

Melting glaciers, sheer slopes, flash floods and permaculture

A PDC for people living on the top of the world

Rowe Morrow. December, 2016



Acknowledgements

“A generous heart, kind speech and a life of service and compassion are the things that renew humanity.” Buddha

It all began a few years back when I taught a permaculture teacher training course in Hong Kong just prior to the SE Asian permaculture convergence. Some years later, Doctor Y.R. Chiu who had been a student on the course, wrote to me and courteously requested me to teach this course primarily for the Tibetan Buddhist diaspora from Tibet to India, Bhutan, Ladakh and there were two additional students from Taiwan.

He recommended me to INRAA, a remarkable organisation which began when two Taiwanese women decided to put the profits from their business toward environmental education and culture into nations spread across the top of the world. They seek no outside funding. Today they have projects in Buddhist societies, through China, Nepal, northern India, Sikkim, Ladakh and Bhutan. **See appendix I**

Human generosity and kindness is breathtaking. This Permaculture Design Course (PDC) was initiated and supported by a small group of concerned women in Taiwan. They devote their time and money to the dispersed people of Tibet and others living in the high Himalayas. These generous and dedicated women of the International Nature Restoration Action Association (INRAA), Jessi, Chang Feng-Chu, and Dolma, Lin Ruei-chu, are committed to these landscapes and the people who live in these harsh and beautiful lands. They are beautifully supported by Dr YR Chiu, Angeline, Hsiang Yi and Yen Chia cheng.

The monks at the Songtsen Library, the centre for high Himalayan Tibetan texts, were overwhelmingly courteous and supportive in every possible way to make the course a success.



At the heart of the life of the library are regular rituals

The students from Bhutan, Ladakh, Taiwan and Dehradun monastery and Tibetan High School were wonderfully funny, completely co-operative and a delight to work with.

Such richness of giving at every level provokes communal gratitude and a sense that we are all connected to work for peace and a restored environment on the rooftops of the world.

Any errors and misrepresentations in this report are completely mine.

Thank you all so much
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Social and environmental challenges

What happens in the Himalayas affects everything at lower altitudes all the way to the Indian Ocean and impacts on rivers, plains, deltas, cities, aquifers and four of the world's most populous countries. Like so much of the Americas, and the Middle East, much of the food is grown from snowmelt.

So if the snow melts too fast, or if there isn't much snow, the results are catastrophic thousands of kilometres away and over millions of hectares. The high mountains of Bhutan, Tibet, Nepal, India, China, and districts such as Ladakh and Sikkim all feed the rivers and plains below them.

With the exception of Bhutan, the scenario is one of non-sustainability. Imagine bare mountains, overgrazed and deforested valleys, polluted rivers and congested cities. Trees are major elements in holding snow on land so it can melt slowly. Both the branches and the shade stop snow subliming, and enable water to move slowly downhill without flooding.

The non-sustainability of the region addressed in this document is by no means the fault of the people living here. They are simply responding to a world of industrialisation and capitalism which reaches its tentacles into all their lives. Their abilities to sustain themselves and their landscapes have been eroded by land grabs, national politics, in some cases, wars, and media often portraying them as poor or uneducated and ignoring the knowledge and intelligence that has enabled them to survive for many centuries. And in most cases, they are not being offered solutions that to enable them to undertake remedial work, and restore their dignity.

By working with education and the environment and through the Buddhist network, INRAA aims to impact positively on regeneration and regrowth to slow and buffer climate change, offering some positive outcomes to the people on the top of the world.

The vision and size of the task is breath taking. And it was against this background that I went to India, to Dehradun.

The venue: its impact on learning

About 45 minutes from the airport and close to Dehradun is the Himalayan Songtsen Library for Tibetan Buddhist studies where His Holiness of the Gayu lineage lives on the site. It comprises about a hectare of land with ornamental gardens and subsidiary buildings. Apart from the library, which is a copy of one formerly existing in Tibet, and which the Chinese destroyed, there are guest rooms, large dining room, staff quarters and surrounding walks.

A group of monks cares for all the library functions and the kitchen/dining room for visitors.

The quality of the venue can support or detract from learning, and permaculture has some particular requirements because we learn within the ethics of Care of Earth and Care of People.

It was a most comfortable venue, with a sense of scholarship taking place behind our course. And we all lived on site which is very helpful for working at night and easy conversations.



The course was first offered in the conference room; a large cavern with a formal, long oval table under strip lighting and we quickly abandoned it for a corner with a white board and circle of chairs, and then, we went outside.



I've never seen the point of teaching about the environment inside under artificial light.

If there were to be further permaculture courses held there it would be desirable for



the library to commit to an a semi-outdoor classroom and for a permaculture design as it is such a central focal point for many many visitors and monks. It would be advantageous to have a design in progress and experimental areas to visit for learning and work on.

The students and course content



The participants comprised a happily diverse group. At one end we had five boys in Year 11 from the Tibetan High School for gifted children and all smart, co-operative and enthusiastic. Two wanted to study biology and three wanted to be physicists. They were interested in the scientists, James Lovelock and Vandana Shiva, and their work for the environment.

We had Ph.D. researchers from National or State Institutes such as the National Forestry Research Institute, and High Himalayas Arid Lands Agriculture.

All participants had expected a series of lectures and it took a few days to accustom them to being consulted and asked for their experience and problem solving. Once this was achieved and we had a learning community, the whole course flowed without a hitch with interpersonal learning and group co-operation.

I adhere to the basic permaculture curriculum but often stopped to discuss the difficulties students face. They were glad of the opportunity to explore topics of mutual concern with each other.

Permaculture content, as inspired as it is, is useless unless it has relevance for the students. In this case I regularly asked “*do you know this?*” Often they did. Then, “*Is this useful?*” Sometimes it wasn't at all.

A major theme which raised questions again and again was the variability of the snow melt:

- Too fast so villages were being washed away at more frequent intervals
- Insufficient snow to pack down into glaciers

- Lack of snow causing insufficient melting waters
- Landslides from saturated soils
- Polluted waters
- Floods from fast melting snow

A second question being posed was similar to that in the southern European countries e.g. Portugal, Italy, Greece and Spain. The farms are too small or too harsh to be economically viable and the work is extremely arduous. Income is uncertain so farmers walk off and go the urban areas seeking income stability. Rationalisation of land often leads to agribusiness which results in biocides and pollution of soil, plants and waterways.

Trichen Rinpoche attended to learn to redesign and rebuild his monastery destroyed by the Chinese and now a heap of rubble. It is particularly difficult project because of the very high and bare remote site. He wants a passive solar building. He began initial design work and I put him in touch with Jerome Osentowski at the Rocky Mountains Institute.

Specific problems existed.

For the **Ladakhis**, it is the flash floods which were almost unknown until the last decade or so, and now occurring every two or three years, villages dotted along the scree slopes downstream from glaciers are being washed away. Water quality and water pollution is also seen as a major problem.

The **Bhutanese** don't like, or eat, chicken or pigs and this altered the content. They too are experiencing more frequent floods. They became more aware of the potential dangers to their country as they listened to the others and were appreciative of living in a country with 72% natural forests preserved.

In **Tibet and Ladakh** a big challenge is the very high altitude and short, short growing seasons and many months of severe cold and bitter winds. Soils are often thin. Growing, as in Afghanistan usually occurs in valley and small fertile pockets on south facing banks of rivers.

There is a need for structures such as polyhouses, careful orientation of buildings and 'putting food by' strategies for winter.

For **others** it is the small size of their farms. Some had a special interest in forestry.

Monkeys are a major problem for everyone. The answer is probably to fence them out but small farmers don't have the money to do this.



Each of these situations provides challenges to the 'normal' permaculture syllabus written primarily for temperate countries and for growing your own food and meeting energy needs.

We used practical teaching strategies to reinforce learning and to break discussions when they became intense. So we held sessions, using everyone's experience, in plant propagation, tree

planting, making keyhole beds and small ponds and finding contour lines. Despite some students having experience, often the academics had not actually done the practical and young students had not been offered the opportunity.

These practicals were a valuable time to reinforce learning concepts.

Also, I was again reminded that words and pictures need reinforcement. This is especially true when students are working in English as a second language and every student was in this situation. And, the students are often taught to learn by rote because the classes are so big and there

may not be effective teacher training. So they miss out on the necessary practical work.

Making a contour line and a swale I had thought would be self-evident for people from mountains but when accompanied with a contour map they struggled but later they said how much they had learned when putting the practical and theory together. This had occurred in

Afghanistan - a country of steep slopes and also SW Ethiopia.



Because we had fewer days than usual and they wanted to complete the whole course the group offered to do longer hours so we started at 9.00 am and went until 7.00 pm. This is a long day. Not one person complained or missed a class. The choice had been theirs not mine. It was

exhausting.



Most students had not taken art or drawing classes and so assessment of design work was by their talking through their designs where it became apparent they had understood whole site water management and nutrient flows, and resource re-use.

Field visits



Vandana Shiva's farm was a highlight of our visits. As a seed saving farm, the numbers of species and the reach of her work astounded us all and for the knowledge required to grow and multiply them.



At the **National Institute of Forestry Research** the staff were getting ready for an International conference in 2017 and the Minister's

visit in two days time. We were very fortunate to be shown around by one of our students. It was

created by the British and contains valuable old samples. It is a place in time.

The Tibetan colony and the Monastery visited for analysis design work demonstrated many of values and problems inherent in design in India and the students' countries of origin. Especially important was the need for much practice and problem solving in urban design.

Assignment Work

There were two mandatory assignments:

- A personal design of some land each student knew well
- A group design of the local Tibetan colony

Both had to be presented with drawings. Everyone worked on these two.

Eight students whose course was extended, completed a third design of the local Buddhist monastery and primary school.

Home Design of their own place

The photos show a sample of students presenting how they had transformed or retrofitted their land to a new highly productive and sustainable state.



In impressive presentations students explained nutrient and water flows while increasing biodiversity and research use on their land. These 'verbal' presentations showed what students had learned and absorbed. In this case the quality of the work was very high. I attribute this to the highly co-operative work where students were of mixed ages and abilities and yet sought each other's advice and input while they were doing their designs.



Group design for the local Tibetan colony

Each person in each group presented part of the site analysis and the final design

The Tibetan people in the colony consist of about 500 families living on a small piece of land given to them by the Indian Government when they arrived there after being expelled once from Tibet and a second time, many years later, from Bhutan. They have not integrated with the local



Indian community and it was a very hollowed out colony i.e. most of the year, the adults who were able to, moved around India selling artefacts such as, mats, and the village was left inhabited by old people and children.



The families were united for only a short time each year.

The Indian Government had given them residential visas and basic food supplies. However it was far from being a thriving vibrant community. The designs worked on community centres, and enabling incomes to be made in the village without people having to leave for months every year.

Designs focussed on:

- Improving natural light to the homes
- Putting up solar panels and water tanks - with

a water management plan

- Creating safe community places for elderly and children
- Separating vehicular traffic from pedestrian
- Creating incomes to encourage families to stay and not travel
- Increase local urban food supplies

Groups worked well on their designs and demonstrated knowledge of permaculture principles.

Third design for the local Tibetan monastery especially the primary school

One third of the class attempted this design. It was of the local **'baby' monks primary school** at the nearby monastery where we found the school to be very poor, the boys undernourished and the school under-resourced. The principal is very enthusiastic and motivated to change conditions. He attended the presentation and also wants to be connected with a school in Australia where teachers may volunteer come and spend time with his teachers to improve the teaching and conditions.

The design requires an integrated approach whereby teachers can connect curriculum with the outdoor environment and finally redo a design for themselves.

Immediate post-course outcomes

Although it's difficult to assess the long term course impact this is the immediate feedback:

- the boys talked to their whole school assembly and teachers about what they learned and about being awakeners and not teachers
- others, in government employment, reported via seminars to their managers and colleagues
- the five Bhutanese organic farmers reported daily via their mobile phones to their colleagues on what was useful that they had learned.
- a monk redesigned a remote monastery in Tibet that had been shelled by the Chinese, as a passive solar building at 4,000m.

However, from the opening class of 20 we graduated only 15 because the government officers and researchers could not take so much time off work. For those who completed more than 50% of the time and their home design I have given a letter saying that they should be admitted to another PDC at another time if they can attend one. well executed design has already been received back in Australia.

What was learned

As sometimes happens, I came up against a gap in the adequacy of the permaculture curriculum. I find the PDC to be almost perfect knowledge for repairing earth and yet every now and again there's a black hole. I have about four of these and now one more.

In this case, it is what does the conventional curriculum have to offer when glaciers are melting from the bottom and the water runs down sheer rock slopes? The altitude is too great for extensive tree planting or large earthworks. The melting water culminates in floods which wash away villages. As the water is melting at an increasing rate, dams and checkpoints will be mere stopgaps and probably not worth the effort and time. And anyway in these more remote areas, there is no money.

My response was to offer disaster planning, particularly communications, along valleys where people can warn others

downstream, and discuss with the villagers where they could move to, out of the danger zone.

Massive numbers of ponds on any flat land where the water slows and spreads may work in some areas.

One technique being tested is the development artificial glaciers, however it is evident they cannot not be a permanent solution.

Although many people had practical skills, some simple techniques such as planting trees, preparing materials for propagation and setting out a garden, had much for students to learn. The level of practical skills was less than I had anticipated.

A deeply satisfying finding was that such a mixed group in ages, confidence and ability could work harmoniously and respectfully together to achieve excellent outcomes.

Summary

The long days were hard and yet goodwill and co-operation made them easier.

The focus of permaculture on countries and districts in the Himalayas is critically important even if only to stay or buffer the worst of global warming and the worst of climate change outcomes.

Bhutan is an excellent model for the region with its commitment to the environment and 72% of natural forests intact. The organic farmers were knowledgeable and supportive in sharing their experiences which could stand for the other countries and provinces. It was invaluable to have their participation. They were confirmed in the positive directions their government has taken when they heard stories from other regions.

Ladakhis were pleased to tell their government has committed to a clean, green district although it is not fully functioning yet.

The PDC curriculum is challenged by melting glaciers and rising temperatures in these vulnerable and finely tuned ecosystems. It also continues to be valuable in giving people knowledge to act appropriately and effectively to save lives and landscapes.

- Where temperatures are not too low, many solutions lie in '**restoring forests**' of relevant types from low scrubby to taller coniferous.
- The permaculture approach of **water harvesting** in a multitude of small catchments and working with watersheds will be critical in the short term and yet has a large labour and cost component. Without these, people need to start leaving the regions now.
- **Incomes** are naturally a major preoccupation and new sources, or greater stability of older ones, needs thoughtful consideration. Meeting human needs within the region is traditional and could be widened and reinforced.
- **Integrated design** for colonies and urban suburbs is a permaculture focus which is increasingly required because cities are more congested and polluted.

With the exception of the schoolboys, most of the participants live in situations where they can effect positive changes particularly in water, energy and biodiversity. An evaluation of this course in one year's time would be worthwhile to determine what the participants found worthwhile and able to be applied.

Appendix I

International Nature Restoration Action Association (INRAA)

<https://www.facebook.com/inraalight/?fref=ts>,

**Be the LIGHT and light up everyone's inner light of compassion.
Let us illuminate the world.
When we purify our mind, then the world become pure as well.**

INRAA, a Buddhist inspired organization, based in Taiwan, and working with private funds, is committed to the following goals and objectives/actions and whose major premise/principle is that: **Knowledge-sharing is the most effective and sustainable way to support people to change their lives and environments.**

Five Main Actions of INRAA

Action 1. Ecological Skills, Education and Training

- Provide people working on the land with the necessary knowledge and skills, and based on the local conditions and needs
- Find the most sustainable way of maximizing the value between livelihood and ecological systems.

Action 2. Protect and Preserve Animal and Plants

As we are now facing increasingly rapid loss of species, and in order to leave our offspring with healthy nature we must seize every opportunity to raise people's awareness, and educate them by promoting sustainable and regenerative natural resource management.

INRAA aims to:

- Protect, conserve and preserve native plants and animals
- Open people to cherish and re-connect with their own land or environment
- Network with experts and groups from different areas to together guard and store the earth .

Action 3. Support Environmental Trust Cooperation in Ecological Areas

Environmental trust cooperation is when the environment is supported and cared for by reliable non-profit organizations, or individuals enabling the natural it to return to a healthy state. The three major principles to achieve the maximum benefit from environmental trust are:

- Common good,
- Openness, and
- Transparency

INRAA aims to expand green territory through

- Providing support to like-minded local Non-Profit Organizations(INPOs) and
- Promoting the concept of Environmental Trust Cooperation in ecological areas giving impetus to countries to understand and be willing to commit to it.

Action 4. Natural Disaster Preparation, Response and First Aid

Global warming has increased the frequency of natural disasters. Disaster preparation and response education with self-help skills are vital for Earth citizens.

INRAA will Initially offer workshops in remote areas for local people in first aid, and design for endurance and recovery, to give them confidence and skills when facing disaster situations.

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Action 5. Record Ancient Wisdom of Indigenous Tribes and Assist Young Indigenous Generations

The major landholders and residents of the Himalayas are ethnic groups who profoundly understand their own land history. Due to the impacts of modernization and globalization much ancient wisdom of many tribes has been lost. In addition, their offspring have lost the connection and resonance to their own people and earth so accelerating:

- Land sold for commercial use
- Large scale ecological damage
- Extinction of species
- Hastening climate change.

SUMMARY:

Working from the premise that **only when people connect with their roots do they act from the bottom of the heart**, In all INRAA action projects, restoring young people's pride in their culture is a priority. They will be encouraged to:

- Write the stories of ancestors
- Make records of their heritage, and
- Preserve unique precious cultures