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Stranded in the Sahara: Surviving a hot, dry climate

The Nubian Sandstone Aquifer System (NSAS) is the largest fossil water aquifer system on earth, containing over 150,000 km³ of non-renewable groundwater and spanning the entirety of Egypt, Eastern Libya, Northwestern Chad, and Northeastern Sudan. In these desert countries, the NSAS is an invaluable source, and in many places it is the only source of water for drinking and agriculture. Rising temperatures and changes in precipitation have added intense amounts of stress to the aquifer, and improper monitoring and managing may lead to total depletion ranging from anywhere between a century and 2,000 years. This has caused Egypt, Libya, Chad, and Sudan to make groundwater their biggest environmental priority, as hopes of furthering economic development hinge heavily on the future of the NSAS in order to meet growing population and agricultural demands.

In an effort to help the Libyan and Egyptian governments implement the policies needed to conserve the NSAS, our team traveled to several oasis towns across the desert, taking measurements of former drilling sites and educating local builders and developers on how sustainable building methods (like the timeless Egyptian method of mud-brick architecture) would put significantly less strain on the water supply. We set out in a jeep loaded with shovels, saws, picks, mesh wire, a portable GPS system, and three weeks' worth of food and water. We first visited the town of the Jaghbub Oasis in Libya. On our way to the Dakhla Oasis in central Egypt, disaster struck. The GPS ran out of battery, and we realized we left the charger behind in Jaghbub. We had no idea where we were; suddenly we were surrounded by infinite sand dunes. We eventually stopped to rest and tried to make sense of where we were. Caitlyn drove the jeep to the top of the tallest dune to find signs of civilization, while Emily, Eric, and Lauren tried to come up with a plan. At the top of the dune, Caitlyn caught sight of a tiny oasis not too far away! Getting over excited, Caitlyn turned to yell at us when the jeep toppled over

and went tumbling down to the bottom. Horrified, we ran over to the overturned jeep to find Caitlyn heavily concussed and with a fractured arm.

After setting her arm and monitoring her head, we emptied the jeep of our supplies and set out to the oasis to build a temporary shelter. We were incredibly lucky to find the oasis--after the accident we had no water supply, and having access to water and grasses enabled us to create mud bricks, which we needed in order to create durable walls that would also keep the scorching heat out of our building. The terrain around the oasis was much flatter and less sandy than the surrounding dunes, and there were even grasses that we used for the mud brick. We used palm fronds to create a simple and effective roof covering, and when our food supply ran out, we had to learn how to hunt the jackals and rodents that roamed the desert. Life in the Sahara was incredibly difficult, but we knew we would have to adapt to the harsh surroundings and utilize the local materials if we wanted to survive.

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