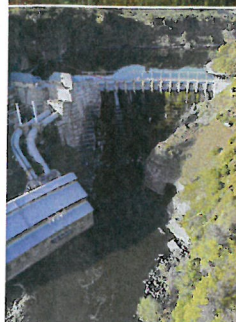


# INTERNATIONAL **WATER POWER** AND DAM CONSTRUCTION



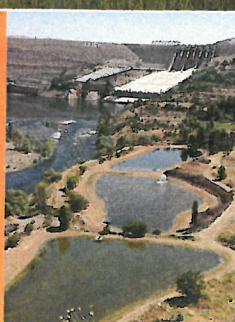
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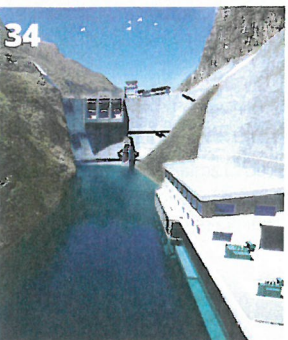
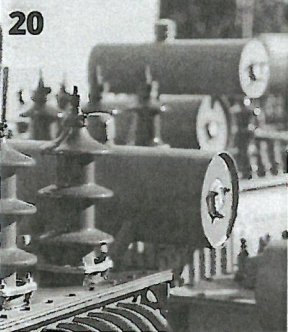
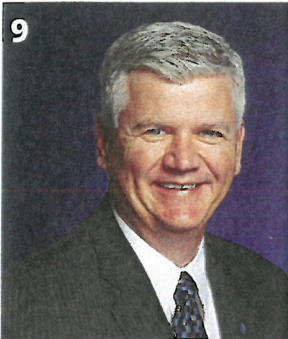
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# An unexpected journey to Nepal

**Florian Höllerhage** of Lahmeyer provides an insight into the interesting life of a civil engineer in the hydropower industry



Above: **Florian Höllerhage, Lahmeyer**

**IT'S JUST ANOTHER PERFECTLY** ordinary Monday in Lahmeyer/Tractebel's head office in Bad Vilbel. I glance at the clock and am glad that it's nearly time to go home. But then all of a sudden, my boss Mr. Failer is standing in the door.

'Mr. Höllerhage, have you ever been to Nepal?' he asks.

'No... why do you ask?' I respond curiously as he takes the seat in front of me.

'We are consulting on a hydroelectric project on the Seti River. The contract includes the design of a dam and an underground power station. Our team urgently needs support by another engineer to get the job done in time. I would like you to travel to Kathmandu on Wednesday.'

It takes me a moment to realise that he is actually talking about this Wednesday. In other words in two days. But the spirit of adventure has already grabbed me and I say yes. Nevertheless, I'm glad when it turns out that there are no seats available for Wednesday and my flight is scheduled for Thursday instead.

## Let me introduce myself

My name is Florian Höllerhage and I work in Lahmeyer's Hydropower & Water Resources Division. I have studied civil engineering and my job is to design structures related to hydropower and irrigation schemes and calculate the corresponding quantities. With Lahmeyer, I have the chance to work in multicultural teams for different projects across many countries. And to visit those countries, meet their

people and see great projects getting implemented.

## Marked by the earthquake

After a long night on the plane and a spectacular descent along the majestic Himalayas, I touch down in Kathmandu airport. I collect my luggage and prepare myself to push my way out of the airport and bargain with brash cab drivers to get a reasonable price for a taxi. I experienced situations like this on trips to Sierra Leone and Kenya. Instead, I find the Nepalese especially polite and reserved, and I am grateful for the peace of mind.

Leaving the airport, I find the congested roads and thick smog in stark contrast to the wild nature I had marvelled at from the sky. Signs of the 2015 earthquake that devastated the country, killing 9,000 people and injuring 22,000 more, are everywhere. Some facades show wide cracks, rubble and debris lie all around. Makeshift support structures are stabilising many of the older houses. There are also countless scaffolds, for the Nepalese people are working hard to repair the damages.

## In a time of its own

Arriving at the hotel, I check in and move into my room. It will be my home for the next four weeks. After sending messages to my family and friends to let them know I have arrived safe and sound, I set my watch to the local time. Curiously enough, I find that the time difference to Germany is four hours and forty-five minutes. The Nepalese actually attach considerable importance to not being in the same time zone as either India or China.

## Load shedding

There is much to be done and I soon get used to the new daily routine. Every morning starts off with the invariable English buffet breakfast of sausages, bacon, baked beans and scrambled eggs. This is followed by the drive to the office through the permanent congestion on the streets of Kathmandu. A 20 minute trip on good days or up to one and a half hours on bad days.

During the trip we listen to the news on the car radio, which always starts with the same refrain: 'Load shedding, load shedding, where is this country heading?' The implementation of Nepal's new constitution entails political friction with India. Important supplies of fuel are stuck at the border, leading to shortages in energy generation. As a consequence, the available electricity is passed around in Kathmandu's districts. Each district gets electricity twice a day for about two hours. This

Below: **Kathmandu in Nepal**



method of power distribution is referred to as load shedding. To be able to work continuously we run a diesel generator. Its constant humming accompanies us throughout every day.

I am thrilled to be part of Lahmeyer's engineering team planning a hydropower plant. With this project, we are supporting Nepal to tackle its energy shortage by utilising the country's renewable water resources.

## Tanahu Hydropower Project

We are consulting on the Tanahu Hydropower Project located on the Seti River between Kathmandu and Pokhara. The project comprises a 140m high concrete gravity dam to create a storage reservoir. Starting from the reservoir, a tunnel will shortcut the natural river bend at Damaule town to gain additional head for power generation. Two Francis type turbines housed in an underground power station will produce up to 140MW of energy. Lahmeyer prepares the tender design and documents and supports the Client Tanahu Hydro Limited during tendering. The project is financed by the Asian Development Bank (ADB) and Japan International Cooperation Agency (JICA). Once commissioned, the project shall reduce power shortage especially in winter, making use of the reservoir's storage capacity.

## Digging deep

I am assigned with the underground power station, the underground waterways and the access tunnels. Four young Nepalese engineers assist me. They are incredible hosts. Each day they teach me a new word of Nepalese. Soon 'namaste' (hello) and 'dhanyabad' (thank you) are part of my regular vocabulary. In return, I teach them some design principles and how to work with CAD software. They work out all drawings related to the waterways. It is part of my daily routine to answer their questions and review their progress. Just the fact that each two of them have to share one computer is slowing them down. And the power cuts, of course.

My focus is on the cavern housing the power station and the building for the gas insulated switchyard. It takes a lot of communication with our geologist, geotechnical, mechanical and electrical engineers to get all the details right. I gather all the information and incorporate them in my design. The procedure is iterative. I work my way several times through all floor plans of the powerhouse structure to make them consistent and meet all requirements.

## Lentils

It is a culinary journey too. After long days in the office we can choose from a rich range of restaurants for



dinner. I discover plenty of delicious treats, especially a variety of 'dal' (lentils) dishes. The most famous being Nepal's national dish 'dal bhat' (lentils with rice), which is always served with a delicious curry.

In the evenings my colleagues and I sit on my balcony sipping whiskies and discussing hydropower projects and life. We are never short on conversation.

## Leaving

After an intensive month it is with a tear in one eye and a smile in the other that I depart Nepal. A tear because my time here was so enjoyable and exciting, and it flew by so quickly. But with a smile also because I am looking forward to seeing my family and friends back home. Fortunately, working at Lahmeyer, I am likely to get the chance to visit this beautiful country again some time. With several ongoing projects, we are supporting Nepal in developing its huge hydro potential for irrigation and power generation. Hopefully putting an end to the dreaded load shedding refrain.

## Don't miss out

My advice for anybody travelling Nepal:

1. Learn some basic words in Nepalese. Showing respect for Nepal's ancient and unique culture will open many doors.
2. Embrace the local food and cuisine. There is so much delicious stuff to discover.
3. If your work load allows some days off, go hiking in the Himalayas. It is a marvellous experience. Or visit the game reserves in the low lands to see Asian rhinos, bears and, if you are lucky, even tigers. ●

**Above: Load shedding is a major issue in Nepal. Each district in Kathmandu gets electricity twice a day for about two hours, with the available electricity passed around the districts**

**Left: There are many signs of the 2015 earthquake which devastated the country**