2023 Annual Report
Mission, Vision, and Values

As Diyalo Foundation we envision that Nepalese youth are able to successfully develop solutions for problems in their local communities by having access to technological expertise and resources. Our mission is empowering Nepalese youth to become future leaders and to support their local communities through technological development by connecting them with young experts and ecosystems from across the world. We strongly believe in equal access to opportunities, and work to make access to innovation and technology available for Nepalese communities. We work on this through our three locations in Nepal, The Netherlands, and the United States.

Diyalo follows a problem-solution oriented approach, using technology as an enabler to solve local needs in Nepal. Together with our partners, we contribute to the development of both students working with us and local communities in Nepal.

We dream of a world where youth anywhere have got equal opportunity to solve the problems their communities face. In this world, knowledge, expertise, and resources are shared freely to solve the problems of our times. To create this world, we connect high potential, young, problem solvers in developing countries with the knowledge and expertise they need. We build international knowledge communities, take away barriers to entry, and support mutual understanding and collaboration across cultures.

Summarised: We enable universities, knowledge hubs and high-tech companies to transfer knowledge and expertise towards high potential tech initiatives that lack specific knowledge. We facilitate infrastructures for collaboration, a business & project approach, and funding.
Our Approach
We believe solutions need to be owned by their communities, this is reflected in our operating model.

1. We start by finding local needs defined by communities by looking at the problems that influence quality of life, health and safety.
2. Our Diyalo Foundation Nepal team connects with local organizations (NGOs, government institutions, etc.) for technology-oriented projects. The DFNP evaluates the potential of the proposed project on several key criteria.
3. We find young representatives through these local partners. They are bright, young Nepalese people from within these communities.
4. We find the right expertise for the project within our network of knowledge partners in the US and Europe.
5. Our international technology partner network connects us to emerging young experts who work together to create and execute solutions.
6. We facilitate connection between our emerging technology experts and our Nepalese representatives to develop and implement technology solutions.
Board
Diyalo Foundation is based in three countries; Nepal, The Netherlands, and the United States. Each country is represented by a national board, and all boards are coordinated by the international council.

At the end of 2023, the board formation was as follows:

International Council
Binita Pandey
Dilip Shrestha
Marijn Götzenberger
Thom Smetters
Aavash Thapa
Jord Drontman

Diyalo Foundation Nepal
Chairman - Sudip Lingtheep
Secretary - Dilip Shrestha
Treasurer - Binita Pandey
Board Member - Ashim Dhakal
Board Member - Kiran Khadgi

Diyalo Foundation Netherlands
Chairman - Jord Drontmann
Secretary - Edwin Kllinkenberg
Treasurer - Thom Smetters
Board Member - Marijn Götzenberger

Diyalo Foundation USA
Chairman - Jord Drontmann
Board Member - Adam Rouhana
Board Member - Andrew Schoen
Board Member - Matthew Michaelides
Board Member - Aavash Thapa
Our 2023 Projects

In 2023, Diyalo Foundation collaborated with partners to enhance health and living conditions in rural Nepal. Projects included portable water assessment systems with Phutung Research Institute and universities, improved baby warmers with TU Delft, a remote login platform for the MINA healthcare robot with NHL Stenden, enhanced medical drone systems with Hogeschool InHolland, and a more efficient solar cooking stove with TU Delft and Leiden University.

WASH-System | Phutung Research Institute

Access to clean and safe drinking water remains a significant challenge in many parts of Nepal, particularly in rural areas. Contaminated water sources lead to severe health problems, including waterborne diseases that claim thousands of lives each year. To address this critical issue, the Diyalo Foundation has partnered with the Phutung Research Institute (PRI) to develop innovative solutions for water quality assessment and improvement.

This project focuses on creating cost-effective, portable, and efficient water assessment systems designed specifically for the unique challenges faced by Nepali communities. In 2023, we collaborated with several institutions to bring this project to a next level.

Design Optimization - TU Delft

The design optimization project involved a team of master's students of the Advanced Embodiment Design (AED) course working on the design and optimization of a high-frequency usage device for PRI's Water Assessment System (WAS). The design process included comprehensive user surveys, interviews with individuals in Nepal, and multiple aspect design testing. These activities ensured that the design was user-centered and met the specific needs of the local context. The student team produced an innovative design that served as the foundation for a major redesign of the WAS product in Nepal, significantly improving its usability and effectiveness in the field.

IoT and Disinfection Integration - TU Delft

Poh Maga from TU Delft undertook a thesis project to integrate a disinfection system with PRI’s water assessment device, enabling it to both monitor and disinfect water. The project involved designing a minimally viable product that could receive data from the WAS device and dispense a specified volume of chlorine into a water reservoir based on user-set parameters. The system was designed to automatically monitor water quality and dispense chlorine as needed. A prototype version of this integrated disinfection system is planned for development, aiming to enhance the functionality of the WAS device by adding automatic disinfection capabilities.
Analog Oscillator and Amplifier Development - HvA

PRI and Amsterdam University of Applied Sciences (HvA) have been collaborating on developing a fully analog oscillator and amplifier system, intended as an upgrade to the previously designed digital amplifier. Preliminary designs of the circuit were rigorously tested through simulations and hardware prototype testing, ensuring reliability and efficiency in the final product. This development is expected to enhance the performance and accuracy of the WAS device, contributing to more precise water quality monitoring.

IoT Functionality and Web/App Development - NHL Stenden

The team at NHL Stenden was tasked with adding IoT functionality to the WAS device, including the development of an Android app and a web portal to display the device's results. The team successfully built a minimally viable product (MVP) for both the app and the web portal. This MVP serves as the baseline for a future prototype system. Although the team managed to establish a WiFi-based connection, they were unable to achieve the intended GSM-based server connection. Future work will focus on integrating GSM functionality to ensure broader connectivity for the WAS device.

Babywarmer | National Innovation Centre | TU Delft

Many rural health facilities in Nepal lack proper infant healthcare equipment and trained personnel to operate them. Research indicates that out of 1,000 live births in Nepal, 35 infants do not survive the first few months, largely due to inadequate care. Hypothermia, where infants rapidly lose body heat, is a significant contributing factor. Traditional methods such as electric heaters, filament bulbs, and burning coals pose serious health risks to infants.

To tackle this issue, our partner, the National Innovation Centre (NIC), is developing cost-effective and easy-to-use baby warmers that can be produced and serviced locally. NIC also provides demonstrations and training with the device to upskill healthcare workers, ensuring proper and effective use.

In collaboration with TU Delft, we focused on enhancing the Nyano Nani baby warmer to improve on-site robustness, end-user usability, and faster manufacturing. This collaboration aimed to deliver an electrically efficient, reliable device that lasts for a long time to end-users in various areas of Nepal. Seven students from the Advanced Embodiment Design course at TU Delft contributed to this project. Their redesign of the baby warmer achieved remarkable improvements:
● **Energy Efficiency**: The new design is 29% more energy efficient in warming infants.

● **Weight Reduction**: The device is now 37% lighter, making it easier to transport and handle.

● **Cost Efficiency**: Production costs have been reduced by 12%, increasing accessibility.

● **User Interface**: An improved intuitive user interface and alarms ensure better usability.

● **Modular Features**: The device now includes upgradable modular features for enhanced functionality.

● **Tilting Mechanism**: An incorporated tilting mechanism adds to its usability and versatility.

● **Ease of Assembly**: The baby warmer can be assembled using only two tools, simplifying maintenance and repairs.

These improvements enhance the lives of infants and healthcare workers in Nepal. The reduced cost and weight increase access to these vital devices, while the improved features ensure better care and safety for newborns.

**MINA | National Innovation Centre | NHL Stenden**

The National Innovation Centre (NIC) is developing a MINA (Multitasking Intelligent Nurse Aid) robot to support healthcare in Nepal. Students from NHL Stenden contributed to this project by designing a remote login platform and web interface that enables users to control the MINA robot from a distance. This platform ensures that the robot can be operated efficiently and effectively, even from further away, enhancing its usability and versatility.

The NHL Stenden team focused on creating a user-friendly interface for the login platform, ensuring secure and seamless access for remote operations. This development allows for greater flexibility and responsiveness in deploying the MINA robot for various applications, particularly in healthcare support.

**Medical Drone | National Innovation Centre | Hogeschool InHolland**

Nepal's rugged terrain poses significant challenges to the timely delivery of medical supplies. The National Innovation Centre (NIC) has been developing a medical drone to address this issue. However, the current system faced limitations in positioning accuracy and secure communication vital to launching and landing the drone.

In collaboration with three students from Hogeschool InHolland, we focused on solving the positioning and secure communication which are essential to enhance its reliability and efficiency. Students worked on identifying and implementing systems to solve this problem, coming up with the following solutions:
1. **Positioning Accuracy:** The Real-Time Kinematic (RTK) system was implemented for its high precision (1-20 cm), providing significant improvements over standard GPS and other positioning systems.

2. **Secure Communication:**
   - **Message Signing with MAVLink:** Ensures that only authorized messages are accepted, enhancing security.
   - **Custom MAVLink Dialect:** Developed to streamline and improve the reliability of communication between the ground control station (GCS) and the drones.

These improvements significantly enhanced the medical drone system's reliability and accuracy, making it more effective for delivering medical supplies in Nepal's challenging terrains. The project not only addressed immediate technical challenges but also contributed to long-term improvements in medical logistics and access in remote areas.

**Solar Cooking Stove | National Innovation Centre - ICFI**

Many households in rural Nepal rely on traditional cooking methods using biomass, which cause severe environmental damage and health issues. The country faces an energy crisis due to reliance on imported fuels and limited access to grid electricity. This situation necessitates sustainable and affordable cooking solutions. Our partner, the National Innovation Center (NIC), is developing cost-effective and locally producible Insulated Solar Electric Cookers (ISEC) based on a design by Professor Pete Schwartz from Cal Poly. These cookers are designed to use solar energy, reducing reliance on harmful traditional fuels.

In collaboration with TU Delft and Leiden University, we focused on enhancing the ISEC to improve on-site robustness, end-user usability, and manufacturing efficiency. This collaboration aimed to deliver an electrically efficient, reliable cooking device for households in various regions of Nepal. Students from TU Delft and Leiden University contributed significantly to this project. Their improvements to the ISEC achieved significant results:

- **Energy Efficiency:** The new design is more energy efficient, reducing cooking time and improving heat retention.
- **Usability Enhancements:** The cooker now includes a stirring mechanism that allows stirring without opening the lid, reducing energy loss. The addition of transport handles and longer wires improves maneuverability.
- **Cost Efficiency:** The production process has been optimized, making the ISEC more affordable and accessible to rural households.
- **Versatility:** A momo steamer module and other modular features have been added to allow for a wider variety of cooking methods.
- **Induction Heating:** The ISEC now uses induction heating, which is more efficient and significantly reduces cooking time compared to resistance heating.
- **On-Site Research and Feedback:** Surveys and observations in Jomsom provided valuable insights into local cooking practices and needs, leading to further improvements in the ISEC's design and functionality.
These enhancements significantly improve the cooking experience for households in rural Nepal. The reduced cost and increased efficiency make the ISEC a practical alternative to traditional cooking methods, while the added features ensure a versatile and user-friendly cooking experience. This project not only addresses immediate cooking needs but also contributes to long-term environmental and health benefits by promoting sustainable energy use.

**Project Strategy 2024**

In 2024, we want to work with both existing and new partners in Nepal, but also start exploring whether our model can work outside of Nepal. We believe the model can work in most countries where access to knowledge and other resources is an issue. We will continue to select projects based on the potential impact of the product, scalability and sustainability, competencies of the organization, facilities at the organization, and expected business model.

**Cultural Training Sessions**

To ensure smooth intercultural communication between our partners, we held three "Culture Presentation" sessions with partners. These sessions aimed to strengthen relationships and bridge cultural gaps. Each session began with an introduction to Diyalo Foundation and an ice breaker game to create a comfortable atmosphere. Dilip, our trainer in Nepal, then gave an informative presentation covering geography, ethnography, religion, food, dress, housing, languages, caste systems, ethnic groups, and currency. Participants shared their cultural experiences, making the session interactive and enriching.

The cultural training increased participants' awareness of intercultural communication, helping to break down cultural barriers, enhance self-awareness, and improve communication skills. This awareness helps partners avoid misunderstandings and work more effectively across cultures, fostering deeper connections to achieve common goals.

**Training strategy 2024**

For 2024, there are three types of training we want to provide. We want to continue with our intercultural training, but we also want to provide training for psychological safety and leadership. Our Nepali trainer, Dilip, will be providing these training sessions.
New Collaboration with Wilde Ganzen | Stichting Nepal | WVAF

In 2023, we began a fruitful collaboration with Wilde Ganzen, Stichting Nepal, and WVAF for funding. This partnership has significantly bolstered our financial resources, enabling us to expand and enhance our projects. As a result of this collaboration, we are now registered with the Social Welfare Council in Nepal, which further strengthens our ability to operate and make a meaningful impact in the region.

Financial Statement 2023

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Result: €2.128,58 €82.474,88 -€73.494,289

Balance Sheet

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These figures show the consolidated profit and loss statement of Diyal Foundation Nepal and Diyalo Foundation Netherlands.

Explanation for income
This year, Diyalo Foundation received generous funding from Unknown University, Wilde Ganzen, Stichting Nepal, and numerous private donors. These contributions have been essential in supporting our mission to empower entrepreneurs and create impactful solutions for communities in the Global South. We extend our heartfelt gratitude to all our donors for their unwavering support and commitment to our cause.

**Explanation for expenses**

Staff costs cover the expenses for our team in Nepal, which consists of four part-time members dedicated to project management, training, and administration. Bank costs include fees for maintaining our bank account and transferring funds to Nepal. Overhead costs encompass our website maintenance and other incidental expenses. Partner training costs relate to our contributions to joint training sessions, including catering and venue rental. Last year, we secured a grant for the baby warmer project, and under project costs, you can see the payments made to support this initiative in Nepal.