Nepali Swiss Friendship Society Presents

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## CELEBRATING 60

## MILESTONE IN DIPLOMACY: 60 YEARS OF FRIENDSHIP

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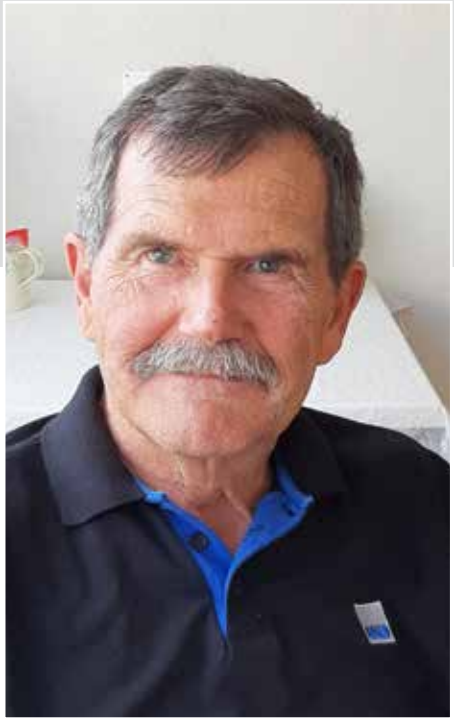
NSFS

# Senior Expert Corps ( SEC) assignments in Nepal



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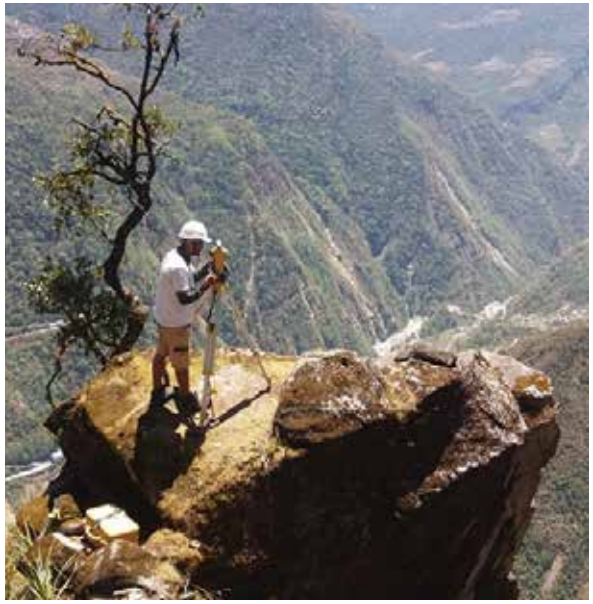
Since 2006 I had the opportunity to work 12 times for Swisscontact as a SEC expert in Nepal. During these assignments, I could pass on my experience as a civil engineer in the areas of earthquake engineering and cable car constructionto various small medium enterprises (SMEs).

First, I worked twice as a guest lecturer at the Khwopa Engineering College in Bhaktapur. I taught class of students in collaboration with teachers in seismic resistant design of buildings. A topic of the lectures was appropriate strengthening methods and retrofitting of existing buildings. In this context we have checked many schoolhouses and residential buildings and we have observed that many buildings in Bhaktapur are not Earthquake-Proof and will collapse in an earthquake. I realized that to prevent major damage with many victims during an earthquake an improvement of design for earthquake resistant buildings and a strengthening of existing buildings which are not earthquake proof is a very important task and challenge for Nepal.

In two more assignments in 2009 and 2010 I had the opportunity to work as a senior expert on two major construction sites in Kathmandu and Lalitpur. I examined the earthquake resistance of the Civil Trade Center in Kathmandu and the Cityscape buildings in Lalitpur which were under construction. Unfortunately, my recommendations for improving the earthquake resistance of these buildings were not taken into account. Thus, the earthquake of 2015 caused big structural damage that could have been prevented with relatively small actions during the construction. For the conceptual seismic design of the structural elements a close collaboration between architect and engineer from the earliest planning stage is necessary.

Another assignment in October 2017 was at the Pathibara Himalayan Institute (PHPI) in Itahari and the SSRP Team. The task was to provide guidelines



regarding earthquake resilient building construction techniques to teaching staffs of PHPI and provide training of building construction techniques to civil sub-overseer students. Another taskwas observation and technical coaching to masons trained by PHPI with the support of SSRP (Skills for Safe Reconstruction Project) in the Sindhuli district.

From 2012 until 2018 I worked in 6 SEC assignments for the company Ropeway & Cable car and in 2 assignments for Ropeway Nepal. For Ropeway Nepal I made in 2013 consultations for several ropeway projects and I supported the team in designing of a chairlift in Sanga. This project could not be carried out because the landowners refused to cross their land with a chairlift. In 2017, we designed a material ropeway for a hydraulic power station on the Liping Khola. The target of the assignment was to instruct the staff concerning Swiss technology to build a material ropeway. Activities during the assignment were surveying and design calculation of the material ropeway with a total length of 1400 m and a loading capacity of 3 tons. The material for the ropeway was delivered by a Swiss company. In a first step the towers were erected.

For Ropeway & Cablecar in 2012 I carried out consultancy for the construction of a cable car over the ModiKhola river at Kushma / Parbat. The company wanted to learn from the consultant new technology and the aim was to work together with European companies.

My activities during the two assignments in 2015 were assistance in the design of the Kalinchowk Cablecar in Dolakha. The goal was to build a tourist ropeway with a length of 900 meters up to the top of the Kalinchowk. The ropeway should be carried out according to Swiss standards and serve as an example for other projects. It should be used to transport pilgrims, tourists and material to the Kalinchowk.

The project study could be completed for a bi-cable to and fro system with two gondolas for 8 persons.We searched for suitable companies in Switzerland for the supply of ropes and suitable electromechanical components and in August 2015 the corporation Kalinchok Darshan Ltd. has signed a purchase agreement with BMF in Flums , Switzerland to deliver the equipment for the ropeway. Subsequently a contract was signed also with the company Tscharner to supply the electrical equipment. A two-lane cableway with

two eight-passenger gondolas and a transport capacity of 120 persons / hour was ordered. In order to increase the capacity, the client subsequently ordered the material for a second cable car of the same type.

At this time, I was busy with the control of construction drawings and coordination with the delivery companies from Switzerland. It was agreed that all drawings as well as steel construction works for the towersand stations were executed by Nepalese companies.

To the activities during the assignment in March 2017 belonged control of civil work and erection of the towers. At my assignment in May 2018 the saddles and roller batteries of the towers were installed and the mechanical equipment and the anchoring devices in the stations were set. In addition the ropes were pulled to the upper station. Due to the rainy weather the tensioning of the ropes and the installation of the gondolas had to be postponed but the most civil works for the stations and the erection of the towers were carried out.

In September 2018, the ropes were tensioned and mechanical and electrical devices in the down and upper station as well as the gondolas were installedand the first test drives with the auxiliary engine could be carried out. The subsequent final assembly by the electrician was difficult because different electrical parts were damaged during transport to the site. This led to cost overruns and a final examination of the electrical equipment could not be carried out. Now the cablecar is in operation but there are still some shortcomings to be solved.