Beyond the Surface: Uncovering Hidden Realities in Maternal and Neonatal Health in Rural Nepal through Field-Based Observation

MIT D-Lab | National Innovation Center Nepal
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Abstract

In rural Nepal, maternal and neonatal health outcomes are shaped by more than policy or infrastructure—they are shaped by culture, geography, trust, and silence. This white paper presents findings from a comprehensive needs assessment conducted by MIT D-Lab students and the National Innovation Center (NIC) Nepal, under the active supervision of Mathieu Aguesse, MIT instructor. The study aimed not just to collect data, but to uncover insights that often go unspoken: the systemic gaps, informal behaviors, and quiet truths that impact healthcare access and quality.

Our mission was not simply to identify needs, but to understand the deeper dynamics at play in how maternal and neonatal care is experienced, delivered, and perceived. We deployed a diverse suite of methods—ranging from qualitative interviews to scenario-based forecasting, from fly-on-the-wall observation to participatory journaling, and from photo elicitation to real-time environmental sampling. Each of these tools was chosen not only for its technical merit, but for its ability to surface insights that are otherwise invisible—insights that reside in emotions, habits, contradictions, and everyday routines.

This report goes beyond findings. It serves as a field manual for researchers, designers, and development professionals interested in applying immersive, human-centered research techniques in low-resource settings. Each methodology is presented with narrative context, strategic rationale, and concrete field anecdotes that highlight its strengths—and its limitations. The hope is that by sharing both what we learned and how we learned it, others can adapt, scale, and refine these tools for their own settings.

1. Introduction

Nepal faces urgent maternal and neonatal health challenges. The maternal mortality rate (MMR) stands at 151 per 100,000 live births, and the neonatal mortality rate (NMR) is 21 per 1,000 live births—both above the Southern Asia average. These outcomes are disproportionately worse in rural and mountainous regions, where care is limited by geography, lack of skilled providers, and infrastructure breakdowns.

With its vast topographical diversity, multilingual communities, and deeply rooted social norms, Nepal offers both an urgent need and a complex landscape for maternal and neonatal health interventions. Our project—carried out in collaboration between MIT D-Lab, Wellesley College, and the National Innovation Center (NIC) Nepal—was situated across two contrasting regions: Dolpa (a remote, mountainous district) and Rautahat (a lowland Terai district with denser population and higher mobility).

We arrived not just as students or researchers, but as listeners, observers, and facilitators of stories. Our preparation involved deep desk research, scenario development, and hypothesis generation before fieldwork began. Once on the ground, we used open-ended and creative techniques to understand what statistics alone could not reveal. We interviewed hospital staff and community volunteers, walked through villages, sat quietly in waiting rooms, handed out journals, measured air and water quality, and showed visual prompts to stimulate reflection.

Rather than treating these methods as check-boxes, we saw each as a lens—offering a different view into the systemic, emotional, cultural, and infrastructural realities shaping maternal care. We believed that by layering these perspectives, we could triangulate a more honest picture of what is working, what is broken, and what might emerge next.

What follows is not only a record of insights, but a methodological invitation: to approach fieldwork with humility, curiosity, and creativity—and to remember that the most important truths are often those that are hardest to see.

2. Preparing to Listen: Desk Research and Scenario Design

Before even setting foot in Nepal, we committed ourselves to a rigorous and exploratory phase of preparation: desk research and scenario design. This preparatory work laid the foundation for our field presence, shaping our questions, sharpening our hypotheses, and challenging our assumptions long before we packed our bags.

We dove into nearly 600 pages of publicly available health literature and planning documents relevant to maternal and neonatal care in Nepal. These included:

» *The Annual Health Report 2079/80* (~170 pages), offering a comprehensive overview of public health service delivery, performance indicators, and national trends.

» *The Comprehensive Newborn Care Training Package* (~200 pages), which detailed clinical competencies, expected practices, and the formal knowledge delivered to frontline workers.

» *The Nepal Demographic and Health Survey 2022* – Key Indicators Report (~50 pages), providing rich quantitative data broken down by geography, age, literacy, and income.

» *The Safe Motherhood and Newborn Health (SMNH) Roadmap 2030* (~180 pages), articulating the national vision and strategic priorities to reduce maternal and neonatal mortality.

Each document offered a different entry point into the system. We approached them not as static information sources, but as dynamic artifacts: fragments of a larger system trying to reform itself. We made annotated maps, drafted synthesis slides, and worked through summaries with a critical eye toward contradiction and tension. How could coverage of antenatal care be so high, and yet home births so prevalent? Why did certain districts report high infrastructure availability but low utilization? These were our starting puzzles.

But documents don't tell stories. They don't show what it feels like to wait three hours in a rural clinic or to deliver a baby by candlelight. That's where scenario design came in.

Summaries and bullet points can sometimes flatten reality. They give you a median view—a mean, rational, often sanitized abstraction of what's happening. But human systems are never that clean. Scenarios, on the other hand, are messy, emotional, and specific. They help us enter a situation emotionally, surface contradictions, and ask better questions. They evoke not just logic but empathy. In preparing for our work, we didn't just take notes—we imagined people's lives.

Inspired by ethnographic practice and speculative design, we directly asked generative AI models to help us create plausible, detailed scenarios based on the 600 pages of documents we had reviewed, along with any contextual information the model could incorporate from adjacent sources. The result was a rich set of character-based narratives featuring mothers, nurses, fathers, FCHVs, and local officials—each navigating the very systemic tensions we wanted to explore.

One featured a nurse juggling protocol and power outages while trying to use a fetal Doppler. Another followed a pregnant woman debating whether to cross a river during monsoon season because her mother-in-law distrusted institutional delivery. A third described an FCHV navigating conflicting messages from community elders and government guidelines.

The goal wasn't to replace fieldwork, but to anticipate complexity. These AI-supported stories brought to life challenges such as negotiating with elders about delivery location, struggling to operate a donated ultrasound without training, or navigating contradictory health messages from state and religious authorities.

AI-generated pictures illustrating scenarios created, aiming at a more emotional representation.

We shared these stories with our team, asking: What parts of this feel most real? What surprises us? What assumptions are we making about people's values, choices, or constraints? We even used generative AI to simulate characters, experiment with narrative branches, and explore the emotional texture of these realities.

Through this process, we transformed abstract information into a field-sensitized mindset. We began to understand not just the "what" of the system, but the "why" and "how" behind its dysfunctions and adaptations. And perhaps most importantly, we realized how little we actually knew—and how much we needed to remain open, alert, and reflexive once in the field.

Desk research and scenario design are often undervalued in applied research. But in our case, they were crucial in turning data into empathy, frameworks into curiosity, and preparation into insight.

3. Field research techniques

3.1 Qualitative Interviews

Interviews were one of our primary methods in the field—but not in the way that most field manuals describe them. We didn't arrive with rigid questionnaires, nor did we seek to "extract" clean answers. Instead, we saw interviews as shared spaces for slow thinking, vulnerability, and layered storytelling. The quality of insight we obtained came less from what we asked and more from how we listened.

We were intentional about where interviews took place. Whenever possible, we conducted conversations in the environments where the participants lived or worked—in clinics, hospital courtyards, staff rooms, or village kitchens. Being physically close to the action allowed us to bring context into the discussion. We invited participants to show us tools they used, papers they referenced, or makeshift solutions they had invented. A nurse might bring out a stethoscope with a cracked ear tip, explaining how she adapts it. A volunteer might open her worn flipbook and describe how she interprets visuals for illiterate patients. These artifacts sparked stories, revealed practices, and led to deeper understanding of real-world constraints and creativity.

Our technique relied heavily on establishing both mental and physical empathy. We often mirrored the posture, tone, and body language of our interviewees, which helped reduce perceived hierarchies. In one case, a senior midwife stood for the entirety of our conversation while wrapping instruments; we chose to stand too, leaning against the counter and letting bodies signal mutual respect. These small acts of mirroring often led to greater openness.

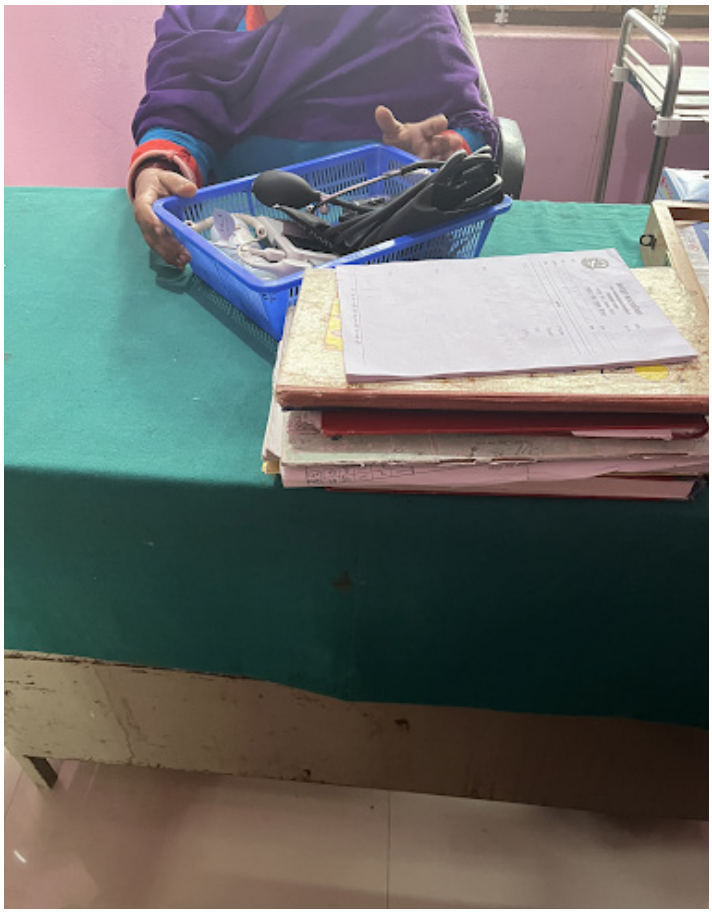
We also learned the power of silence. After posing a question, we let pauses linger—sometimes for several seconds, even when it felt socially uncomfortable. And yet, in those moments of silence, something extraordinary happened: people kept talking. They filled the space with the thoughts that had initially been held back. Often, it was after a pause that someone would offer a contradiction to their earlier statement or reveal an emotional detail that hadn't seemed "relevant" until then.

We asked "why" frequently—not just once, but repeatedly, allowing the thread to go deeper each time. When a nurse told us mothers didn't return for postnatal care, we asked why. She said they were busy. We asked why again. Eventually, we uncovered that many feared judgment from older female relatives if they appeared "weak" by seeking outside help. In that moment, we were no longer talking about logistics—we were talking about intergenerational power and shame.

Follow-up interviews were instrumental. In Dolpa, we were able to revisit some participants after our initial conversations. These second interviews added depth and nuance. We brought specific quotes or

observations back to the interviewee and asked for clarification or interpretation. Often, this sparked stories that might not have emerged otherwise. We treated these follow-ups as co-analysis moments, where participants could reflect not just on their reality but on how it had been understood.

Live translation—necessary in many settings—became an unexpected advantage. While a translator interpreted the conversation, we observed facial expressions, posture shifts, and glances. We used the gaps between responses to quietly brainstorm adjustments, reframe questions, or note tension. In some cases, we could sense an emotional shift before we understood the words being spoken. This second layer of observation deepened our interpretation of the conversation.



Interviews on site, setting the discussion in the core of the action and prompting interviewees to present tools, accessories.

Our interviews were often informal in structure but formal in rigor. We debriefed thoroughly after each session, reviewing themes, contradictions, and emotional currents. We didn't aim to achieve "data saturation" as much as we aimed for perspective triangulation—what was said, what was shown, and what was felt.

Above all, we avoided judgment. When women described giving birth at home despite nearby clinics, or when staff shared stories of outdated practices, we did not correct or evaluate. We asked, "What made that feel like the right choice?" or "How do others in your community feel about this?" In doing so, we learned to hold space for complexity—and to hear truth in layers.

In fieldwork, interviews often begin as tools for data collection. For us, they became something more: a way to build trust, to challenge our assumptions, and to give voice to stories that are often left behind in health reporting.

3.2 Focus Groups with Nurses and Volunteers

In addition to individual interviews and journaling, we conducted a series of focus groups—primarily with nurses, midwives, and Female Community Health Volunteers (FCHVs). These group discussions offered a unique vantage point, allowing us to observe how ideas, norms, and conflicts emerge in real-time through social interaction. While logistically more complex to manage, the method revealed social dynamics that individual conversations often obscured.

Each focus group brought together six to ten participants, typically seated in a circle within a hospital common area, health post courtyard, or shaded space outside. The facilitator would open with general prompts about challenges in maternal care, resource availability, and community expectations. As the conversation unfolded, themes of hierarchy, generational difference, and even subtle rivalries began to emerge.

Focus groups were held on-site and with a group of 8 to 10 participants.

This format was both powerful and difficult. With just one facilitator and one note taker managing up to ten participants, overlapping conversations were common. Some participants dominated while others hesitated. Occasionally, side conversations would erupt, or participants would interrupt each other to correct, challenge, or endorse a point. But rather than viewing this as a flaw, we embraced it as data.

These moments of confusion revealed important tensions: between younger and older nurses, between those trained in formal systems and those relying on traditional methods, between the administrative and clinical perspectives on maternal care. Peer pressure sometimes shaped what was said—or not said—and body language was as revealing as speech.

In one group, a younger nurse expressed concern about outdated practices, only to be quietly silenced by an older midwife's frown.

A particularly rich moment emerged when we introduced a range of flipbook designs—visual aids used by FCHVs and midwives to guide educational sessions with expecting mothers. We showed several speculative versions: digital mock-ups of mobile apps, accordion-style printed materials, and even AI-generated visuals for tactile or foldable formats. What followed was one of the most animated segments of any focus group.

Opinions clashed and converged. Older volunteers voiced skepticism about technology, citing lack of training and trust in paper-based methods. Younger nurses argued for interactive tools that could better engage the new generation of mothers. Some debated color schemes, iconography, and translation issues. Yet amid the disagreement, something unexpected happened: participants began co-building the next iteration of the flipbook on the spot.

They rearranged the photos, suggested missing content, identified confusing visuals, and debated the tone of messages. What began as critique became collaboration. The tool became a mirror through which the group negotiated their shared mission, across age, role, and worldview.

This kind of constructive friction is exactly what focus groups can unlock when facilitated with openness and trust. They don't just collect opinions—they can catalyze design.

To others considering this method, we recommend using small, homogeneous groups when possible—or clearly preparing strategies to manage power dynamics if mixed roles are present. Encourage note taking of not just what is said, but how it's said—who speaks when, who supports or retracts a point, and what gestures betray agreement or dissent.

Focus groups in this context were not just conversations—they were miniature ecosystems. And watching them unfold was one of the most valuable ways we came to understand the social context that shapes maternal and neonatal health in rural Nepal.

3.3 Fly-on-the-Wall Observation

Among the most revealing techniques we used in the field was passive observation—what is often referred to as fly-on-the-wall. This method allowed us to maintain an outsider's perspective while immersing ourselves in the everyday life of health institutions and their surrounding communities. The goal was not to intervene or interrogate, but to absorb.

We practiced this by placing ourselves in various strategic and incidental settings: sitting silently in the corner of hospital lobbies, strolling the perimeters of health centers, and walking through neighboring villages. Without the need to steer conversation or manage timing, we could focus entirely on the rhythm and choreography of each environment.

Performance metrics board, filled up discreetly while we were touring the health post.

This meant watching how people moved through space—who hesitated at doorways, who received attention and who did not, where informal waiting areas formed, and how information (or misinformation) was shared. We studied objects as well: how beds were arranged, whether signage was legible and accurate, and what tools lay idle in corners. We took photographs of these details—not for documentation alone, but to use later as prompts in interviews, to surface contradictions, or to investigate patterns that might not make sense until later in the process.

In one health post, for example, we arrived slightly ahead of schedule and found a service tracker board and a condom dispenser both empty. By the time we left, both had been replenished. We hadn't said a word, but the staff clearly noticed our presence. This small act revealed much: a desire to impress, the existence of a performative maintenance culture, and possibly a mismatch between daily routines and institutional expectations.

One of many medical devices abandoned around the hospital for lack of maintenance

Surgery tools drying outside after artisanal sterilization

In another hospital, we wandered behind the building and discovered several expensive medical devices collecting dust in the courtyard. They had been donated, but none were in use. Some were missing parts, others required electricity or expertise the facility lacked. This observation ran counter to interviews where staff had expressed a desire for more advanced tools. It forced us to reconcile ambition with capacity—and to question what "need" really means when context is ignored.

Perhaps the most visceral moment came when we saw surgical tools drying in the sun next to an open fire. The hospital owned autoclaves, but they were not being used. Was it a power issue? A training gap? A preference for traditional methods? We brought this photo into later interviews and received a cascade of interpretations—each plausible, none definitive.

What made these insights powerful was not just what we saw, but what the act of seeing without intervening revealed. When you stop asking and start noticing, the environment itself begins to speak. The placement of a chair, the discoloration on a wall, the flow of people at lunchtime—these become data. Not just anecdotal, but patterned, layered, and deeply informative.

Fly-on-the-wall observation requires patience, trust in your perception, and humility in your interpretation. But it often yields the kind of contextual intelligence that structured methods overlook. In environments where power, shame, or cultural norms shape behavior, what people do often tells you more than what they say.

3. 4 Journaling

Among the most generative methods we used in the field was journaling—both as a form of data collection and as a way of shifting the power dynamic between researchers and participants. Unlike interviews, where the conversation is researcher-led, journaling gives control to the respondent. It allows them to reflect in their own time, use their own language, and express thoughts that may not surface in face-to-face dialogue.

We created custom journals by hand. Blank notebooks were locally sourced, and we filled them with five days' worth of prompts—open-ended questions, visual cues, and thematic areas ranging from "what

made you laugh today?" to "what challenges are you facing with your pregnancy or birth work?" We left large sections blank, included spaces to paste photographs, and avoided check-boxes or rigid forms.

To complement this, we brought portable printers and encouraged participants to take and paste in photos from their daily lives. This added a visual storytelling layer and made the journaling process more tangible and personal. Participants were encouraged to use the journals however they wanted: some drew symbols, others wrote in long paragraphs, and a few included family members' commentary.

This approach enabled:

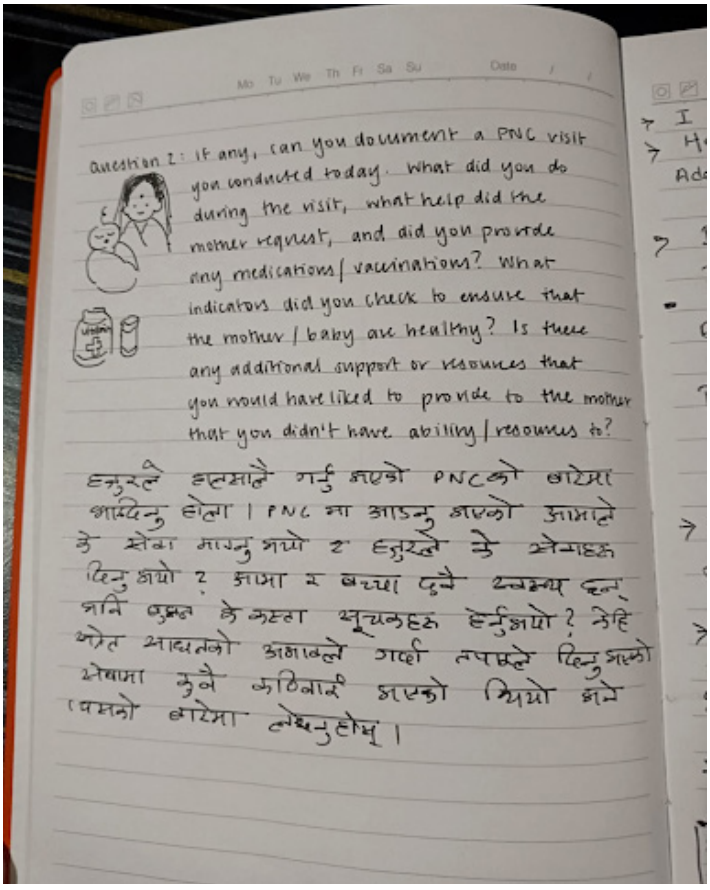
» Deep reflection: Unlike in interviews, where participants must respond on the spot, journaling gave them the opportunity to think, sleep on a question, and return with layered answers.

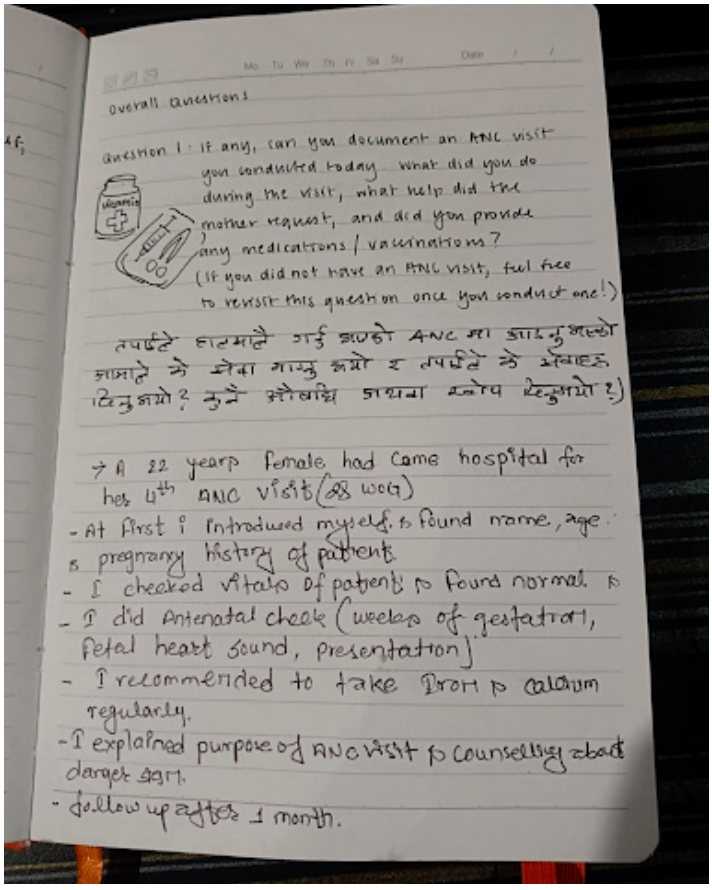
» Closer proximity to action: Participants could record thoughts immediately after events happened—after visiting a clinic, talking to a relative, or cooking a particular meal—allowing us to capture behaviors and feelings in real time.

» Documentation of sequences: One FCHV wrote out a full narrative of a complicated birth she had supported, broken across three days. The story included weather, travel delays, emotional reactions, and policy confusion—all of which would have been difficult to surface in a one-hour interview.

» A safe space: Participants used their own language, handwriting, and framing. This intimacy created a different kind of data—one not mediated by translators, recorders, or interviewer assumptions.

When we recollected the journals, the material was rich, emotional, and, at times, unexpected. One participant used a photo of her cooking fire to explain why she couldn't attend an antenatal appointment. A third wrote about how her in-laws influenced her decisions more than any doctor ever could.





Extracts from the filled-up journals sent over by the participants after a week. Additional pictures were sent via WhatsApp

These journals were not just an alternate source of data—they were a portal into the private textures of everyday life. They revealed stories participants may never have voiced aloud, and gave us a much clearer sense of the contextual rhythms shaping maternal health decisions.

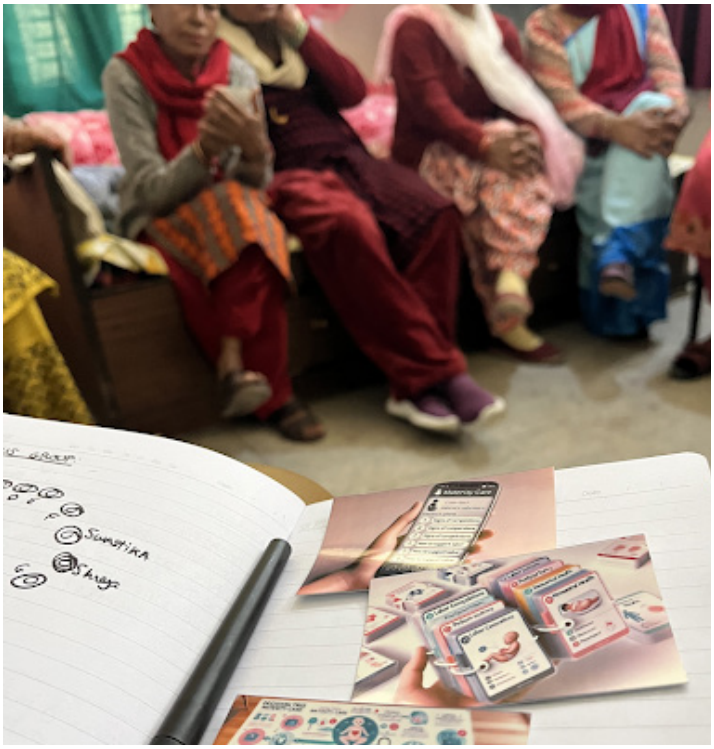
As a method, journaling requires investment and care. It takes more time to prepare, more trust to deploy, and more effort to analyze. But its payoff is enormous. For researchers working in contexts where silence, shame, or deference may hinder direct questioning, journaling offers a quiet, respectful, and powerful way to listen.

3.5 Photo Elicitation

Photo elicitation proved to be one of the most accessible and engaging methods we used—especially for prompting emotional and comparative responses in our interviews and focus groups. The premise is simple: show someone a photo, and ask them to respond. But what happens next can open a window into values, memories, expectations, and cultural narratives that standard questioning can't always reach.

We curated a set of images carefully designed to provoke conversation around maternal health infrastructure, care environments, and medical tools. These weren't random stock photos—they were chosen to represent a spectrum of realities and aspirations. Some depicted highly modern, high-tech birthing centers with stainless steel beds and sophisticated lighting. Others showed more communal, human-scale birthing rooms, with low lighting, colorful fabrics, or family involvement. We also created bespoke images using generative AI to accentuate certain aspects of our research.

What we were listening for wasn't just which image participants preferred—it was why. What did they notice first? What made them feel safe? What felt intimidating or cold? What reminded them of something they'd seen before? The responses were rich. A nurse in Rautahat pointed to a polished birthing room and said it looked beautiful but "not for us." A pregnant woman in Dolpa lingered over a simple, sunlit space and described how it reminded her of giving birth to her first child on a veranda.



Printed pictures were used during interviews and focus groups to get more detailed information and reactions, sometimes generating bespoke images with AI.

We used a similar approach with medical devices. We assembled visual options for tools like fetal monitors, neonatal warmers, and blood pressure cuffs—ranging from high-end hospital versions to low-tech, analog alternatives. We asked participants to describe their familiarity, comfort, or concerns with each. In some cases, preferences were surprising: simplicity and reliability often won out over innovation. One nurse remarked, "This one looks impressive, but if it breaks, we don't know what to do." Another described how power outages made digital tools a gamble.

A third application involved prototyping alternatives to the educational flip books used by Female Community Health Volunteers (FCHVs). These flip books are meant to guide conversations with expecting mothers about health and nutrition. We generated several speculative designs using early-stage prototyping and AI-generated images, exploring concepts like a mobile-app version, an accordion-style physical foldout, and a tactile board with Velcro visual aids for home visits. Showing these to nurses and volunteers sparked lively discussions—not only about which formats they preferred, but how each might shift their relationship with the families they serve.

The strength of photo elicitation lies not in consensus, but in texture. It provides a way for people to engage visually and viscerally. It helps surface assumptions about what care should look like. And it allows researchers to detect emotional undercurrents—longing, pride, discomfort—that rarely show up in structured formats.

It also democratizes the conversation. Participants who might feel hesitant to speak formally often warmed up when looking at a photo. The visual served as a shared anchor, letting them point, describe, or even critique more freely. In multilingual or low-literacy contexts, this visual scaffolding was invaluable.

To use photo elicitation effectively, images must be locally adapted, aesthetically diverse, and emotionally resonant. But when done well, it becomes more than a prompt—it becomes a catalyst for co-imagination and collective insight.

3.6 Environmental Sampling

While much of our work focused on human narratives and qualitative insights, we also sought to ground our observations with environmental data—concrete, measurable indicators that could signal invisible stressors affecting maternal and neonatal health. This led us to adopt a low-tech but systematic approach to environmental sampling.

We started by asking two questions: What can we reasonably measure? And what environmental factors could plausibly influence maternal health, even if indirectly? While it was beyond our means to collect clinical data or conduct large-scale biomonitoring, we identified several factors that were accessible, relevant, and often overlooked in health needs assessments: air quality, water quality, temperature, and elevation.

We procured basic sampling equipment: handheld AQI (Air Quality Index) monitors to measure PM2.5 levels, water quality test strips for pH, chlorine, hardness, and bacterial indicators, digital thermometers, and portable altimeters. With these tools, we set out to take consistent readings across varied geographies and settings.

Our sampling covered:

» Health posts and hospital interiors (including birthing rooms, waiting areas, kitchens)

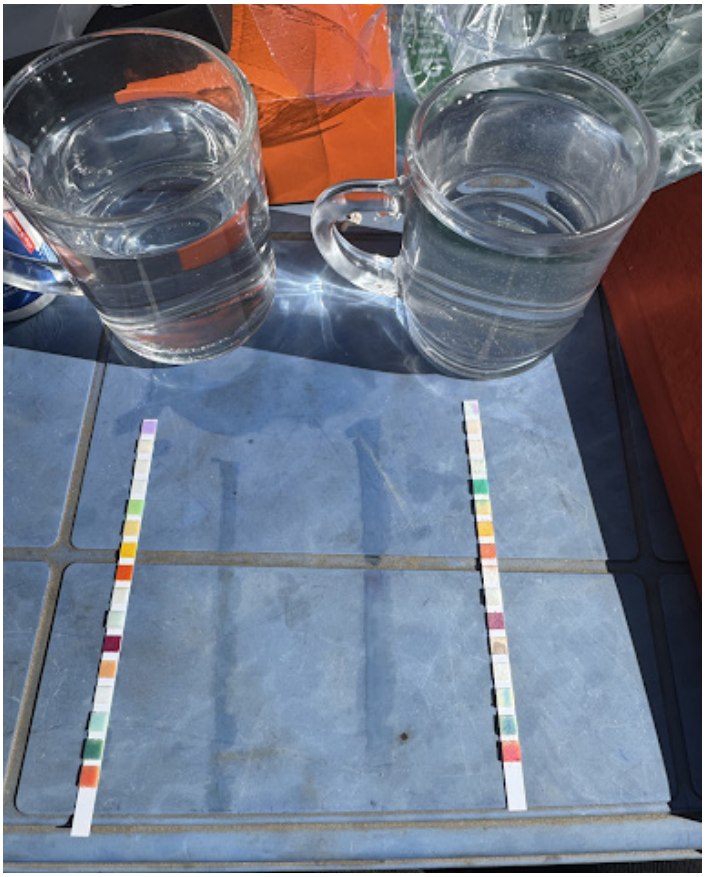
» Homes of patients or staff members

» Outdoor village paths and cooking spaces

» Restaurants or teahouses used by staff and patients

» Urban hospitals in Kathmandu and remote facilities in Dolpa

One of the clearest and most concerning patterns emerged around air quality. In locations where wood fires or indoor stoves were used for heating or cooking—especially in poorly ventilated spaces—PM2.5 levels often spiked to hazardous levels. A particularly vivid case occurred at a restaurant near a hospital where many staff ate daily. The fireplace was the primary heat source, and our AQI monitor showed levels more than 10 times the WHO guideline. This finding sparked immediate reflection among our team: even if medical care is delivered competently, what are the risks posed by routine environmental exposure to smoke?



Water and air quality sampling in various places and environments.

Water sampling offered a contrasting lesson. We were diligent in testing tap water in clinics and homes across both regions, yet most people relied on bottled or filtered water for drinking. This limited the relevance of our tests in terms of health impact. Nonetheless, the process gave us a helpful baseline and illustrated just how quickly infrastructure type—borehole, municipal pipe, rainwater—changed from village to village.

This method helped us shift from assumptions to specificity. We no longer had to ask if the clinic was "clean"—we could point to air quality readings or water contamination scores. It also helped us think critically about design recommendations. If a device required stable temperature or low humidity to function, could it realistically survive in these conditions? Could solar power be viable if altitude and shading limited its reliability?

Importantly, we didn't treat the data as absolute proof. Instead, we treated it as an additional lens—a way to cross-check stories, identify hidden stressors, and explore causality in environments where few metrics are normally available.

For any team conducting fieldwork in low-resource settings, we recommend including some form of lightweight environmental sampling. It won't replace community voices—but it can highlight the invisible forces that shape them.

4. How to Apply This to Your Work

This report is more than a record of findings—it is a methodological offering. Each approach we used in Nepal can be adapted to other settings, and we believe doing so can radically enhance the quality and impact of field-based research, especially in health, development, and social innovation contexts.

Here are key takeaways and strategies for applying our methods:

Start with layered preparation. Desk research is not just about gathering facts—it's about building mental models, noticing contradictions, and generating scenarios that bring policy data to life. Use scenario design to imagine lived experiences from multiple perspectives. Let these stories inform your hypotheses, shape your questions, and challenge your assumptions before you begin.

Treat interviews as shared meaning-making. Move beyond scripted surveys. Create emotional and physical empathy through mirroring. Use silence as a tool. Ask "why" repeatedly—not to interrogate, but to unravel. Follow up when possible. Return with specific quotes or contradictions to spark deeper reflection. If translation is needed, use the delay to observe body language and rethink your strategy mid-conversation.

Observe without an agenda. Fly-on-the-wall observation is about noticing what doesn't get mentioned. Place yourself quietly into the environments that you hope to understand. Watch movements. Study tools. Look at what is on the walls, or what has been taken off them. Take photos to challenge assumptions later. Let contradictions emerge naturally, and trust that what is visible can lead you to what is invisible.

Hand the pen to others. Journaling invites participants to tell stories on their own terms. Design prompts that are open, accessible, and reflective. Include space for photos, drawings, or collaborative writing. Make time to discuss the entries if you can. This method is especially powerful in contexts shaped by stigma, hierarchy, or time constraints. The data is slow but deep.

Use visuals to bridge abstraction. Photo elicitation helps people articulate what they want, fear, or imagine—without needing the vocabulary of policy or design. Curate diverse and culturally sensitive images. Ask open questions. Use the visuals to foster co-analysis, not just reaction. Test aspirational ideas, early prototypes, or even fictional futures. Let people critique what doesn't yet exist.

Quantify what you can, even if it's simple. Environmental sampling turns the atmosphere into insight. A basic AQI reader or water strip test can shift the conversation from "clean" or "unsafe" to a measurable condition. Use this data not as final proof, but as a way to triangulate: how does the environment support or undermine what people say and do?

Reflect constantly. Every night in the field, debrief. Ask: What surprised us today? What did we assume that turned out wrong? What patterns are emerging, and where do they contradict each other? Keep your fieldwork flexible enough to respond to what unfolds.

Above all, stay humble. Fieldwork is not about confirming what you already believe. It's about noticing what you missed. The most valuable insights often come from what seems trivial, contradictory, or confusing at first glance. Stay with it. That's where the learning lives.

5. Fieldwork Shopping List

A well-prepared toolkit can dramatically enhance the flexibility, depth, and safety of fieldwork—especially in remote or resource-constrained environments like rural Nepal. Based on our experience, we've compiled a list of essential and helpful items that supported our research process, adapted for a variety of methods including interviews, observations, participatory exercises, environmental sampling, and field journaling.

Notebooks and Writing Tools

» Waterproof field notebooks for researchers
» Locally sourced blank notebooks for participant journals
» Fine-tipped waterproof pens and permanent markers
» Highlighters and color-coded sticky notes for post-interview coding

Photography and Visual Tools

» Portable photo printer (e.g., HP Sprocket, Canon Ivy) with refill packs
» Laminated visual cards for photo elicitation and scenario exploration
» Durable plastic folders to protect printed photos from heat and humidity
» A small digital camera or phone with high storage capacity

Audio and Translation

» Lightweight audio recorders with wind covers
» Clip-on microphones for outdoor or crowded settings
» Notebooks for real-time translation notes
» Multi-port headphone splitter for team listening during live translation

Environmental Sampling Kits

» Pocket air quality monitor (for PM2.5, CO2, temperature, humidity)
» Water quality test kits (pH, chlorine, hardness, nitrates, bacteria)
» Digital thermometer with indoor/outdoor probe

Journaling Kits

» Pre-designed journal inserts with prompts and illustration spaces
» Small glue sticks or tape for photo attachment
» Multilingual cue cards with sample questions for self-reflection
» Spare notebooks for overrun entries

Power and Connectivity

» High-capacity power banks with multiple USB ports
» Universal plug adapters and extension cords
» SIM cards and mobile hot-spots with local providers

Health and Safety

» Compact first aid kit (gloves, antiseptics, thermometer, oral rehydration salts)
» Hand sanitizer, insect repellent, and travel tissues
» Refillable water bottle with built-in filtration system
» Reusable masks and basic PPE for sensitive contexts

Storage and Organization

» Waterproof duffel bags and packing cubes
» Labeled ziplock bags for sample storage or document separation
» Clipboards, elastic folders, and rubber bands for holding forms and IDs
» Laminated cheat-sheets: consent scripts, maps, emergency contacts

Appreciation and Reciprocity

Small, culturally appropriate thank-you gifts (e.g., soap, tea, snacks)

Printed team photos to leave with hosts and interviewees

Extra notebooks, pens, or hygiene items to donate where appropriate

This kit isn't exhaustive—but it reflects what helped us stay responsive, respectful, and resourceful. We recommend customizing this list for your location, season, and target population. Think not only about what you need, but what might help participants engage more fully, feel more comfortable, and see themselves as collaborators in the research process.

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About the author

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Mathieu teaches at MIT D-Lab and UC Berkeley, where he specializes in field methodologies, equitable design, and sustainable design. He is also actively involved in health innovation as a Co-executive at Memory Lane TV, a digital therapeutics company for dementia care. Across all his roles, Mathieu brings a hands-on, transdisciplinary approach to solving the world's most pressing challenges—from maternal health in Nepal to digital inclusion in aging populations.

About MIT D-Lab

MIT D-Lab works with people around the world to develop and advance collaborative approaches and practical solutions to global poverty challenges. Through academic programs, field research, and partnerships, D-Lab supports inclusive innovation in areas such as health, education, energy, water, agriculture, and disaster resilience. Based at the Massachusetts Institute of Technology, D-Lab combines hands-on design, cross-cultural immersion, and systems thinking to equip students and communities with the tools to tackle real-world problems.

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