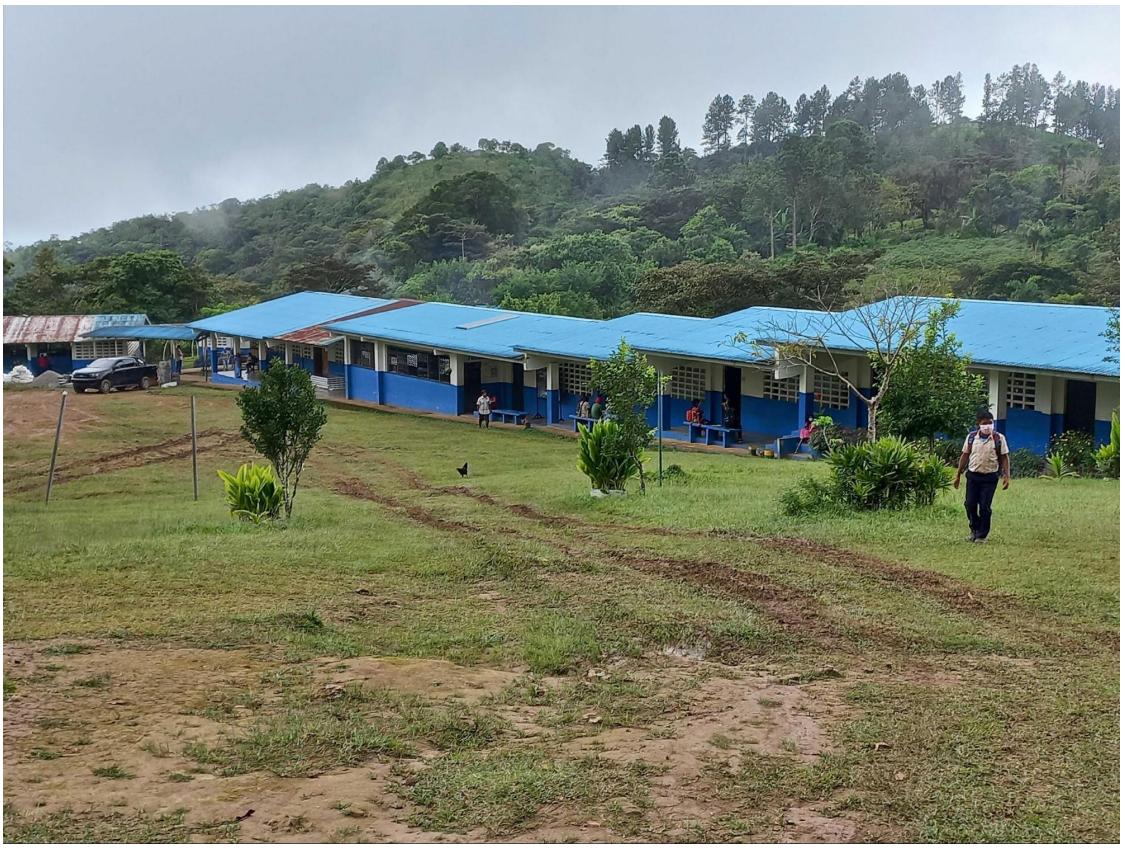
Panama Hato Chami Project

Background

The Digital Library project in Panama's indigenous Ngäbe-Buglé comarca (semi-autonomous region) focuses on a K-12 school with 1100 students in the village of Hato Chami.

The school also hosts about 30 students who live up to four hours walk away from the school. During the week, these students live in a dormitory located about a kilometer from the school.



Hato Chami School

The comarca has a land area of just under 7000km^2 (2700sq. mi.)--about the size of Puerto Rico or Cyprus, and has a population of about 160,000.

The terrain is mountainous and heavily treed. The climate is mountain-tropical (warm days, cool nights), with seven months of rainy season (~325cm avg) and five months of the dry (~34cm avg).

Staff

To have the best chance of long-term success one committed teacher (on right) brought together four other teachers, similarly excited by the potential of the device, who volunteered as a cadre to show and teach the other teachers at the school how to use the DL devices.

The school's Director (second from right) has been an advocate of the system, attending meetings with the cadre of teachers and providing moral support.

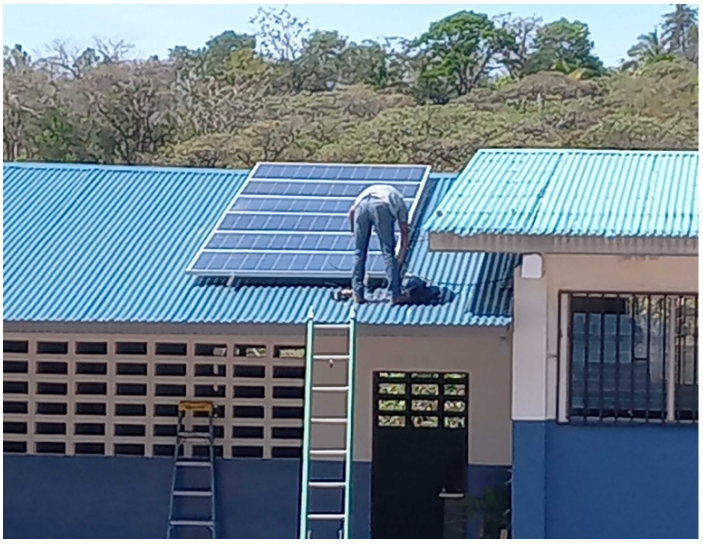
Solar Power

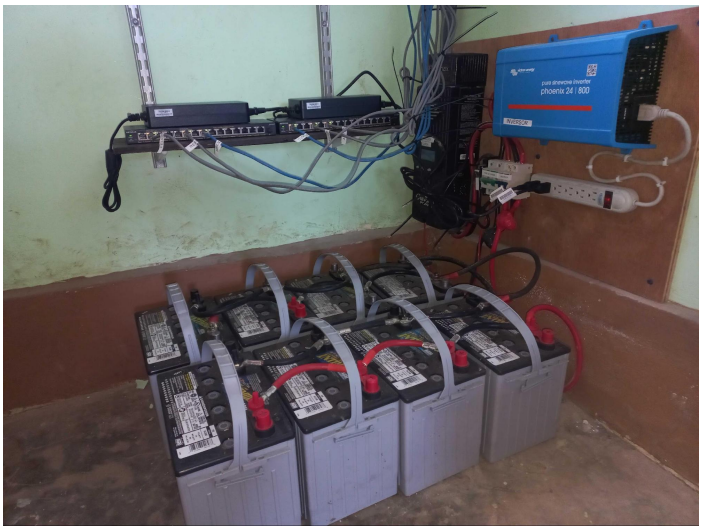
The school is without electricity, so solar power is provided, with the batteries feeding Power-over-Ethernet (PoE) switches that power the Digital-Library (DL) devices.

The power system includes six 1m x 2m 320W panels, eight 12V batteries organized to provide 320Wh, battery-controlling electronics, an inverter, circuit-breakers for each subsystem (panels, controller, inverter) and a short power strip.

Ethernet cables connect DLs in each of the classrooms in two buildings to the PoE switches in the school's library.

The solar system and DL devices are best thought of as "appliances." That is, they're intended to go in and "just work," requiring minimal attention.





Digital Libraries

The DL devices are inexpensive re-purposed travel routers. GL-iNet's MT300N-V2s and AR750s (the latter, PoE-equipped) are used.

The re-purposing is implemented with a re-flashing of the device from its as-shipped factory firmware to VillageTelco DL firmware.

The devices use either a USB memory stick, in the case of the MT300N, or a USB memory stick plus an SD card in the case of the AR750. The memory device has the DL content. The current content (Spanish) is just under 64GB.

In addition to the content downloaded from OER2GO.org, a bundle of Ngäbe histories and folklore translated into three languages from Ngäbere (the language) to Spanish, to English—a sort of Rosetta Stone—was found and added as a piece of local-interest content.

A total of eighteen Digital Library devices have now been deployed.

- Twelve DL devices are installed in classrooms in the two main buildings that are connected to the solar power system.
- Five DL devices are carried by teachers to service teaching areas that are not serviced by the solar PoE cabling.
- One DL device is installed at the Dormitory building where around 30 students stay during the week due to the distances they have to travel from their homes.
- This last device also has an Access Point connected to allow the nearby community to access the DL contents via their cellphones.
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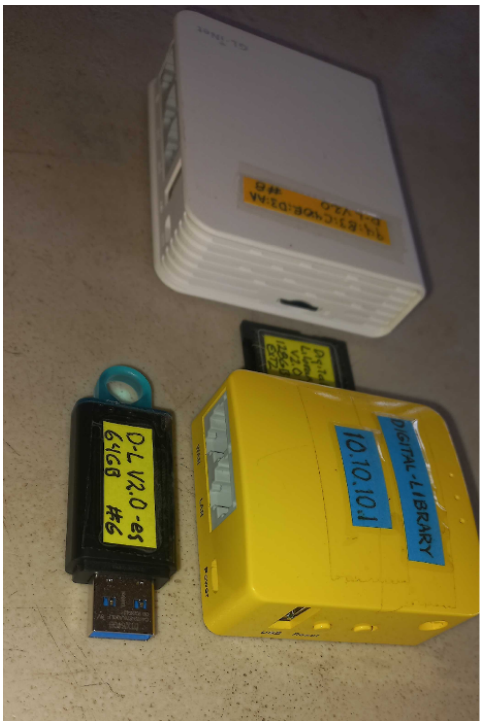

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