NEPAL INNOVATION LAB

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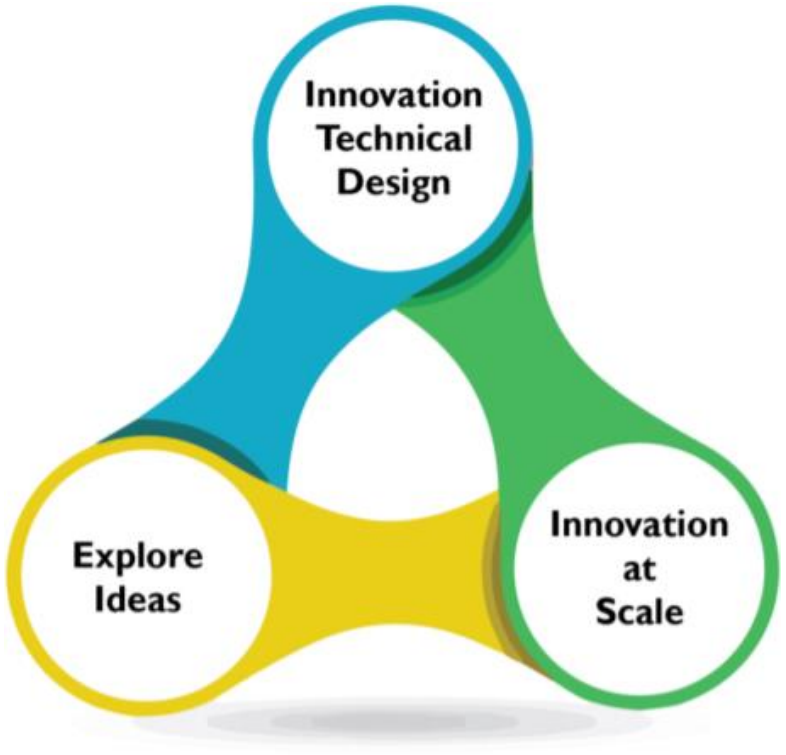
The Nepal Innovation Lab was **established in 2015** to bring about **impactful solutions** and **innovative ideas** with the model drawing on emerging and global applications of innovation labs to **achieve social impact** as part of the **Nepal Earthquake Response.**

Being one of the first of its kind in the region, the Lab aims to **inspire the sector** to deliver **effective, high-quality and community-driven solutions.**

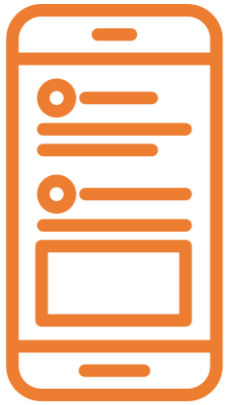
OPERATING MODEL



1. Innovation Technical Support: The NLab provide clients beyond WVI Nepal with Innovation Technical Services to identify problem statements and leverage various opportunities based on their needs and local context.

2. Explore Ideas: The NLab explores and crowdsources new ideas/solutions both internally or in conjunction with external stakeholders, packaging them for inclusion into WVI Nepal's grants and acquisition opportunities or preposition them for the future in the humanitarian sector.

3. Innovation at scale: The NLab focuses on existing innovations in order to take them to scale either in Nepal and beyond or exploring opportunities for the replication of the NLab's products by other offices in the partnership or other Development Organizations.



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Participatory Disaster Risk Assessment (PDRA) carried out at **individuals household at the community level**. The entire process is integrated with the technological innovation which consist of mobile and web based assessment procedures. The final output of the PDRA would conclude with the system **generated HDPRP** for each of the identified most vulnerable households.

PDRA TOOL

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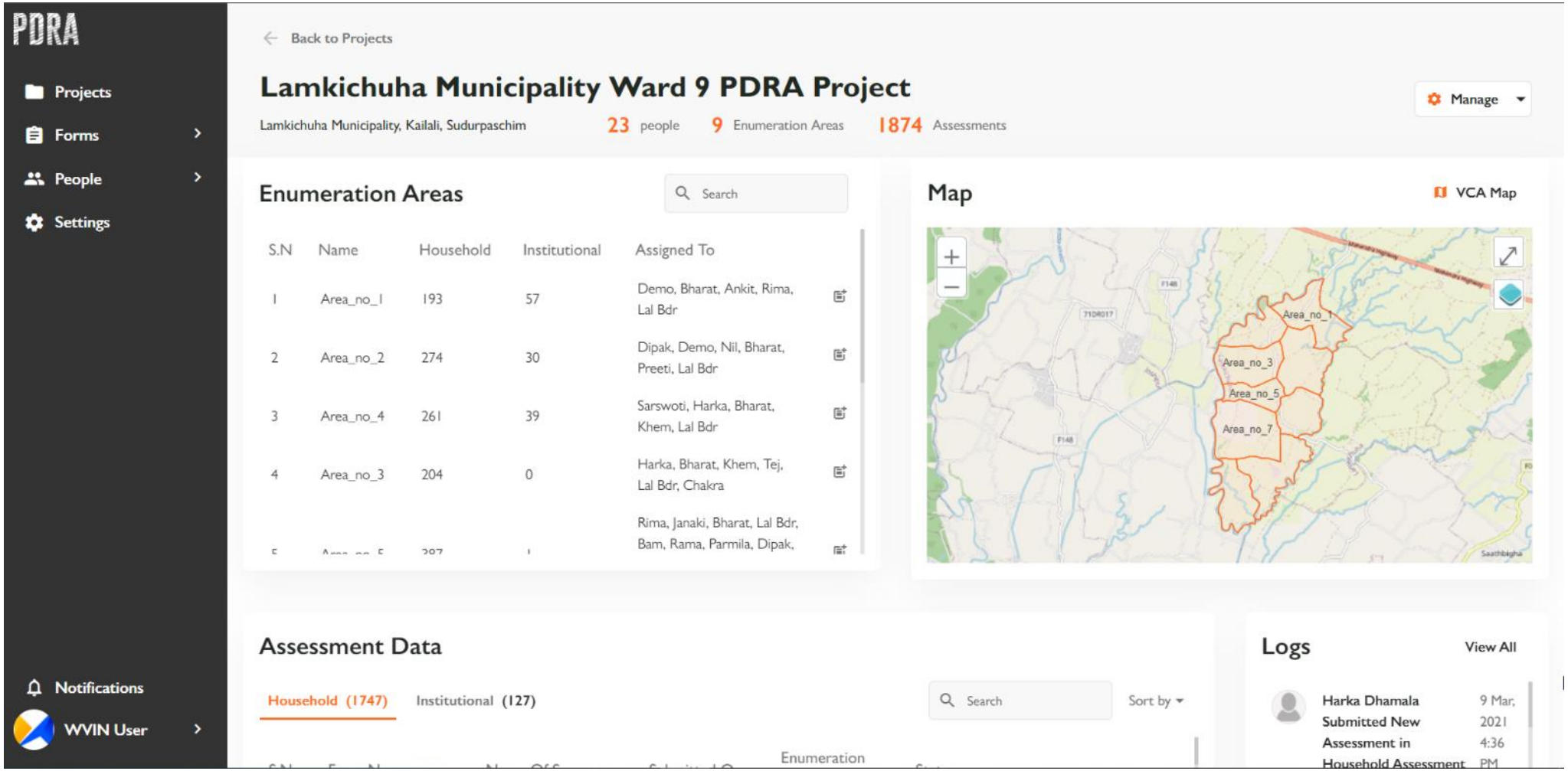

PDRA Tool Dashboard

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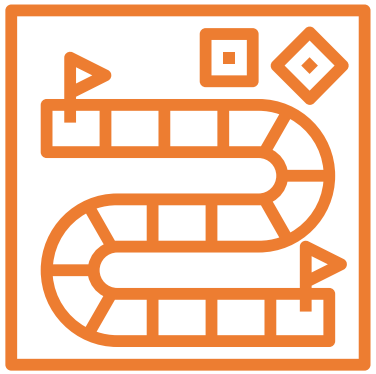
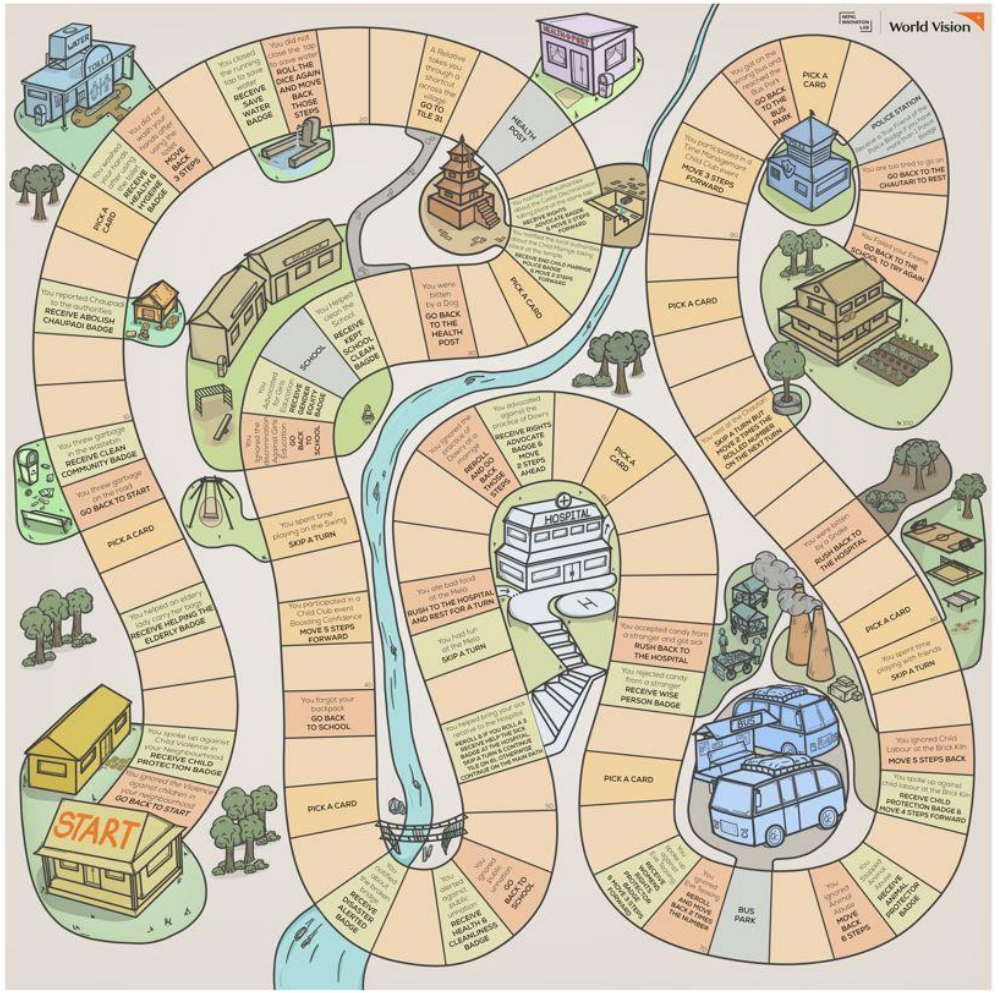
The platform is continually upgraded to ensure its **relevance in the changing environment**.

The system has been used in Nepal to perform assessments and is **currently being used** for the MOFA Japan Grant in Nepal as well as USAID supported project in Sri Lanka

BOARDGAME: HAPPY JOURNEY

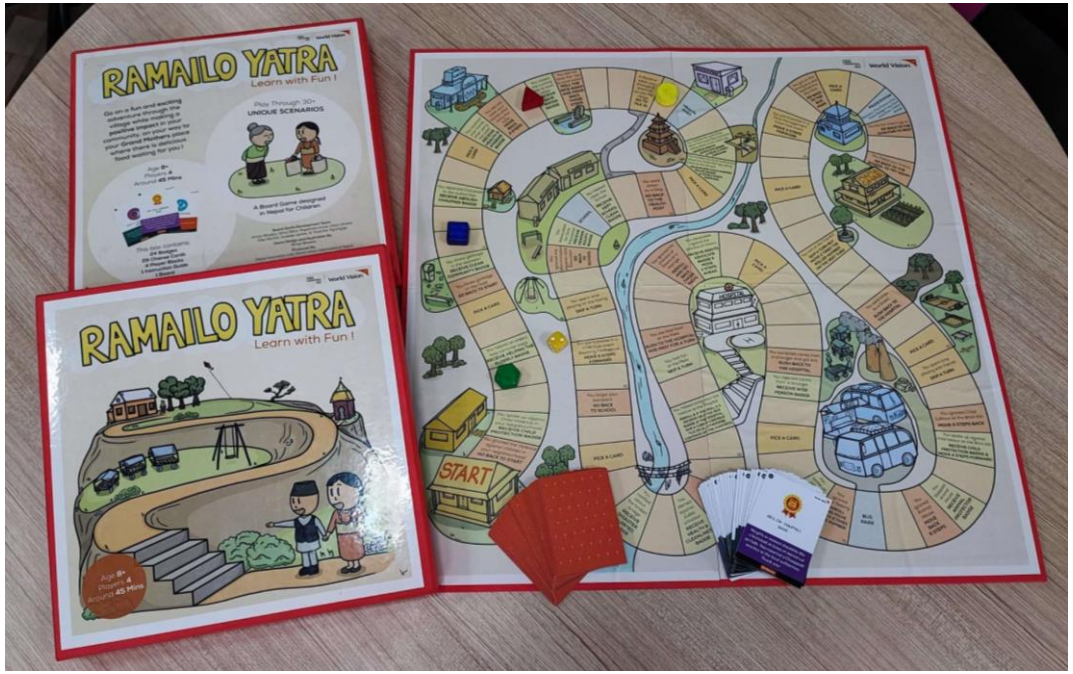


BOARDGAME: HAPPY JOURNEY



Ramailo Yatra the Board Game teaching child protection issues to children in a fun way

BOARDGAME: HAPPY JOURNEY



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BOARDGAME: HAPPY JOURNEY

The Boardgame is being **scaled up in Nepal** as well as being **contextualized and implemented in Somalia**

DESIGN THINKING & DOING!

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Rapid Prototyping and Scaling

- VUCA World
- Design Thinking Tool Box
- LEGO Serious Play
- Shark Tank

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SOCIAL PLASTICS + DESIGN

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Feasibility Study on Impact Investment in the Plastics Recycling Sector and Recycled Plastic Products in Nepal

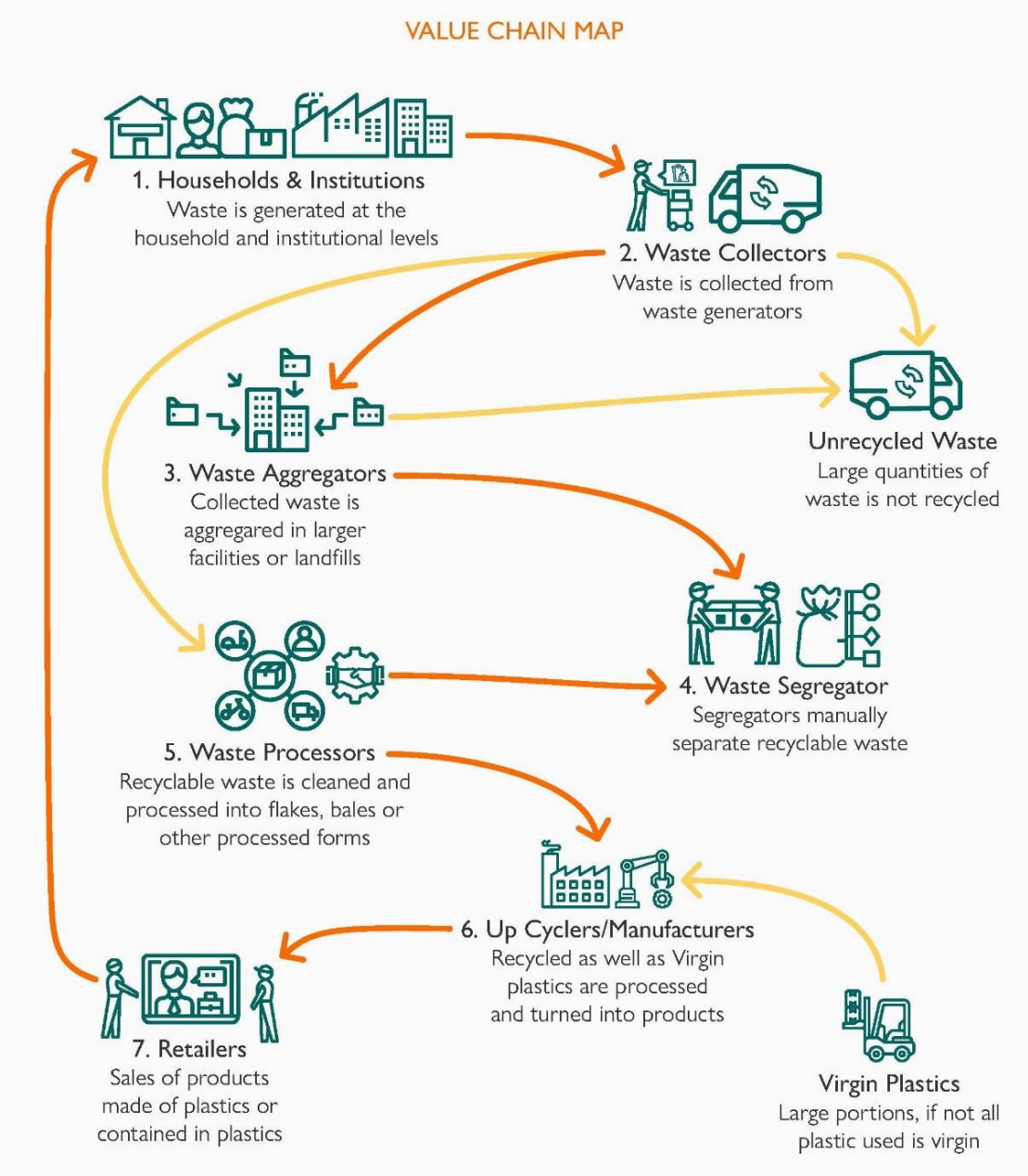
Research

- Analysis of the Value Chain of Plastics
- Analysis of the Investment models for Foreign Direct Investment
- Analysis of the Legal Framework and Government Processes

Design

- Designing Products that can be made using waste plastics at a low cost
- Taking advantage of plastic's properties
- Conversations with local manufacturers exploring manufacturing capabilities

VALUE CHAIN



The overall purpose for **analysing the value chain** was to understand the **complexities involved** in the recycling process of plastics, defining the **movement** of waste plastics, assessing the **challenges and opportunities** within the chain, identifying the **activities** carried out by various **stakeholders**, recognizing the **realities** of the industry, mapping the **value additions** as well the potential to transform waste plastics into **products**.

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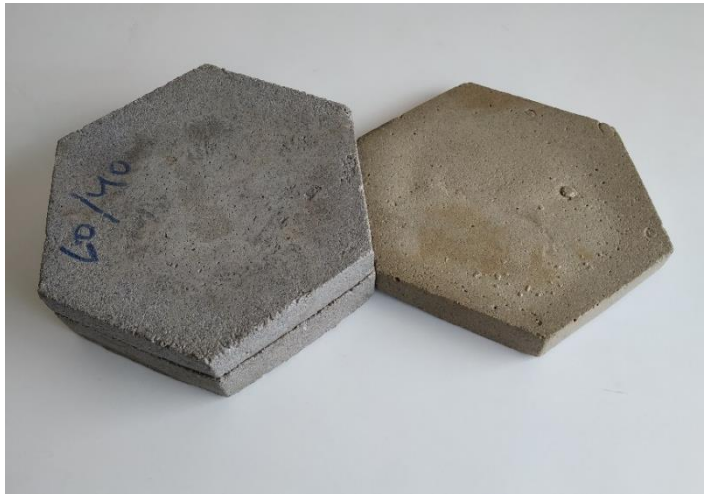
TOILET PAN



Squat latrine pans and the floor tiles were made of a mixture of **60% sand and 40% PET plastic** that were gradually heated up and compressed into a mould to take the shape of the final product. The mould was created to be **flat packed for transportation** to remote areas.

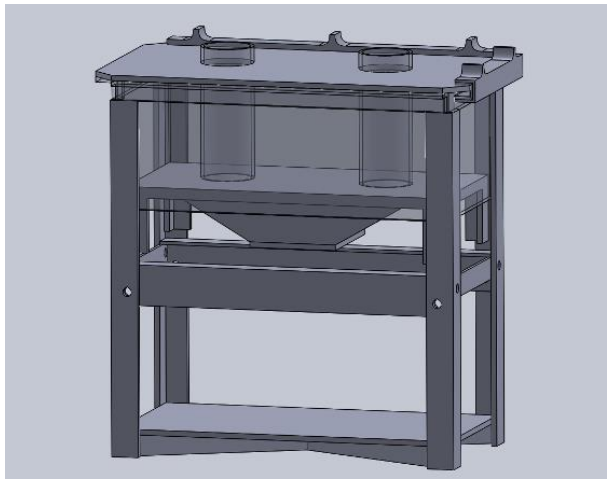
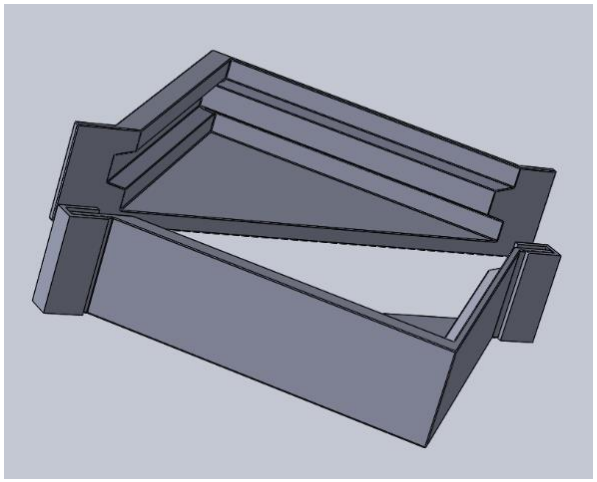
PAVING TILES

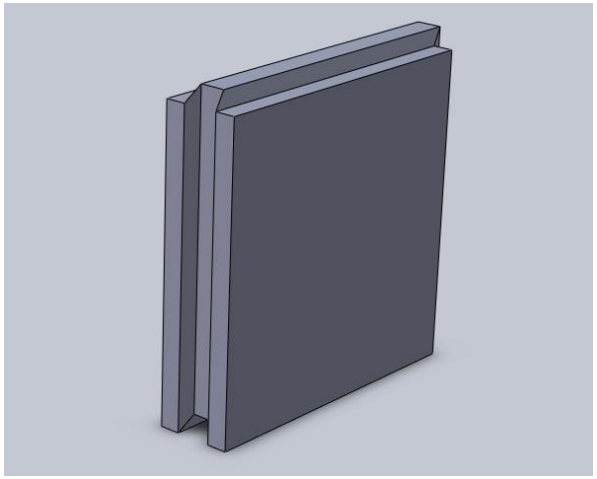





Switching to cement as a **binding material** compared to heated plastics would be **simpler for the end user**, especially since they are familiar with this process. There are 5 materials, Sand, Aggregate, Cement, Waste plastic flakes or chips, and water in this mixture, all with **varying amounts used for different purposes**. Additionally, the **type of plastic** used can be changed to **preserve its properties**.

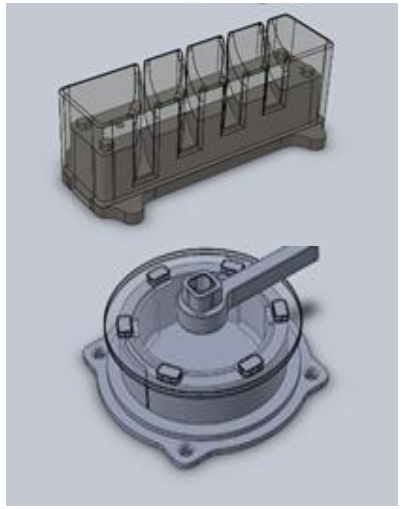
INSULATING BLOCKS


Simple and compression moulds can be used to create **various types of blocks** for different uses with **differing properties**

PLASTIC STRIPS



A 3D printed plastic strip cutter can turn **PET plastic bottles** into strips which can then be **used as material** alongside materials like straw or bamboo to **weave into household goods**

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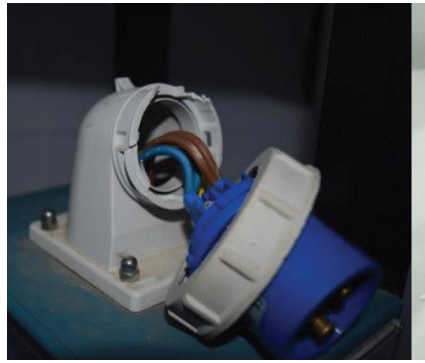
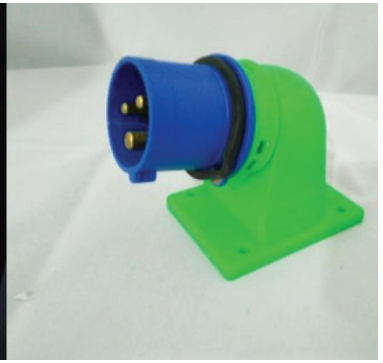
DIGITAL MANUFACTURING





The Lab is exploring how Field Focused digital manufacturing technology and local manufacturing capacity can shorten supply chains in the delivery of humanitarian aid and enable communities to lead innovation and production processes.

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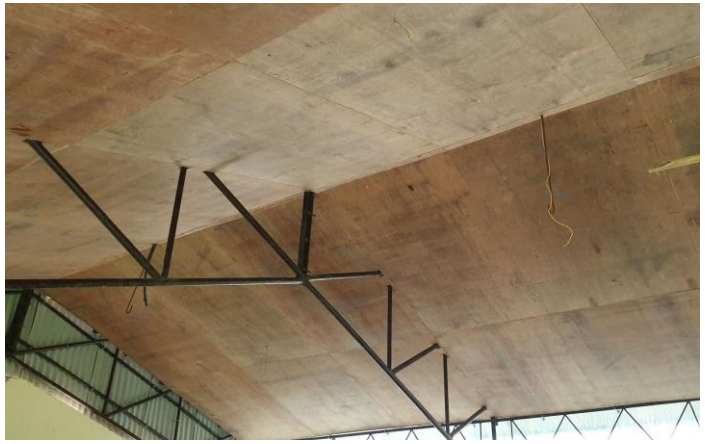
DIGITAL MANUFACTURING



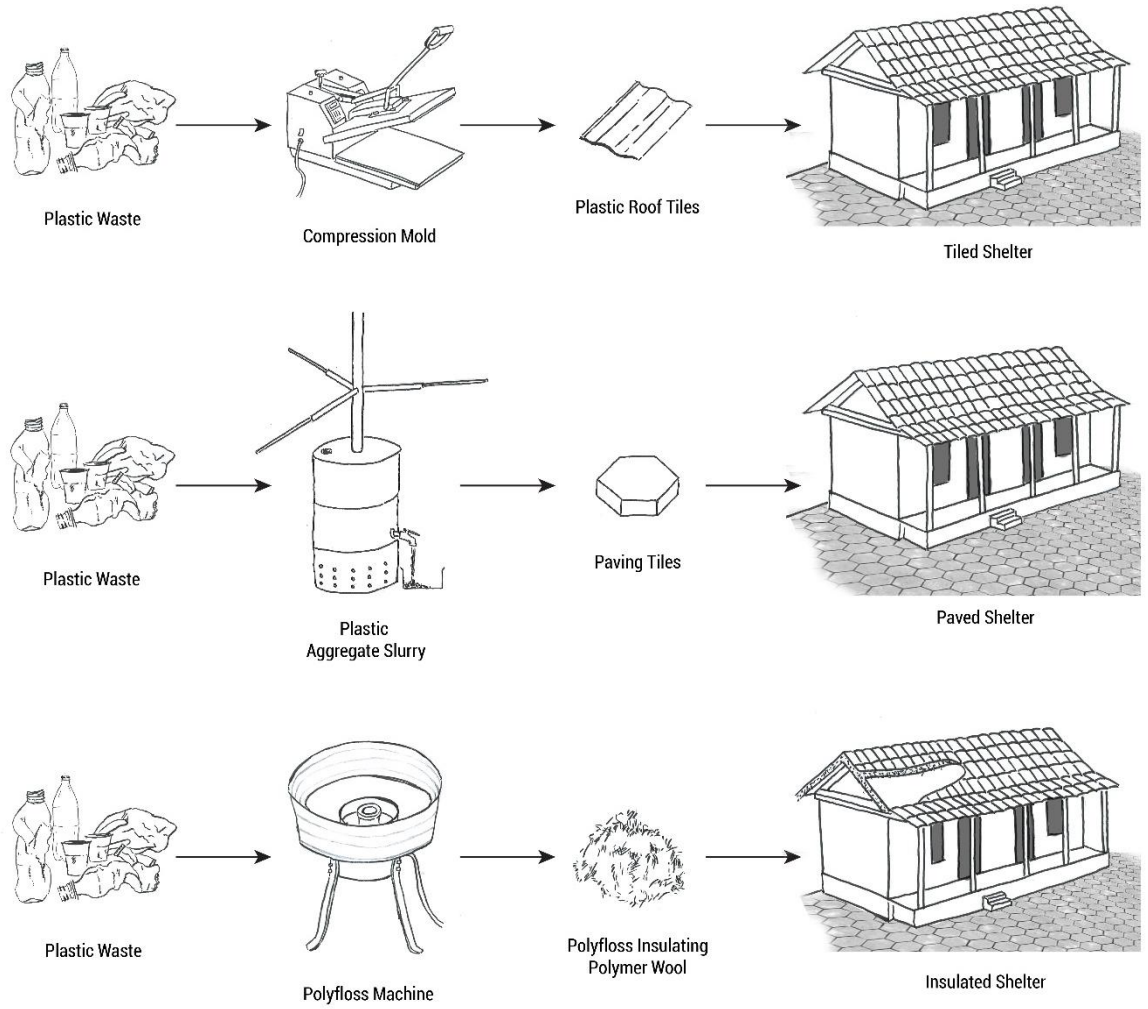

With the **onset of the pandemic** and WVI Nepal's efforts being diverted towards COVID response, the NLab **diverted resources** towards supporting this operation. Exploration of products ranged from **3D printed** BVM Ambu Bag **mechanical respirators**, to **phone holders**, to **mask hooks** for children.

POLYFLOSS ISULATION



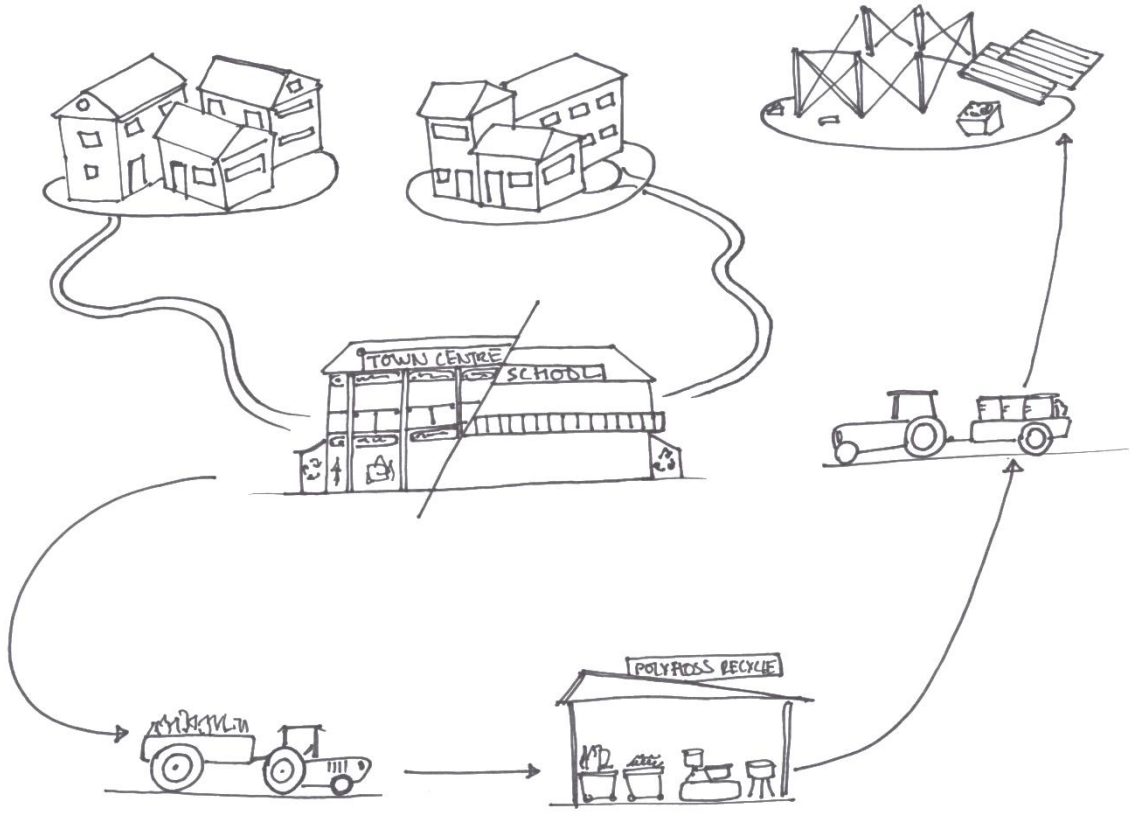
PolyFloss is a **fibrous material** made out of **PET plastic** made using a Polyfloss machine. Polyfloss and Styrofoam can be used as a **filler material** for roofing to **improve insulation** is houses that only have a thin sheet of corrugated metal as a roof.

PLASTICS USAGE



The various methods to using plastics can be used for multiple purposes, from using it as basic construction materials to insulating materials.

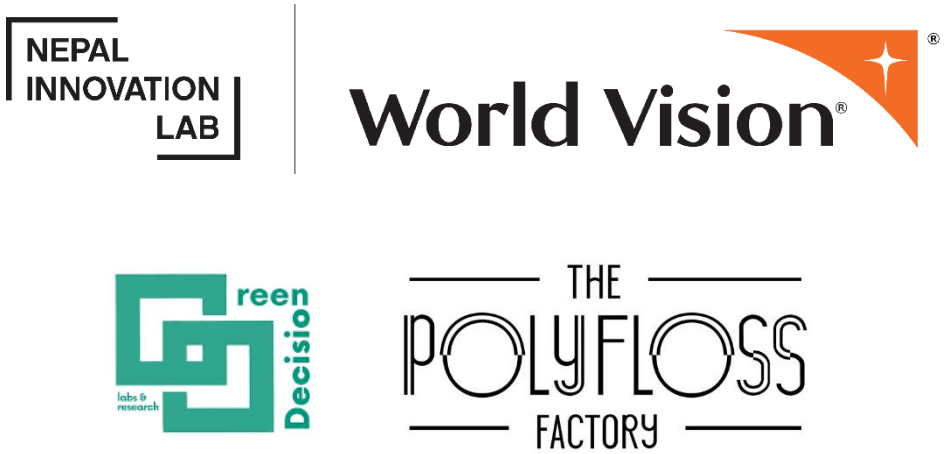
SUPPLY CHAIN



To strength the supply chain and support the collection of the waste plastics, members of different communities at various locations can be engaged to run ‘clean community’ campaigns, where the waste collected from these areas have value added to them and returned to the community in the form of construction material

SCHOOLS

PARTNERSHIPS



The NLab collaborated with the Polyfloss Factory and through them the Green Decisions Lab to produce the Polyfloss Insulation out in the field

Find us at www.wvi.org/nepal-innovation-lab

Or reach out at

nlab@wvnepal.org

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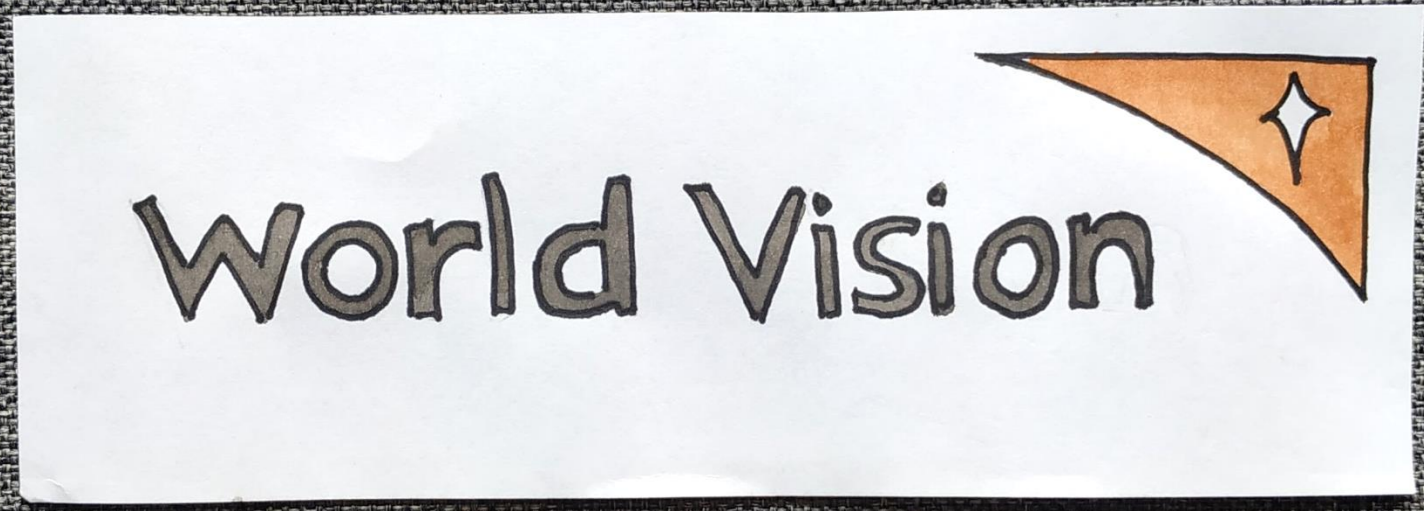
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