

## Completed Example Survey



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## General



<p><b>Solution brief description</b></p>	<p>Please provide a brief description of the key characteristics of the solution, including problems/vulnerabilities addressed, purpose and function.</p> <p>Under the Indian Himalayas Adaptation Programme (IHCAP), a training and capacity building programme focusing on Glaciology for young scientists was designed and implemented. IHCAP was a joint initiative between SDC and the Department of Science and Technology (DST) of the Government of India. The training programme was jointly developed by Swiss and Indian experts, and was implemented at Jawaharlal Nehru University. The training was conducted by both the Indian and the Swiss faculty with an aim of enhancing the scientific capacity of young Indian researchers to monitor glaciers and assess the impacts of climate change on the cryosphere in downstream regions. The programme specifically aimed to address the gap in knowledge on the Himalayan cryosphere as a basis for improving adaptation planning in relation to hazards and water management. Rigorous classroom exercises conducted by experts from India and Switzerland and a field visit to a glacier in the Indian Himalayan Region exposed them to different aspects of research. The results of the training programme have been encouraging. We succeeded in instilling confidence, enthusiasm and technical skills among participants to continue research on their own in different universities and institutions. The programme also helped many gain employment in prestigious organizations.</p>
<p><b>Solution picture/video</b></p>	<p>Please provide a picture or video or link, acknowledging the source.</p> <p><a href="http://glaciology.in/wp-content/uploads/2017/06/IHCAP-II-bro.pdf">http://glaciology.in/wp-content/uploads/2017/06/IHCAP-II-bro.pdf</a></p> <p>if you have a video relating to the solution please share it below</p>

## Location



<p><b>Solution location</b></p>	<p>Solution location:</p> <p><b>India</b></p> <p>Was the solution implemented in more than one country?</p> <p><b>No</b></p> <p>Was the solution implemented in multiple locations in the same country?</p> <p><b>Yes</b></p> <p>Mountain range:</p> <p><b>Himalaya</b></p> <p>Region/province (if applicable):</p> <p><b>N/A</b></p> <p>Municipality or name of main location (if applicable):</p> <p><b>Field training at Chhota Shigri Glacier</b></p> <p>Central Latitude:</p> <p><b>32.19</b></p> <p>Central Longitude:</p> <p><b>77.645</b></p>
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## Scale



<p><b>Solution scale</b></p>	<p>Local, sub-national/regional, national, trans-boundary, global</p> <p><b>National</b></p> <p>If solution is spread over an area, please specify area covered in km<sup>2</sup> (1ha=10000 m<sup>2</sup>; 1km<sup>2</sup>=100ha)</p> <p><b>N/A</b></p>
<p><b>Mountain ecosystem type(s)</b></p>	<p>Lakes and rivers, desert, grassland, urban, agricultural land, forest, high alpine, meadows, peatland, other (specify)</p> <p><b>High Alpine</b></p>
<p><b>Solution type(s)</b></p>	<p>Policy, finance, engineering, monitoring, technological development, research, education and awareness, land use practice, other (specify)</p> <p><b>Research; education and awareness</b></p>

## Sectors



<b>Sectors</b>	<p>Natural hazards, ecosystems biodiversity, human health and wellbeing, water, forestry, tourism and consumption, plans and policy, agriculture, basic infrastructure, transport and energy, other (specify)</p> <p><b>Natural hazards; water</b></p>
<b>Climate impact(s) addressed</b>	<p>Flood, landslides, drought, heat stress, altered growing seasons, wildfire, other (specify)</p> <p><b>Flood, landslide, drought, discharge seasonality</b></p>
<b>Climate impact time-scale(s)</b>	<p>Slow onset, rapid onset, both</p> <p><b>both</b></p>

## Benefit



<p><b>Main benefit associated with the solution implementation</b></p>	<p>Climate risk reduction (e.g. reduced risk from floods), social benefits (e.g. poverty reduction, inclusiveness and equity, health and well-being), technical benefits (e.g. innovative use of geographic information systems), economic benefits (e.g. job creation, tourism), environmental benefits (e.g. biodiversity preservation, water security, food security), political benefits (e.g. reduced displacement/migration), other (specify)</p> <p><b>Climate risk reduction</b></p>
<p><b>Co-benefits(s) associated with the solution implementation</b></p>	<p>Climate risk reduction (e.g. reduced risk from floods), social benefits (e.g. poverty reduction, inclusiveness and equity, health and well-being), technical benefits (e.g. innovative use of geographic information systems), economic benefits (e.g. job creation, tourism), environmental benefits (e.g. biodiversity preservation, water security, food security), political benefits (e.g. reduced displacement/migration), other (specify)</p> <p><b>Environmental benefits</b></p>
<p><b>Main beneficiaries, availability and outcomes</b></p>	<p>Who are the main beneficiaries of the solution? Is the solution widely available (vs. accessible only to certain groups or organisations)? Were there differential outcomes for elderly, women, men, youth, poorer communities, indigenous people etc? If yes, please describe.</p> <p><b>Young students (masters – PhD level) were the main direct beneficiaries. Indirect beneficiaries will be the institutions in which these young scientists will serve in the future. As a result of the programme, 51 researchers from India were trained (40% of these were women). The researchers were selected following an open call for nominations to all research institutions. Following the conclusion of the Programme, the teaching material provided by the faculty members was compiled to enable access and dissemination as curriculum material for institutions across other Himalayan countries.</b></p>

## Planning



<p><b>Planning and implementation</b></p>	<p>Which was the main organisation in charge of planning and implementation? Can you briefly describe the process (i.e. list of activities) that lead to implementation? What role did stakeholders and their involvement play?</p> <p>The programme was organized under the National Mission for Sustaining the Himalayan Ecosystem (NMSHE) at the Jawaharlal Nehru University (JNU) as part of technical and knowledge support under the Indian Himalayas Climate Adaptation Programme (IHCAP), a project of SDC. The conceptual development of the training programme was undertaken between SDC and the Department of Science and Technology (DST). Development and implementation of the training content was contracted out to Swiss and Indian faculty. To the best of my knowledge there was no broader survey or stakeholder engagement to identify the needs of the programme, and it was rather a top-down design.</p> <p>{Please upload any relevant supporting documents – assessments, reports, method descriptions etc}</p>
<p><b>Timing for solution implementation</b></p>	<p>When implementation started (year)</p> <p>2013</p> <p>When implementation ended or the project leading to the solution is due to close (year)</p> <p>2016</p> <p>If precise years are not known, please indicate approximate date when the solution was initiated: Less than ten years ago, 10-20 years ago, more than 20 years ago</p>

<p><b>Finance</b></p>	<p>Who financed the project? How was the financing provided (e.g. loans, credit, grants, subsidies)? What is the total cost (USD) of the solution? Has a cost benefit analysis been conducted? If yes, what indicators were used? Did the private sector play a role? If only partial cost information is available, please specify what activity the costs refer to (e.g. labour, equipment, construction material etc).</p> <p>Financing came from SDC as bilateral funding grant (government of Switzerland) and DST (Government of India). Total cost of the training programme was USD 3.5 million. There has been no cost benefit analysis undertaken.</p> <p>{Please upload any relevant supporting documents – assessments, reports, method descriptions etc}</p>
<p><b>Innovation</b></p>	<p>What was the key innovative aspect of the solution, particularly with respect to CCA in mountain?</p> <p>The training programme intended to train the first generation of young scientists who would/will go on to be employed in Indias first dedicated centre for Himalayan glaciology. The programme also had a heavy emphasis on training in the field of remote sensing and geographic information systems.</p> <p>{Please upload any relevant supporting documents – technical reports, design specifications, method descriptions etc}</p>

## Goals



<p><b>Sendai Framework targets addressed</b></p>	<p>TARGET 1 Substantially reduce global disaster mortality;          TARGET 2 Substantially reduce the number of affected people;          TARGET 3 Reduce direct disaster economic loss in relation to global gross domestic product;          TARGET 4 Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities;          TARGET 5 Substantially increase the number of countries with national and local disaster risk reduction strategies;          TARGET 6 Substantially enhance international cooperation to developing countries;          TARGET 7 Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people.          NONE</p> <p><b>Target 6 – indirectly addressing most others.</b></p>
<p><b>Sustainable Development Goals addressed (1 – 17)</b></p>	<p>GOAL 1: No Poverty;          GOAL 2: Zero Hunger;          GOAL 3: Good Health and Well-being;          GOAL 4: Quality Education;          GOAL 5: Gender Equality;          GOAL 6: Clean Water and Sanitation;          GOAL 7: Affordable and Clean Energy;          GOAL 8: Decent Work and Economic Growth;          GOAL 9: Industry, Innovation and Infrastructure;          GOAL 10: Reduced Inequality;          GOAL 11: Sustainable Cities and Communities;          GOAL 12: Responsible Consumption and Production;          GOAL 13: Climate Action;          GOAL 14: Life Below Water;          GOAL 15: Life on Land;          GOAL 16: Peace and Justice Strong Institutions;          GOAL 17: Partnerships to achieve the Goal          NONE</p> <p><b>GOAL 4, 5, 6, 13</b></p>

<p><b>Performance evaluation</b></p>	<p>Has a performance/impact evaluation been conducted? By whom? When? What are the key criteria taken into account? Were indicators measured with field data?</p> <p>A survey of the training programme participants was undertaken in 2016 to assess the impact on their knowledge and careers. The survey was rather qualitative and lacked indicators/criteria. Several participants identified that the training had enabled them to go on to further education in Europe or elsewhere, hence increasing the level of highly trained climate scientists that will potentially return to work in Indian institutions. Further results from the survey showed....</p>
<p><b>Long term project sustainability and maintenance</b></p>	<p>What maintenance activities are in place (if any)? How long are these in place for? Has an environmental monitoring assessment been conducted? Who will take long-term ownership/costs of the solution maintenance (e.g., government, organisation, community etc.)?</p> <p>Following the completion of the training programme, several Indian Himalayan universities were supported during 2016 to try to integrate the training material within their teaching curriculum (limited success). Beyond this, there has been no further direct financial or technical support. All training material is publically available online, under joint ownership of SDC and DST. Planning is still ongoing to establish a national centre on Himalayan Glaciology funded by the Department of Science and Technology, that would, if realised, build on the training initiated under this programme.</p>

## Capacities



<p><b>Knowledge capacities</b></p>	<p>What role did available (scientific and indigenous) knowledge play in the design and implementation of the solution? Was research part of the solution? What experience and technical support has been made available to the community benefiting from the solution?</p> <p>Entire solution was based on sharing of scientific knowledge. Local and international experts with this knowledge were recruited for the design and implementation. The training material has been made publically available. While there was not a research component to the solution, the solution generates skills and knowledge that will facilitate research in the future.</p>
	<p>[On a 1(min) to 5 (max) Likert scale] How would you evaluate the importance of knowledge capacities in enabling this solution?</p> <p>5</p>
<p><b>Technology capacities</b></p>	<p>What role did available technologies (e.g. geographic information systems) play in the design and implementation of the solution?</p> <p>Remote sensing and geographical information systems were a core component of the training. The training activities required reliable internet access and a moderate level of computing facilities.</p>
	<p>[On a 1(min) to 5 (max) Likert scale] How would you evaluate the importance of technology in enabling this solution?</p> <p>3</p>

<p><b>Political/legal capacities</b></p>	<p>What role did available policies, strategies, laws play in the design and implementation of the solution? Has there been a clear mandate to implement the solution? To what extent did motivation (e.g. of some authorities-politicians) contribute to implementation?</p> <p>Solution was implemented under the National Mission for Sustaining the Himalayan Ecosystem (NMSHE), and bilateral agreements with the Government of Switzerland. The programme was strongly supported by the Adviser and Head, Climate Change Programme, SPLICE, Department of Science and Technology (DST), Govt. of India. Switzerland is also highly motivated to see mountain expertise from Switzerland transferred to other mountain regions.</p>
	<p>[On a 1(min) to 5 (max) Likert scale] How would you evaluate the importance of political motivation in enabling this solution?</p> <p>4</p>
<p><b>Institutional capacities</b></p>	<p>What role did the collaboration between project and local partners play? What coordination mechanisms (e.g. of government ministries) have been put in place? If so, which ones? How did the coordination work?</p> <p>It was important that the programme was led by DST as this establishes the highest credibility and automatically engages local scientists and institutions. The programme would not have been possible without the endorsement, leadership and support of DST. A joint Indo-Swiss faculty was established to develop and implement the programme material, with joint leads. The course was developed through face-to-face and virtual meetings. Jawaharlal Nehru University was assigned as the host of the training.</p>
	<p>[On a 1(min) to 5 (max) Likert scale] How would you evaluate the importance of institutional capacities in enabling this solution?</p> <p>3</p>

<p><b>Socio-cultural capacities</b></p>	<p>What role did the social context play (e.g. NGOs, advocacy coalitions)? Was a stakeholder analysis performed? Were there any opponents to the solution? To what extent were local communities engaged in co-development and/or implementation of the solution?</p> <p>There was limited consideration of the social context or broader stakeholder engagement.</p>
	<p>[On a 1(min) to 5 (max) Likert scale] How would you evaluate the importance of socio-cultural capacities in enabling this solution?</p> <p>1</p>

## In-depth



<p><b>Barriers and adverse effects</b></p>	<p>What barriers have you experienced? Were they successfully overcome? If yes, how? Does the solution have any known or expected side/adverse effects (e.g. on ecosystem, on equity in risk distribution) now and in the future?</p> <p>The main challenge came in 2016 when efforts focussed on mainstreaming the training material into local university curriculums. We underestimated how complex it is to adjust curriculums in India (huge bureaucracy), and the time needed to do this. Therefore this mainstreaming step was never really successful or completed. There are no known adverse effects of the programme.</p>
<p><b>Transformation and future outlook</b></p>	<p>How did the solution cause or support fundamental change in CCA in the mountain region? How will the solution cope with climate related changes (e.g. extreme events, gradual climate change, climatological disasters) in view of achieving its main purpose?</p> <p>The building of knowledge and awareness is a cornerstone of transformational change. In this regard, the training of young scientists that has occurred, and the establishment of a core group of young experts on Himalayan glaciology should be seen as contributing towards transformation in the region. The programme material will need to be updated in the future to account for new climate challenges and learnings in relation to Himalayan glaciology.</p>
<p><b>Potential for upscaling and replication</b></p>	<p>Based on your learnings, is upscaling of this solution desirable? What is required for upscaling this solution to a wider scale? Is the solution included in a CCA plan or strategy (e.g. National Adaptation Plan)? Has it been replicated, e.g. using large scale financing (e.g. World Bank)?</p> <p>Mainstreaming of the Himalayan glaciology programme is yet to be achieved. Upscaling and replication should be seen as long-term process, and for this to occur, there needs to be considerable effort into tailoring the material to local needs which will vary across the Indian Himalayan states. If repeating or upscaling to other regions, it is recommend to start first with a process of stakeholder engagement to establish what are the local training and education needs.</p>

## Finally



	<p>Would you like to join the “CCA in mountains” theme on the weADAPT platform?</p> <p><b>Yes</b></p>
	<p>Is there anything you would like to add with respect to CCA in mountains?</p> <p><b>No thanks.</b></p>

Key references/links with further details on the solution (if available):

Contacts of key local institutional partners involved with the solution planning and implementation: **Himachal Pradesh State Council; G.B. Pant National Institute of Himalayan Environment**

Acknowledgments (if pertinent):

## Complete

# Adaptation At Altitude Survey



Thank you for contributing! We'll be in touch shortly.

Send your questions or feedback about the survey to: [Anna.Scolobig@unige.ch](mailto:Anna.Scolobig@unige.ch)

Send your feedback about the weADAPT platform to: [julia.barrott@sei.org](mailto:julia.barrott@sei.org)