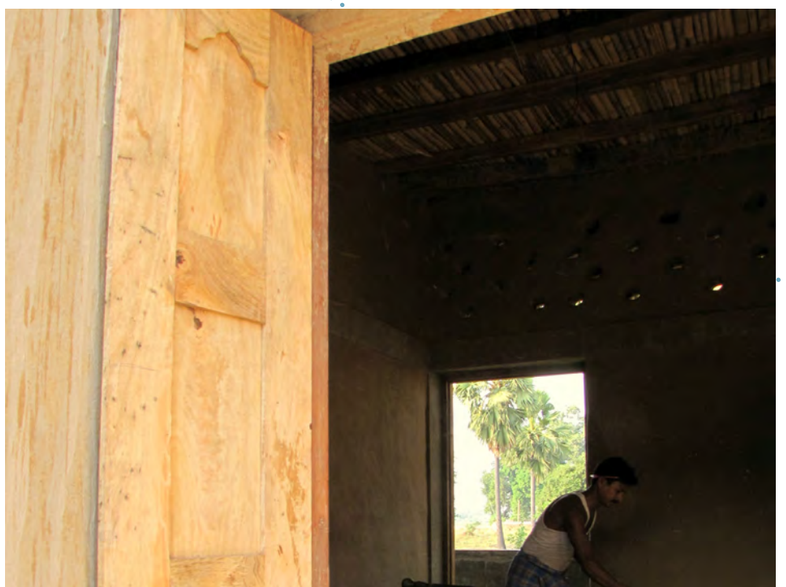
Visit at Sonu's in Gaya.
The supposed delivery is not even close to being ready

5 | 11 | 2015

I decided to build an additional canopy for the courtyard terraces.
Our roof team is ready to help

9 | 11 | 2015

Beli Devi continues works on exterior plaster



8 | 11 | 2015

Sikandar delivers windows! First windows are being installed

COOPERATION

I got confused by the fact that many ideas and requirements were not consistent with statements of BEFS and my experiences. Gradually, when I moved to India, I figured out that my project partners from Austria, couldn't give me the answer I needed during the design phase, because they didn't have the sufficient knowledge about the place, where the project was to be built. Observing two of the travels of the project coordinator I had to state, that the organisation is not interested in the quality of the school or getting to know the background of existing problems and arising situations. All that counted was, if the receipts tally with expenses and collection of attractive pictures for the future donators. During the travels my feedback was not of the interest of the organisation, although I've spent way longer time in the region than the project management.

After the building was finished there was no appreciation. The official cutting of the ribbon during the school opening took place without my attendance, while I was still working on preparation of the building. I can assume, such a lack of admiration is connected to the fact that the Austrian NGO's employees don't really know the place, I was living and working in for all the months. Not knowing the conditions one cannot realize the expenditures, which were needed to accomplish the project on time and with desirable quality. Also although I was trying to explain, how the project works and communicate the problems, the project coordinators were convinced to get one bill in the end of the project, because my plans will only be given to a construction company, who build the school. Till this point I've already spent half a year working in India and some more months preparing the project. I had also the impression that since my work was free, it was also not respected and valued. In architecture there is a common problem of lack of appreciation, since the clients often don't realize, how much work and research had been put into one produced plan or visualisation. If the work is additionally done for free without listing out the invested hours, a laymen cannot understand the complexity of the project. After this experience I realized, how important it is to divide tasks before the work on a project starts. I even prepared a contract, which was never signed though. I know however

Discussions about building of the roof

that the desire to build a humanitarian project always very big and one ignores many indicators that could be warnings of a potentially bad cooperation.

The statement that hurt me the most was that, if the cooperation doesn't get better with the Indian site, it will be interrupted. It would mean closing of the building I was working on. I got involved in the project in the beginning since it had already been running for 15 years, what would promise sustainability. I couldn't understand the attitude, since just a lot of finances, time and effort arrived in the project village.

Other difficulties concerned the Indian project partner, which was on site during the whole construction phase. They were the experts, which knew the region and its people and would be responsible for delivering desired information. Already during the pre-design research and design phase, but also in between the building phases, the communication with BEFS was really difficult, if not almost impossible. In the beginning the emails, which were reaching me, were not answering my enquiries about prices and availability of materials or techniques considering construction or treatment. The messages only contained one question: when the project will be realized. Difficulties involved misunderstanding and misinformation about when the best time to build was. For example, the partners desired a summer construction phase, despite this being unreasonable. For instance, May is a summer time, when temperatures reach 50 degrees and monsoon is about to come. Due to the unpleasant temperatures also labour cost is twice as expensive as in other seasons. Similarly the reactions for the design were always positive, there was nothing to add or to criticize, which made the work of an architect difficult, since no feedback could be elaborated. (cf. Rodriguez 2016) In this case the positivity appeared superficial and I suspected it was used to mask the partner's indifference to the outcome of the project. Analysing such reactions I assume now, the goal of the BEFS was to start the works as soon as possible, to avoid the possibility that SONNE back out of the project. It was irrelevant, how the project would look like or if it would be functional and provide appropriate conditions on site or not. Also the prices of materials and labour, which I was asking about, were not of overriding importance, because the Indian NGO was not paying for the project.

Austrian partner organisation visiting the site

During the construction works of the first phase of the project my Indian project partners were very sporadically at the construction site. It caused a lot of misunderstandings, problems and need for an unnecessary double work. It took me a few months to know-how to handle Pramod and Salendra. One can see that during the second phase the works went a lot faster, since not to putting it in nice words, I 'forced' my project partners to take care of the construction. The problem was that before the project, although the collaboration had lasted 15 years already, nobody demanded anything from the organisation. The donations came without requesting regular work or quality. Firstly I got intimidated by the way others treated them, resulted from the high caste, they came from and didn't know, how much it would be appropriate to demand. With the passing time I changed my behaviour completely for the good of the project.

The collaboration with BEFS was marked by non-transparency. The promises that things will be done or craftsmen found, almost never took place unless we did it all together, at least during the first phase of the project. All the time one could feel that something is wrong but couldn't recognize the problem. One could see that money is not an issue in the project. The funds were coming from abroad. When I insisted on paying for our cold drinks after some time, I was assured, I don't have to be worried, since Austria pays. This financial issue is important in humanitarian architectural projects, which rely on sponsorships. During the second phase the situation improved. When I went for a few days break, I left my work to Pramod and Salendra. The short holiday was an idea of mine, when after in the first phase I some time I started getting used to the fact that things simply don't work and that the quality of work is low. To avoid such a state of mine I decided to go for a few days outside of Bodhgaya. There were certain tasks that I left to do. In the meantime I hired a craftsmen team recommended by a friend of mine. Afterwards the craftsmen complained to me that the project operators, which didn't come to the site daily, didn't really care about the final result, allowed sloppy outcome and did not take the project seriously. From the side of Salendra and Pramod I was told and was assured about the opposite. In the very end of the project I heard from Pramod that 'they only have to care about my problems and issues and nobody it taking care of theirs'. Here my problems were considered as all the aspects concerning the construction site and the building I was helping to build for their organisation. (cf. Rodriguez 2012)

While writing about this project I very often was asking myself, if I expected too much support from the side of my Indian partners and, if it was their role to help me with the building. On the other hand who else's role was it supposed to be. As an architect coming from another country, I don't have the knowledge, where to find the skilled craftsmen, who could be involved in the building and whom to trust and rely on. I understand that as the administration of an NGO, they didn't have experience in a building branch, but also there were no attempts to find experts, who could provide me with necessary information.

Plan meeting

11 | 11 | 2015

Surprisingly the gardener comes in the early morning on Diwali - the long awaited garden is established

10 | 11 | 2015

The chosen plants for the garden are transported to the construction site by auto-rickshaw

15 | 11 | 2015

Lamps are delivered and installed by Mantu

12 | 11 | 2015

Sanjay finishes the shadowing

DEVELOPMENT COOPERATION

During works on this paper, I started to research facts about Bodhgaya and found out a lot more than I wanted to know. The facts confirmed my darkest supposition. (Bramhachari 2012) While working on the project I constantly had a strange feeling about the cooperation with my partners and about other organisations in Bodhgaya. Also the facts didn't seem plausible. During the analysis of my work in Basadhi I gradually started realizing correlations that can be questioned. The examination made me think about the whole process in a different way, which during the building phase I tried to repress. I did it for the sake of finishing the project. There was no transparency during the whole project, one could literally feel that something is going on. This analysis made me develop understanding of operations and processes that made me uncomfortable supporting these organisations as a volunteer and an architect. The complex connections made me question my involvement and asking myself, if the contribution made sense. I started questioning the mechanism of the NGO industry, of which I was also a part. While I asked my good friend from Bodhgaya, about this issue he said uninfringeable: 'Why do u want to know? I'm sure some people made some money on it. It's the way it works here. Social work is a business. Just like other businesses.'

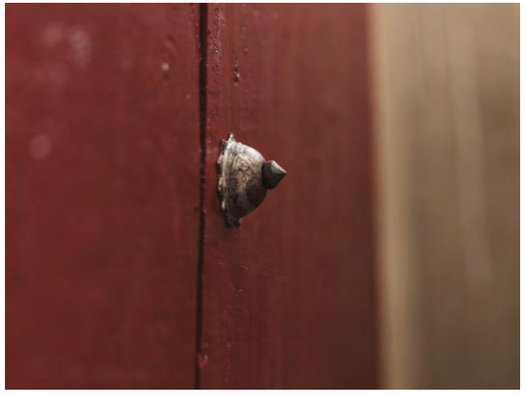
Summarizing I'm sure that the education is the best help of a development cooperation, since only knowledge and literacy can help to change the situation. This other side of the coin though and the example of Bodhgaya leads to the reflection about the point of development cooperation at all. Bodhgaya profits from its poverty. The functioning structures and the main sources of income would be destroyed by a full development. (cf. Rodriguez 2012)

Canopy over the terrace

DETAILS

Working on details and finishing brought a huge satisfaction.

Inspiration collected during the whole length of stay in India can be seen in elements placed in the school building. Cow muzzles used as containers and plant pots, vegetable baskets used for toys or cooking bowls refunctioned into lamps are only a few examples from the school. Rejuvenating old and traditional elements that are common but unpopular in the region, was an important part of the project. The loss of a good image towards modern materials like plastic, aluminum or plywood is normal for a new developed country like India. Here new articles make the traditional items outdated. Imported goods are not sustainable and not ecological but are new and therefore replacing the beautiful goods that enjoy a long tradition and were done in the same way for generations.



Cow muzzles were used as containers and plant pots

17-19|11|2015

Last days on the construction site: not only the details of interior decor, but also the doors are being finished and last deliveries and painting taking place

16|11|2015

Opening Ceremony with the officials from SONNE International und Fridolin Stögermayer

01|04|2016

School opening and official start of the classes.

19|11|2015

While the photographer Stefan Leitner is shooting pictures, I'm still finishing details at the last minute.

OPENING CEREMONY

The opening ceremony of the school building took place on the 16th of November 2015. For this occasion the project manager of SONNE International Armin Mösinger as well as the initiator of the project Fridolin Stögermayer came to India. The preparations lasted for days, since as for every big celebration in India all village was invited. Officials and respected inhabitants of the village and the neighbourhood, like the mayor, teachers and doctors got special invitations. Also a representation of SONNE came, including the initiator of the project Fridolin Stögermayer and the current project manager Armin Mösinger. Together with 300 pupils of all 3 school run by the NGO we were expecting about 600 people. As on every festivity and similar to the celebration of the start of construction, food for all the guests had to be arranged. Sweets and fruits were bought in advance and the cooks started preparing lunch for everybody already at 6 a.m. School children were preparing artistic program for weeks, rehearing songs, dances and poems that were about to be performed for the guests.

Students gathered during the ceremony

"Puja" - a religious ceremony. Pramod asks the gods for blessing before the scholl opening.

THE END

CONSTRUCTION IS FINISHED

The goal is acccomplished and school ready to open

Front view of the ready school

REVIEW

This section presents conclusions made after finishing the project in Basadhi and deductions made from personal experiences during work on the project. Thoughts on development cooperation and humanitarian help, as well as suggestions for the future project initiators with similar ambitions are also presented here.

Hammock in the common room offers
a place to relax and play

Summarizing the project, I can honestly say, it was successful. The project was accomplished and can be used by the organization to provide education to the children of the lowest caste of the village. The good result could be achieved, which stands out in the crowd of other schools in the neighbourhood. The desirable outcome provides appropriate conditions for the children, which get a safe and cosy atmosphere for their primary education. The difference between their previous learning environment and the built school is enormous. Students, who earlier had to learn outside, what was not possible in all weather conditions, or in a ruined house, which didn't provide space for everyone, can have now classes in human conditions, even in hot summers and rainy monsoon. Due to the use of natural materials they also can enjoy a healthy building.

To achieve this highly satisfying result, hard work, obstinacy, stamina and sometimes pure stubbornness was needed. Finding the highest possible quality, while simultaneously modifying the design to the technical and financial possibilities, but also adjusting the building to the environment and local conditions was the highest priority and led to satisfaction of future users. Ability of spontaneous decision making on site was essential for this design build project. In spite of all problems encountered, very nice details could be found, good carpentry outcome could be attained. I see it as a success that I managed to convince the project partners of partial usage of environmentally friendly materials. Lamps, walls and ceiling were made of clay and windows, doors were made of wood. Initial scepticism of Indian partners towards the traditional elements like old style doors characteristic for clay huts or 'khatiya' beds typically used in villages could be broken. I hope that due to such applications future users will notice that natural materials and traditional techniques can be useful and not only modern furniture from abroad, mostly made from plastic or ply, can be beautiful. In the end the long aspired outcome made the cooperative NGOs proud of the outcome.

Last but not least I could learn a lot. About myself, about building in a foreign country, about a country with a completely different culture. I increased my knowledge, gained experience and technical and social competences, which will help

Multifunctional common room

me during fulfilling the future architectural tasks, regardless if in humanitarian help or professional career. I learned that a full commitment is needed to achieve a goal and sacrifices have to be made.

Of course there are not only positives to mention. Kabhi khushi, kabhie gham is a typical saying in India. It means that life includes happy and sad days. Like this of course also in the project there were funny and happy moments but also uncomfortable incidents. The way to achieve the goal was not easy, like you can read in this paper. The social conditions described in this paper and technical possibilities or practical know-how had its influence on the conditions of the project and the result. I would get involved in a similar project again for sure. Nevertheless there would be things I would do differently. It would be to approach the subject in a different way. I would probably be less naïve and insist on clear delegation of tasks for every engaged party and professional consultants of crucial branches. I would not compromise on my beliefs just for the sake of realisation of the project and would know that it's the social conditions of region that determine the project

Ab mera kam katam hogaya - As I've said already in my speech during the opening ceremony, which means my work is finished now. I did all I could to provide a safe, healthy and playful environment for the students. I've spent a major part of the past three years working on the project and applied all my knowledge and stamina to design and finally build a building, which can accommodate a school to provide education for the children of Basadhi in proper conditions. The question remains, in what way I, as a designer and site manager, should engage in the further functioning of the school. Although I know that it's not subject of obligations of an architect, I can't hide, I feel responsible for the level of schooling. As an architect I have to become reconciled with the fact that my task has been led to the end and that I can hardly control or have any influence on it. Nevertheless I will stay interested in how the project develops. Since a lot of knowledge, effort and donators' money flew in the project, I can hope, the operators will try their best to provide an education on a desirable level for the children of Basadhi. I hope this effort will be appreciated and that the project will be used in a good way by both the Austrian and the Indian project partners.

Tutoring in the new school

Ralaxation corner in the common hall of the school

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Furnished classroom

FIGURES

Pictures, plans and graphics: Kaja Geratowska

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Stefan Leitner

pages:
1, 6, 12, 17, 25, 27, 31, 71, 83, 87, 89, 91, 93, 95, 96,99, 103, 145, 147, 169,197(2), 200(1,2), 201(2), 202(1,2), 203, 205, 206(1,2), 207, 209, 210, 215, 217, 219, 221, 226, 231, 232

Armin Mösinger

pages:
35, 75, 191, 195

Guislain Baudelet

pages:
64, 65

Sitting steps, slide and the future garden.