

The Glacier Trust

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Charity registered in England Number 1124955

Patrons: Sir Chris Bonington, CVO, CBE, DL. Prof Doug Benn.

It has been a wonderful year for The Trust. This is a letter to thank you all who have supported us whether financially, academically or through other efforts.

In view of the demand for our village level climate change adaptation programmes both in Solu Khumbu and Nawalparasi, we launched an appeal to our supporters in the spring of 2013. This has been our most successful appeal ever and we are profoundly grateful to our supporters for sharing our vision as a niche organisation to bring climate change adaptation programmes to Nepal's remote mountain communities. As a result, we are now able to respond positively to requests for three if not four programmes, some of which will run for two years or more.

One exciting project will be setting up an Animal and Agricultural Resource Centre in the village of Deusa, Solu Khumbu. This has been in planning for some time and will not only have an impact on the local community's farming and land management, but will provide a school which is accessible from three neighbouring districts. Students (12 – 18 years old) and adults will come to learn sustainable farming practices during a three month residential course. They will also learn use of computers and how to price the farm produce they have for sale. Part of the deal is that they undertake to pass on what they have learnt to their communities and to neighbouring communities. (Nepalis are good at doing this.) We anticipate that the centre will become self-sustaining within three years.

Another project will teach green methods of pest control. With increasing temperatures, crop yields are being reduced or lost by pest infestations which seem to be moving upslope every year. Two other projects are in the pipeline and we hope to announce them in the spring.

The academic side of the Trust's work has proved much harder to develop than I anticipated and has taken up a great deal of time. Despite this, three fieldwork scholarships were awarded to Tribhuvan University students at the Kirtipur campus in Kathmandu. They are researching different impacts of climate change on water supplies and livestock. We were able to provide some on-the-ground academic support for one of these students who was researching in Mustang, one of the driest areas in the country. At Tribhuvan University Rampur campus there have been considerable political difficulties, which made progress for the students problematic and which may make a continuing relationship with this campus difficult. (At one stage they were without electricity for three months.) Despite this, we managed to organise additional help for our students there via a PhD from the John Innes Centre Plant Biology.

Nepal is dependent on the Himalayas for most of its tourist revenue and a sizeable proportion of its landmass is frozen. Despite this, the sciences of glaciology, periglaciology and permafrost are almost totally absent from the country's universities' curricula. While big international agencies rightly concern themselves with the macro scale problems of melting glaciers and potential glacier lake outburst floods, the equally important study of how climate change will affect periglacial processes in the upland ecology is entirely neglected. This region is of high ecological and economic importance. It has been difficult to attract students to the subject, because universities cannot provide supervision and students are unwilling to risk their higher education qualifications if supervision is not available. However with the help of Dr

Craig Hutton of Southampton and Dr. David Burslem of Aberdeen University we felt able to publish a prospectus (or ‘scoping’) to fund PhD studies the subject. With the enthusiastic support of Dr. Moti Rijal of Tribhuvan University, we have now been able to provide fieldwork scholarships for three Masters students to study in the areas below Everest Base Camp so that we can now, at last, start the ball rolling on this neglected but enormously important area of study.

At the instigation of one of our trustees, Dr Jürg Merz, we provided scholarships for two Kathmandu University students to study the effects of climate change on the Ngozumba glacier (one of Nepal’s largest) and the periglacial areas surrounding its neighbouring Gokyo lakes. This glacier’s spectacular melting is creating deep ponds on the surface which are coalescing at an alarming rate and it is likely that this whole glacier will become Nepal’s largest glacier lake. Part of the students’ project is to understand the melt dynamics and predict where outflows will emerge from the glacier’s moraines in future. Thus their study will contribute to determining the future safety of the glacier lake as it forms. The melt water is the source of the Dudh Koshi, one of Nepal’s major rivers. This is an area of considerable beauty, earning good revenues from tourism. The students made a provisional visit there in October 2012 and I supervised their further research there in May 2013. Like many South Asian students they were very well informed. But getting them to question assumptions and use their data intelligently proved a considerable challenge – one to which they ultimately rose. Unfortunately the early arrival of the monsoon (snowfall at this altitude) meant that flying back from Lukla was not an option. We had an eight day trek home, the last two days of which were the worst, spent in a so-called jeep without any tread on the tyres. On one occasion this made going uphill impossible, leaving us by the roadside for the night. Negotiating highly precipitous, muddy, hairpin bends will be difficult to forget.

I am thrilled that Prof Doug Benn has agreed to be a patron. He is one of the world’s foremost glaciologists and his patronage will give impact to our efforts to promote periglacial studies in Nepal.

The first four chapters of a free e-book, *Climate Change and Development in the Mountains of Nepal* was published on our website in July 2012 with over 550 viewings within the first couple of weeks of its publication. Such is the basic lack of information surrounding the whole topic of climate change in the Himalayas that I felt it necessary to try put together a text on the subject for Nepali University students. For example, while the monsoon is crucial to the survival of the whole subcontinent, there is actually very little by way of modern published texts to explain its workings and why it enters Nepal from the South East, when it crosses into India from the South West. The text is derived from a survey of over 200 academic papers and other texts and tries to explain why climate change has such a diverse range of effects in Nepal. I *hope* to complete the book by the end of next year.

I have given a lecture, *The melting Himalayas – Consequences for Livelihood*, at Southampton, Bristol, Aberdeen and Aberystwyth Universities. This is to try and encourage second and third year UK university students to come to Nepal after they graduate to ‘twin’ our Nepali scholarship candidates. The lecture has also been delivered in a slightly less academic form to the Alpine Club and the Britain-Nepal Society.

We now face the challenge of how to expand our work. At the moment we can reach a maximum of 15,000 people a year, but we have the potential to reach two or three times that number. To do this we need to take on our first paid member of staff and are in the process of making applications for core funding to enable us to do this (fingers crossed). We also need to strengthen the scientific quality of the programmes we support, so that the organisations we work with can be better informed.

Your support has put us in this enviable position. I just wish you could see the difference you are making.

Robin Garton

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