The Oil Drum: Campfire

Discussions about Energy and Our Future

Improving Power in Rural China

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Heading Out (Dave Summers) is currently visiting China...perhaps these ideas will give us some inspiration for ideas here as well.

Solar heating of a kettle (30 min to boiling)

Powering Rural China

One of the concerns of the Qinghai Administration deals with the large number of herders that remain wandering the hills, as their herds migrate across the landscape. Apart from the concerns over over-grazing that the now-larger herd/flock size is starting to impact grassland stability, they are also concerned with the provision of power and easier physical access to the herder dwellings, and he provision of social services.

Driving out to see the Liujia Gorge hydro-electric scheme and nature park we passed through a street that illustrated one of the first steps in helping that had been achieved. Outside virtually every residence on the sunny side of the street (and about four on the other) there was a solar cooker of the type shown at the top of the page. These are extremely popular even where there is electricity (which is not that expensive) but are even more popular with the herders, since this gives them a source of hot water and power for cooking, without needing access to electricity.

The second step in giving folk power has been the introduction of the solar water heaters. The designs are quite simple, a drum, and thin collector pipes, and they are currently being sold, at a

price of around 6,000 – 7,000 yuan (6.7 to the dollar). This is in contrast with electric powered heaters that go in at around 1,000 yuan, but that have a power bill. Despite the differential we saw a fair few installed, though to be honest I think I would be stretching it to say we saw 5% of the homes in the villages we drove through using them.

Solar water heater (cost around $1,000 installed)

But if the herder mentality is to change there are other changes that must also be made, the first being affordable, simple and power independent houses. (Along the lines of the solar house competition on the Mall, though cheaper and less complex, and without the utility and car provisions.) With stability in population there might be a possibility of using a grid, but the return would not justify the investment.

Most power in the state comes from hydro, they also supply five adjacent provinces, and the size of some it truly impressive. We did a tour around the nature park surrounding the Liujia Gorge hydro-electric plant, rising from 2,000 m at the crest of the dam, up to 3,000 m looking down on the lake as we were driven through the Kanbula nature park (by minibus and golf cart, and then back to minibus and boat).

The Liujia Gorge dam and lake

One additional sign of change, as we drove through the villages was the rapidly changing construction plan, going from mud brick to baked brick, with house after house being rebuilt with the more resistant baked brick. The bricks are it seems, being baked using coal as the power

source, but that cost is small relative to the benefit of the new (to them) material.

This is still a land where farming is a major occupation, with couples out every day tending "their patch" and making sure it is properly watered and weeded. This gives a different mentality and cost structure over that which we commonly currently consider when asked for an opinion.

Heating Houses and Tents

Room in a Tu community

The Tu have a significant minority status in China, and in Xining City there is a community, which has at least three culture centers. These show off the way of life of the Tu, and this is a typical room within their gated community. The platform contains a small wood stove, and a conduit that carries hot gases through the bed of the bed, before exhausting it. As a result the ceramic box is quite warm, and the family can thus sit here and eat, and drink, and if they collapse – we'll they're on a bed to start with. The amount of wood required to keep the fire going and heat the ceramic is relatively small, and as I mentioned we saw Pollarded trees, and sheep stretching up to eat new leaves and branches. We sat in here for lunch, around the table, and I was initiated into the ceremony of the three cups. (I also can confirm that ear of yak is quite a pleasant delicacy). The design from the bed came from North East China where the Tu originated. They also had a small still going which produced the ethanol for the ceremony.

The construction illustrates how much benefit can come from an intelligence of need.

In contrast, Tibetan tents, which are of a heavy and dark construction so that they can soak up as much heat from the sun as possible, have a central wall, with a small fire built into it. This is usually fed by dried dung, of which there is a pile usually outside. Outside the cities this is quite a common dwelling for the herders (and workers on the pipeline) though the tents were made of different materials and colors (white being the dominant other).

Central heating structure for a Tibetan tent

This post is a combination of two recent posts from Dave's Bit Tooth Energy Blog.