

Unique solutions are key when seeking to ensure children living in remote areas are able to access education.

THE WORLD IN A BOX

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Looma Meets the Nepalese Challenge



Imagine trekking high to the Himalayan ridges of Nepal, surrounded by glorious vistas and incredibly thin air. As you hike along the steep path through a small village, you notice a hidden, hand-written sign for a school. You peek into the school and see young students huddled on benches or crouched on the floor. The rooms are poorly lit with white-washed mud walls. Each classroom has a small chalkboard, one lightbulb, two windows, no computers or laptops, no posters on the wall, and no books. There is no sign of running water or a toilet. The teacher, standing in front, lectures from the paperback Nepali National Curriculum textbook. The students chant and recite. They are all eager, attentive, and poised. Each has a small, lined copybook and a stubby pencil. There is one eraser.

While schools are improving in some areas of Nepal, the description above is still all too common in remote districts. Hard living is a reality for many Nepali rural poor. Education resources, teachers, electricity, and the internet are scarce. Some parents might be able and motivated to send their children in grade 5 and above to the nearest city — 5- or 10-hours' travel to Kathmandu or Pokhara — to live with a relative and continue their education in the urban schools. Some children are sent as early as age 6. Schools in urban communities are likely to have readily available and consistent electricity; maybe you will see a room of computers with intermittent internet, and perhaps career education for grades 11 and 12.

However, many children stay at home to cut grasses for livestock, plant and harvest crops, cook, and marry young. These students have had little opportunity to explore books, textbooks, or the internet. Now, with Looma's World in a Box, they have a way to see and explore the world beyond their rural communities.



Education Challenges in Nepal¹

- Completion rates are high for primary school children (average 82%) but drop significantly for lower (73%) and upper (27%) secondary grade students in both rural and urban areas. Girls have higher completion rates across all levels. The difference is less than 5 percentage points in all grades. The primary differences are along socio-economic lines: 59% of children from the wealthiest quintile complete upper secondary education, while only 10% of children from the poorest quintile do so.
- Approximately 85% of Nepali students go to schools with neither reliable electricity nor internet access. Many village schools lack textbooks and teachers trained in modern methods; rote learning is the norm.
- As of 2023, more than 65,000 teacher positions need to be filled to maintain the national student-teacher ratio of 1:50, 1:45, or 1:40 in Tarai, Hills, and Mountain region classrooms, respectively.
- The teacher deficit is particularly problematic at the lower secondary and higher secondary levels, and in the subjects of mathematics, science, and English. (Internal study commissioned by the Center for Education and Human Resource Development of the MOEST)
- Internet and electricity are intermittent in most parts of Nepal, including cities and rural areas.

Looma: One Part of the Solution

Looma — the World in a Box — is an innovative, complete education system that delivers a modern education for everyone, especially for those without reliable electricity, internet, textbooks, or trained teachers.

Each 18x28 inch box (wooden or metal) contains a 128 GB quad-core Odroid computer, a projector, and a sound system, powered by a 12V battery, and guided with a remote wand. The Looma AV projection system combines a 700-lumen LED projector with speakers, allowing the teacher, using the remote wand, to display content on a classroom wall while students hear and repeat English and Nepali words.

Looma has loaded the entire Nepalese government-approved textbooks for grades 1-12 onto the computer, along with 15,000 open-source media files: Khan Academy courses, TED-Ed videos, and Wikipedia for





Kids, to name a few. With hands-on learning activities, interactive lessons, active learning strategies, library resources, art and drawing tools, interactive maps, learning games, a calculator, and a translator, Looma opens up the world of learning to even the most remote children of Nepal. Resources are updated frequently and many are provided in both Nepali and English.

Looma access comes in three forms:

- **Looma Box** – a solar-powered computer with a built-in projector for regions where electricity and internet are not available or reliable
- **Looma Server** – for use in school computer labs with limited to full access to the internet
- **Looma Online** – for locations with reliable internet and a computer.

The Looma Education Mission Drives the Work

Looma Education is developing affordable technology to bring modern, effective, and engaging education to everyone in Nepal, with particular focus on school children in rural communities.

- The Nepali staff, integral to the success of the project, provides assembly and installation of the equipment, teacher training, ongoing support, and product maintenance for all our schools.

- Looma equipment is always evolving: advancing technology, moving to a high-volume industrial sheet-metal design, incorporating AI technology to improve teaching, and adding newly published textbooks and enriching lessons with resources.

A Bit of History

Looma Education began in 1996 as EcoSystems Nepal, founded by David and Haydi Sowerwine. While living in Nepal, David and Haydi found that simple technology-based solutions could ease the daily challenges faced by rural communities. In 2008, Skip Stritter joined as CEO, and the nonprofit was renamed Village Tech Solutions (VTS), and then became Looma Education in 2019. The overarching mission has been to create affordable technology-based solutions to help rural communities in Nepal and other developing countries.

The Looma Box is “powered” by volunteers and our very small Nepali staff. We currently have more than 420 volunteers, including hardware developers, teachers, students, software developers, returned Peace Corps volunteers, partners, and fundraisers. In Nepal, Looma Education is now working collaboratively with local and international NGOs who are already present in schools. We are always

Looma has benefited from many volunteers and NGO groups, including:

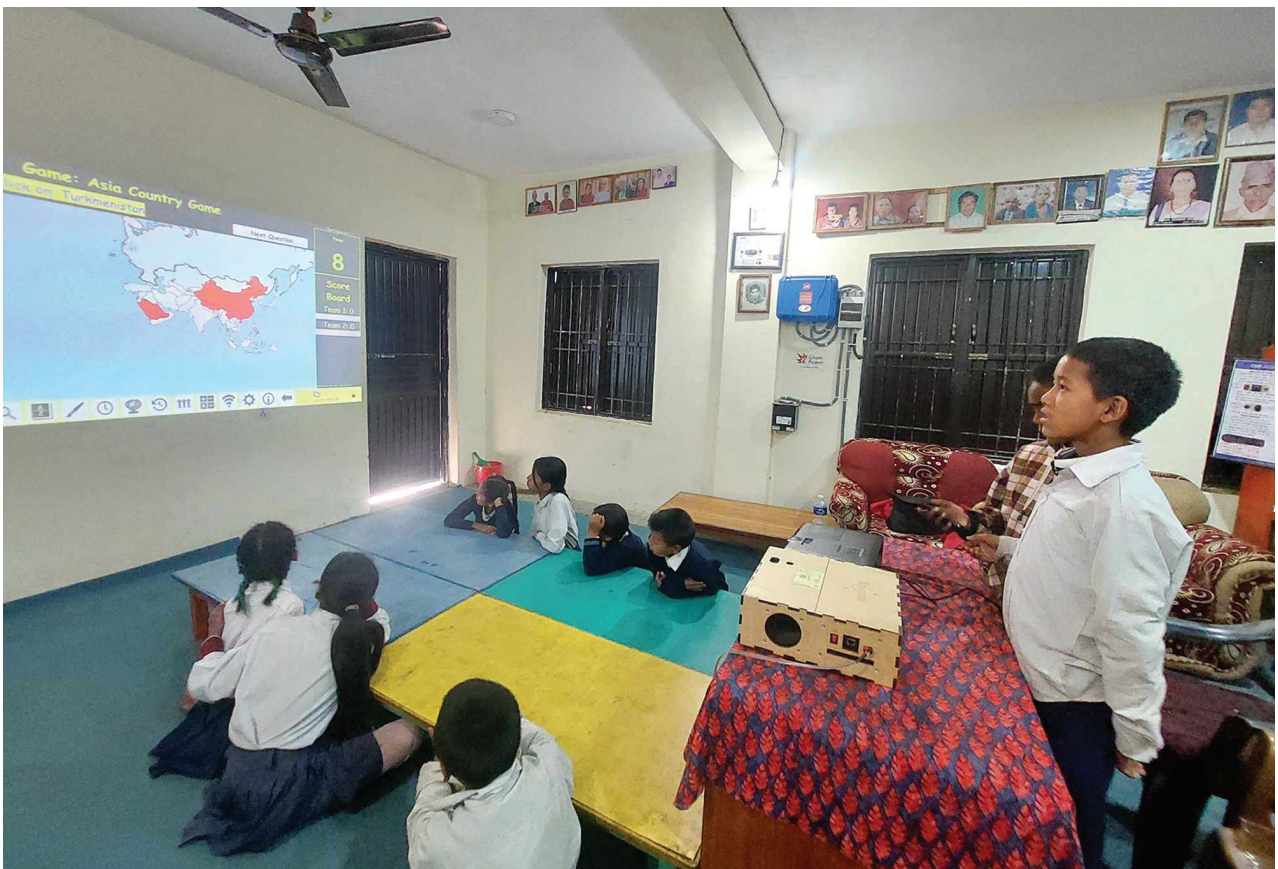
- Capstone engineering projects: Dartmouth College, Stanford University, Santa Clara University, UCSD, & Colorado School of Mines – 100
- High school summer interns from Menlo School – 200
- Retired teachers around the United States – 15
- Peace Corps volunteers who served in Nepal
- Rotary Clubs of Pokhara, Nepal, and Woodside-Portola Valley CA
- Gham
- Village Solutions Nepal
- Educational Resource and Development Center Nepal
- WeShare Solar
- Neoteric
- dZi
- German Nepalese Help Association
- eduTech Nepal
- Menschen im Dialog
- Government of Nepal – Ministry of Education

looking for more partners and volunteers to expand our reach in Nepal.

Let's go back to the small school described at the start of the article. You take your shoes off and enter, as all the students rise and greet you with hands clasped and offer namaste. You watch the young teacher start the Looma box to project a science task on the wall;

Where Is Looma Now?

- **61 schools**
- **300 computer labs with Looma Servers**
- **350 teachers using online Looma**
- **100 trained teachers with follow-up support**
- **14 major partnerships**
- **400 plus volunteers**
- **7.5 paid Nepali staff**





students take turns navigating with a remote wand through an electricity game assembly. Students use the remote wand to complete an electric circuit, moving components (batteries, wires, light bulb) into just the right places. The light bulb goes on! The students whoop with glee. Smiles everywhere. Everyone learned something new! Next, math games are projected. Student teams play to solve the active

math game. The winning team is elated. They all ask for another challenge. After school, Looma club students arrive to explore the maps. Their world has just expanded.

Children of Nepal, let the doors and windows of your imagination open out to the world!

And Our Future?

We are only as effective and far-reaching as our volunteers, supporters, and staff. Looma is designed to be adapted for any country. We are looking for organizations in other countries to lead in establishing Looma where we can make a difference.

You can learn more at www.looma.education

Notes:

¹ www.collegesidekick.com/study-docs/4898099 and https://data.unicef.org/wp-content/uploads/2023/06/Nepal_factsheet_Mar_2023.pdf. Please note that all data contained in the factsheet were collected in 2019, prior to the onset of the COVID-19 pandemic.

Disclosure Statement:

No potential conflict of interest was reported by the author.