

**Himalayan Study Abroad Program: Urban Health & Environment**  
 Sustainable Development Action Lab (SDAL)  
 Nepal Study Center, University of New Mexico  
 Department of Economics

*in collaboration with*

**Lumbini Center for Sustainability (LCS), PNMF**  
**Siddharthanagar, Nepal**

2017 Winter Intersession [Econ 395/595], Department of Economics, UNM  
 Trip Duration on the Ground: 19 days (December 18, 2017 – January 5, 2018)  
 Trip Co-leaders: Dr. Alok K. Bohara (Professor) & Michael Benjamin Goodwin (Doctoral Student)  
 Local community-engaged *citizen science* project coordinator in Siddharthanagar: Mr. Prakash Rayamajhi (LCS, PNMF) and Local *Lumbini Circle Sustainable Hill Tour* advisor: Mr. Yubaraj Bhusal (Former Secretary, Government of Nepal)

Date	Location	Activities
ARRIVAL IN SIDDHARTHANAGAR (TWO DAYS)		
12/19/2017	Arrive in Kathmandu	Arrival times may vary Airport transfer needed  <b>Stay at hotel (Kathmandu)</b>
12/20/2017	Kathmandu	Kathmandu activity: <ul style="list-style-type: none"> <li>• Breakfast at hotel</li> <li>• City and Cultural tour (Hilltop Stupa, Durbar Square etc.)</li> <li>• Walk through Old town/bazaar/ Thamel, Asan</li> <li>• Lunch &amp; dinner at local restaurants in Thamel</li> </ul> <b>Stay in hotel (Kathmandu)</b>
12/21/2017	Travel from Kathmandu to Siddarthanagar (Bhairahawa)	Travel from KTM begins <ul style="list-style-type: none"> <li>• Breakfast at hotel in KTM</li> <li>• Travel via van</li> <li>• Stop for Manakamana cable car ride across Trishuli River (<i>cultural experience and scenic view</i>)</li> <li>• Lunch on Manakamana hill top</li> <li>• Dinner in Siddarthanagar (Bhairahawa)</li> </ul> <b>Stay in hotel (Siddarthanagar/Bhairahawa)</b>

CITIZEN SCIENCE LAB COMMUNITY ENGAGED PROJECT IN SIDDHARTHANAGAR (SEVEN DAYS)		
12/22/2017	Siddarthanagar (Bhairahawa)	<p style="text-align: center;"><u>Orientation &amp; Biodiversity Assessment</u></p> <ul style="list-style-type: none"> <li>• Orientation of Lumbini Center for Sustainability (<i>Location of Citizen Science Lab</i>)</li> <li>• Tour of research sites (upstream, midstream, downstream of Danda River)</li> </ul> <p><b>I. Biodiversity Assessment</b></p> <ul style="list-style-type: none"> <li>○ <u>Objective</u>: Assess the current ecological status of the Danda River riparian zone and surrounding areas. Working with the Municipality authority, identify potential locations for the development of a future wildlife refuge and the water testing sites.</li> <li>○ <u>Tasks</u>: <ul style="list-style-type: none"> <li>▪ Site visits and photographic documentation of Danda River riverbanks and surrounding areas</li> <li>▪ Conduct ecological assessment of current biodiversity status identifying critical habitat, threatened areas, and high diversity areas (plants, wildlife, urban waste channel)</li> <li>▪ Mark out possible locations of future wildlife refuge</li> </ul> </li> <li>○ <u>Guest Lecture</u></li> </ul>
12/23/2017	Siddarthanagar (Bhairahawa)	<p><b>II. Water Quality Monitoring</b></p> <ul style="list-style-type: none"> <li>• Meet with PNMHI college Eco-club &amp; LCS coordinator</li> <li>• Inspect/view LCS's Danda Ecological Monitoring (DEMP) Citizen Science Lab office</li> <li>• Inspect/view Danda River Bio-gallery wall</li> <li>• Discuss water quality protocols with Eco-club</li> </ul> <ul style="list-style-type: none"> <li>○ <u>Objective</u>: Initiate long-term water quality monitoring of the Danda River and surrounding channels. Following the curricular and citizen science protocol developed at UNM's Sustainable Action Lab, organize and train the local staff and eco-clubs.</li> <li>○ <u>Tasks</u>: <ul style="list-style-type: none"> <li>▪ Identify Danda River testing sites</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>▪ Install and set-up necessary equipment</li> <li>▪ Train local PNMHI and other eco-clubs on water quality testing</li> <li>▪ Initiate long-term water quality testing, including <u>trial runs</u></li> <li>▪ Test for industrial wastes along tributary channels</li> </ul> <ul style="list-style-type: none"> <li>○ <u>Guest Lecture</u></li> </ul>
12/24/2017	Siddharthanagar (Bhairahawa)	<p><b>III. Air Quality</b></p> <ul style="list-style-type: none"> <li>○ <u>Objective:</u> Implement an air monitoring system (indoor &amp; outdoor) to assess the air quality (PM2.5) dynamics in the study area.</li> <li>○ <u>Tasks:</u> <ul style="list-style-type: none"> <li>▪ Set up a Laser Egg air quality monitoring system in study areas <ul style="list-style-type: none"> <li>• 1 location at LCS (indoor) as a trial run</li> <li>• 1 location in Hill School (Aglung, Gulmi District; Science teacher from Aglung school will come to Siddharthanagar in December for training and to pick up the kit)</li> </ul> </li> <li>▪ Establish connectivity (via wifi at LCS) of Laser Egg monitors to down load data on LCS laptop computer and at NSC-UNM's server (if possible)</li> <li>▪ Display pollution data dissemination platform using a webpage</li> <li>▪ Tour through city to identify pollution sources (e.g., brick factories)</li> </ul> </li> </ul>
12/25/2017	Siddharthanagar (Bhairahawa)	<p><b>IV. Climate Monitoring (5x1 weather station)</b></p> <ul style="list-style-type: none"> <li>○ <u>Objective:</u> Monitor the weather patterns and dynamics of the study area to understand the regional climate.</li> <li>○ <u>Tasks:</u> <ul style="list-style-type: none"> <li>▪ Set up 5x1 weather station in study areas <ul style="list-style-type: none"> <li>• 1 location at LCS (outdoor) as a trial run</li> <li>• 1 location in Hill School (Aglung, Gulmi District; Science teacher from Aglung school will come to Siddharthanagar in December for training and to pick up the 5x1 weather station kit)</li> </ul> </li> <li>▪ Establish connectivity (via wifi) of 5x1 weather station monitor to data dissemination platform (at LCS laptop server and NSC's server at UNM, is possible)</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ Guest Lecture</li> </ul>
12/26/2017	Siddharthanagar (Bhairahawa)	<p style="text-align: center;"><u>Lumbini Cultural Tour</u></p> <ul style="list-style-type: none"> <li>• Visit Lumbini cultural sites (18 KM west from Siddharthanagar)</li> <li>• Jagdishpur lake bird sanctuary in Kapilvastu near Lumbini (if time permits)</li> <li>• Come back to Siddharthanagar and visit ostrich farm</li> </ul>
12/27/2017	Siddharthanagar (Bhairahawa)	<p style="text-align: center;"><u>Urban Waste Management Event</u></p> <ul style="list-style-type: none"> <li>• Vermicomposting pilot plant on the PNMHI campus premise</li> <li>• Organic garden site inspection &amp; preparation</li> <li>• Interaction with local community about the waste management</li> <li>• Inspect site for <u>waste water treatment pilot plant</u> (urban run-off channel, west of PNMHI campus premise)</li> </ul>
12/28/2017	Siddharthanagar (Bhairahawa)	<p style="text-align: center;"><u>Danda River Festival</u></p> <ul style="list-style-type: none"> <li>• Event held to interact with the community and celebrate the Danda River</li> <li>• Raise awareness of the current state of the Danda River</li> <li>• Showcase work that has been done and future plans</li> </ul> <p style="text-align: center;"><b>***Prepare for Hill Tour***</b></p>
<b>LUMBINI CIRCLE SUSTAINABILITY HILL TOUR (SEVEN DAYS)</b>		
12/29/2017	Travel to Kapilvastu and drive up the hill towards Sandhikharka Valley Town	<p>On the way to Sandhikharka Valley,</p> <ul style="list-style-type: none"> <li>• Visit famous Supa Deurali temple on the way</li> <li>• Hilly farms, villages</li> </ul> <p>Arrive in Sandikharka</p> <ul style="list-style-type: none"> <li>• Visit hilltop small Old Kingdom Palace &amp;</li> <li>• Visit nearby Dalit Community and see their rain harvesting effort / project activity (in the evening or morning)</li> <li>• Hilltop <i>cricket field</i>; yes interesting, &amp; of all places.</li> </ul>

		<b>Stay in Sandhikharka Town</b>
12/30/2017	Travel to Madhane	On the way to Madhane <ul style="list-style-type: none"> <li>• Visit Tailoring community at Purkot</li> <li>• Visit homes to see smokeless stoves project</li> <li>• Lunch (before Madhane or at Madhane)</li> </ul> <b>Stay at Madhane Clinic (guest rooms and/or camp)</b>
12/31/2017	Head to Shree Aurobindo Ashram in the morning	<ul style="list-style-type: none"> <li>• Visit Shree Aurobindo Ashram</li> <li>• Thulachour hiking to observe panoramic view</li> </ul> <b>Stay at Shree Aurobindo Ashram</b> <p><b>NOTE: Madhane and Aurobindo Ashram are with an hour of driving distance, so the sleeping arrangements and the nature hike have to be accommodated with some flexibility (e.g., which hilltop and from where, and when).</b></p>
1/1/2018	Head to Tamghas Valley	One the way visit (as time permits) <ul style="list-style-type: none"> <li>• Simaltari bazaar</li> <li>• Vichitragupha (mystifying cave)</li> <li>• Arrive in Tamghas and interact with campus students in the afternoon</li> </ul> <b>Stay in Tamghas</b>
1/2/2018	Head to Tansen Hilly Town	Before heading to Tansen in the morning, <ul style="list-style-type: none"> <li>• Resunga mountain hike and panoramic viewing in Tamghas (in the morning)</li> <li>• On the way to Tansen, visit Kali Gandaki River Canyon (Ridi Town)</li> <li>• Drive up to Tansen Hill town (if time permits, visit Rani Palace by Gandaki River)</li> </ul> <b>Stay in Tansen</b>
1/3/2018	Head to Chitwan National Park (CNP)	On the way to Chitwan, <ul style="list-style-type: none"> <li>• Visit Butwal Town en route</li> <li>• Devchuli Temple Complex: Hindu Mythology (right before CNP, a few KM north of the highway)</li> <li>• Arrive in CNP; Evening walk/trek/museum</li> </ul> <b>Stay in Chitwan</b>
1/4/18	Activity in Chitwan National Park	<ul style="list-style-type: none"> <li>• Elephant ride into Park</li> <li>• Tharu cultural program</li> </ul> <b>Stay in Chitwan</b>
RETURN TO KATHMANDU		

1/5/18	Travel from Chitwan to Kathmandu	<b>Stay overnight in Kathmandu</b>
1/6/18	End of trip	Transfer to airport or students may continue on their own  ***Official End of Trip***