

Getting to Know the Igorots - Building a Rice Terrace

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One of the things that fascinates tourists is the many rice terraces seen in Asia. They are so fascinating that often hundreds of pictures are taken of them.

Clearly they're needed particularly in mountainous terrain because most rice needs to grow in water and land in mountains is scarce. So how do they come to be?

There are two opportunities for terraces. In Banaue, Ifugau province, in the Philippines terraces are easy to make. The mountains

gush water all over the place and they're made more from loose soil than stone. So the terraces can be carved out of the mountainside with a pick and a shovel. The abundance of water makes subsequent irrigation simple. The only problem is that the walls are sometimes not very stable..

Far more challenging are the stone terraces you see in many parts of Mountain Province, Philippines. Here life is harder. The mountains are uplifts of sedimentary limestone. To begin you need to find a water source as high as possible in a mountain. That found you can begin. The mountain walls have to be chiselled with iron chisels to



Banaue, Ifugao

break away the stone and move the wall back. The stones that are broken away are later used to construct the walls. Slowly, painfully, a huge series of steps is carved out of the mountainside. If the watershed is very high the steps can cascade for a thousand metres, If the watershed is low it's only a few hundred metres.



Building a Terrace

Now the walls need to be built. This is done with a mixture of mud and stone. The walls need to include a spot where the water can spill to the field below. The walls need to be flat on the top and

there need to be stone steps leading to the lower fields. All of this has to be carefully engineered to make the fields workable. Now soil has to be carried to each field, thousands of cubic metres of soil so the rice will grow in the wet mud. This too is done by hand. Finally a channel is dug sometimes for a kilometre or more from the water source to the first and highest field. With that completed and the fields now slowly flooding as they should, they are ready for rice.

Later, when still more fields are needed for the new children, sometimes a new adjacent mountain is tapped the same way and the original water source where possible will be diverted slightly to also address the needs of those fields.



Once the fields are done the job isn't over. You have to return to your fields regularly to weed the walls. With stone terraces if things start to grow into the walls the stones would eventually get forced apart and this will cause the field to leak and eventually the wall will collapse. In softer fields growing roots stabilize the soil a little but in the longer term as the vegetation gets larger those walls are destroyed too. .

As you explore various regions you will find increasingly more upgrades too. Little by little cement is replacing the surface of the terrace walls because it's more stable and easier to walk on. The tops of those walls are the pathways to all the fields and it's also the route used to carry the harvest home. Similarly the steps that go from one level to the next are slowly also being cast in cement. But that doesn't stop the need for maintenance. Wherever there is a crack in the cement that is where a plant will grow sooner or later so maintenance remains a high priority no matter how well the terraces are built.

Another issue too, especially in this era of climate change is that sometimes the watershed dries up. When that happens all the fields that had been served by that water source are now useless and have to be abandoned. This kind of thing usually happens without warning and necessitates that a new mountain slope be found and that new terraces have to be constructed. It must be hard



when you are relying on your field to feed you to have it suddenly go dry. But the elders have experience in this and are ready for it. No family has all its fields on one mountain slope. Instead they have fields scattered in many locations with different water sources. And this way if a field does dry up the others can still be used. A wise plan.



It's hard enough to grow rice at any time in the mountains, but to have to first create the fields can be pure hell. One has to admire these mountain people for their amazing

engineering and their incredible strength and endurance which has not only fed their families for centuries, but has now also given us something to really marvel at.