

USING DATA TO EMPOWER INDIGENOUS PEOPLES AND ACCELERATE DEVELOPMENT: DATA SKILLS TRAINING CASE STUDIES FROM ASIA

April 2024



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LIST OF ABBREVIATIONS

AIPP	Asia Indigenous Peoples Pact
CPF	Country Partnership Framework
CSO	Civil Society Organization
DUAL	Data Use and Literacy Program (World Bank)
EWMI	East-West Management Institute
FCDO	Foreign, Commonwealth & Development Office (UK)
KUSOM	Kathmandu University School of Management
ICT	Information and Communication Technology
IDS	Indigenous Data Sovereignty
IPs	Indigenous Peoples
IPF	Indigenous Peoples' Foundation for Education and Environment
NCIP	National Commission on Indigenous Peoples
NGO	Non-Governmental Organization
ODI	Open Development Initiative (EWMI)
ODM	Open Development Mekong
RECOFTC	Center for People and Forests
USAID	US Agency for International Development

OVERVIEW

In an increasingly data-driven world, data literacy – the ability to understand data and use it effectively – can generate significant improvements in national development outcomes. Data literacy¹ can support better decision-making within government and is one of the “core” skills needed to drive public sector innovation.² Moreover, without adequate skills in accessing, analyzing, interpreting, and applying data, citizens cannot fully participate in debates on the aims, effectiveness, and differential impacts of public policies. Data literacy can enable citizens and civil society organizations to engage in the public policy arena by understanding and contributing to evidence-based conversations around challenges, gaps, and trends in service delivery, and in indicators of well-being more broadly.

Recognizing the importance of data access and skills, in 2012 the World Bank began providing support for open data programs in client countries. The goal of these initiatives has been to increase data accessibility and build capacity for data use.³ One key component of the World Bank’s broader effort to increase access to and use of data is the Data Use and Literacy (DUAL) program⁴, which focuses on developing data skills and empowering stakeholders at the global, national, and regional levels to use data more effectively. Since 2012, the

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1 We define data literacy as an individual’s capacity to find, access, read, work with, and analyze data to responsibly inform decisions.

2 OECD (2017).

3 World Bank (2017a).

4 Over the years this program has evolved to address emerging priorities. The program was initially called the Global Media Development program, and more recently the Data Literacy program. The program is now called the Data Use and Literacy program.

World Bank has supported data literacy and data use in more than 30 countries. At the country level, the DUAL Program works with:

- Officials in national and subnational governments – including in national statistical offices, line ministries, and more – to enhance their data production, sharing, and use skills; and
- Diverse groups of stakeholders, such as those in the media, civil society, academia, and the private sector, to enhance their data analysis and use skills.

Objective and Methodology of this Report

This report comprises three case studies on data literacy training efforts in Asia. Two of them (in Nepal and the Philippines) were conducted by the DUAL Program, and the third (in the Mekong Region) was conducted by an international non-governmental organization, the East-West Management Institute (EWMI), after an initial pilot funded by DUAL. The cases summarize the objectives, implementation, and results of each of these efforts, and aim to document lessons learned. They were prepared by DUAL and EWMI staff and consultants, some of whom were involved in program implementation, and draw upon program materials, direct outputs, related reports and documentation, and semi-structured feedback from participants. As such, the cases are not formal evaluations, but rather narratives intended to provide information that could be relevant to the design of future data literacy capacity building efforts. The intended audience includes World Bank task teams, as well as government officials and non-government stakeholders working on projects involving the production, sharing, and use of data.

Summary of the Case Studies and Key Findings

The report includes the following case studies, which share many commonalities but also had their own unique characteristics, areas of emphasis, and participant profiles:

- In **Nepal**, with support from the UK's Foreign, Commonwealth & Development Office (FCDO), DUAL piloted a new data literacy curriculum that was an expanded and customized package of learning materials based on previously developed training resources. The 100-hour course reached 70+ participants from a range of sectors and professional backgrounds in the development space, including civil servants, civil society representatives, journalists, and academics.
- In the **Philippines**, DUAL partnered with the National Commission on Indigenous Peoples (NCIP), a government agency, to strengthen staff capacity for data analysis. Instructors built upon the curriculum modules developed for the Nepal program and had a particular focus on supporting NCIP staff as they worked toward adopting a new dashboard for data-driven decision making.
- In the **Mekong Region**, EWWI worked together with donor and local partner organizations to conduct training programs that have reached participants in ten countries. This work was catalyzed by an initial country pilot funded by DUAL. Much of the programming focused on forest governance advocacy and the data sovereignty of Indigenous Peoples.

In each of these three cases, instructors adapted the World Bank's data literacy training materials to meet the needs of course participants and took a "training of trainers" approach to accelerate skills transfer. They customized the curriculum to respond to the participants' varying levels of data literacy, professional needs in terms of preferred tools and data formats, sectors and geographical areas of interest (with locally-relevant datasets and examples), and in some cases language-specific needs. Instructors also conducted surveys before, during, and after the programs to gather participant feedback, enabling them to adjust course pacing and methods as needed.

Building on experiences from these programs, the World Bank now offers a modular, customizable pedagogy that can be used anywhere to support both technical skill building and efforts to strengthen a culture of data use. See Annex 1 for a list of curriculum modules that have been developed through this work and are available as a public good, free for anyone to use and adapt. Responses to follow-up questionnaires have indicated that training participants found the curriculum and approach to be highly relevant and useful for their daily work. In Nepal, in a questionnaire fielded immediately after the program ended, nearly all respondents (94 percent) said that they gained helpful skills that would enable them to do their job better.

Participants from each of the countries have gone on to train others in their organizations, and incorporate data into their work in myriad ways. Participants from the government have used their acquired skills to train fellow civil servants. Others have created content for reports and websites, crafted data-driven articles, designed data visualizations, improved data dashboards, strengthened data skills education in universities and government agencies, engaged in advocacy efforts, and more. Some challenges that the training programs have faced to varying degrees in different locations have included inadequate time for participants to fully master a complex set of topics; meeting the needs of participants with a range of skill levels and professional requirements; language barriers (particularly since tools and apps tend to be in English only); and inadequate availability of hardware/software or reliable internet connectivity. Although some training participants have expressed a need for refresher or additional training, the overall effectiveness of these programs appears robust. The structured format, coupled with project-based and interactive instructional methods, has largely proven successful in enhancing participants' abilities to effectively leverage data in their professional endeavors.

1. NEPAL: INCREASING DATA LITERACY FOR A PROSPEROUS NEPAL

I. Introduction and Context

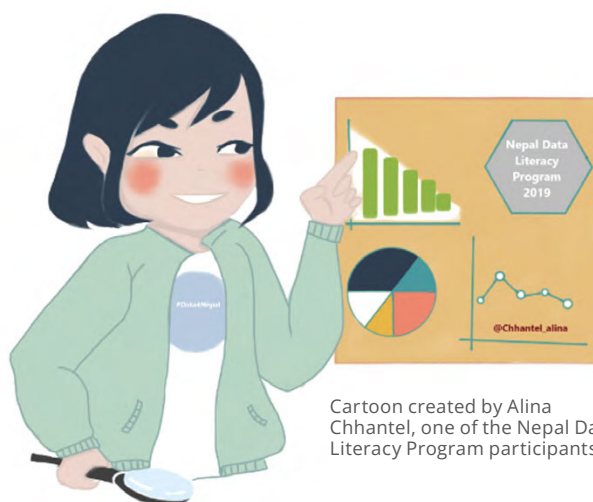
A transition to federalism has generated an increase in demand for reliable and localized data at multiple levels of government in Nepal. With the adoption of its Constitution in 2015, Nepal officially became a federal democratic republic with a new federal structure: a central government, seven provincial governments and 753 local governments. This has created an opportunity to renew and strengthen the country's institutions and processes. In this context, the World Bank launched a five-year Country Partnership Framework (CPF) for Nepal (2019-2023)⁵ with a focus on three key areas: 1) public institutions; 2) private sector-led jobs and growth; and 3) inclusion and resilience. Increasing transparency and accountability is important across all these areas, including through "better data and its dissemination and participation/engagement of citizens", as the CPF notes.

Until now, most of the progress on Nepal's data agenda has centered on data production, with less attention to data sharing and use. There is already a significant amount of government data available, but much of it is held in ministerial silos, or remains untapped for decision making.⁶ Policy analysts and public service providers need strong data skills to understand citizens' needs and priorities, and to assess what is working and what is not. Civil society stakeholders and the media must be able to work with data to play an active monitoring role. Effective use of data by the private sector to increase productivity will also be key to achieving Nepal's goal of becoming a middle-income country by 2030.

To bridge this gap and boost the demand for and utilization of data, the World Bank provided a data literacy course in Nepal in 2019 targeting a multisectoral group of data users, following a "train the trainers" approach. The program was believed to be the first of its kind in Nepal and sought to increase effective data use by enhancing participants' skills in data-driven decision making and storytelling. It took place under the World Bank's "Partnership for Knowledge-Based Poverty

Reduction and Shared Prosperity" project (P163078), following a request from the project team for support on data literacy capacity building. The course was created by the World Bank's Data Use and Literacy Program (DUAL) and implemented in partnership with the World Bank Nepal Country Office, with financial support from the UK's Foreign, Commonwealth & Development Office (FCDO).

The overarching objective of the Nepal Data Literacy Program was to transfer data skills to stakeholders in Nepal who can leverage data in support of the country's transition to federalism, and foster data use within the national data ecosystem. Through the program, the World Bank organized a 100-hour face-to-face data literacy course in Kathmandu for more than 70 early- and mid-career professionals from 50 organizations. By inviting participants from different lines of work, the program embraced the "data ecosystem" vision and included individuals working on various aspects of data production, data analysis, and data-driven storytelling, with an eye toward national and sub-national development priorities. The idea was to develop a cadre of data literacy evangelists who would then amplify the program's reach over time. It was expected that participants would use the skills they had gained by, for example, providing training for their own or other organizations; creating or leading data-driven projects; and publishing data-driven stories (such as via blog posts or media stories).



Cartoon created by Alina Chhantel, one of the Nepal Data Literacy Program participants

5 World Bank (2018).

6 World Bank (2019a).

II. Program Design and Implementation

Preparation for the course began with expanding existing data literacy training resources developed by the World Bank.⁷ For the Nepal Data Literacy Program, the team updated and expanded an existing curriculum that had been created years earlier to support the World Bank's open data agenda. The enhanced curriculum was a 100-hour program with new content on topics including data visualization using Tableau and leadership of data-driven projects. All course materials were customized for Nepal by using local data and examples, and the entire curriculum was made available online as a public good.⁸ To prepare for the course, the participants had to complete certain tasks before the first day, such as downloading datasets and software, so they could immediately dive into substantive work.

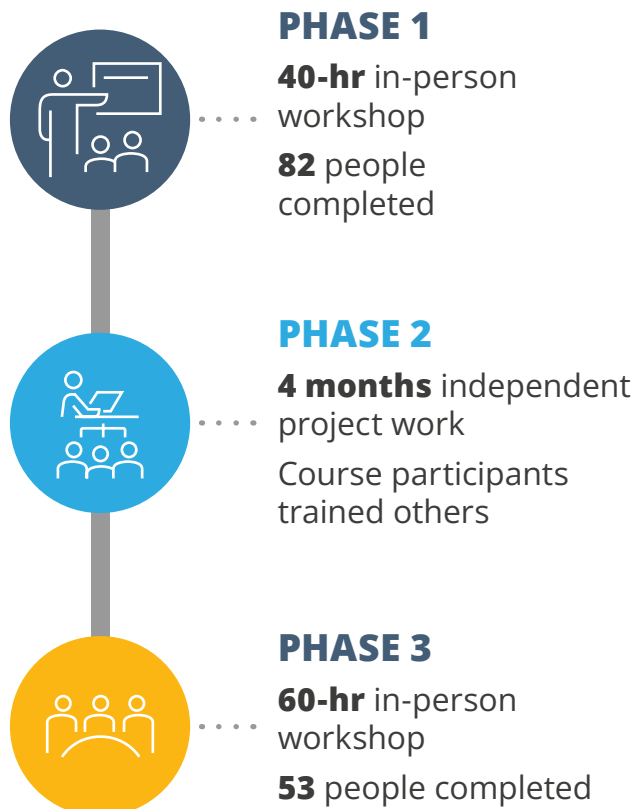
The program's design consisted of three phases (Figure 1), empowering the participants to locate, clean, analyze, and synthesize data using a variety of data analysis and visualization tools:

- **Phase 1:** *Classroom-based instruction (40 hours over 10 days in July 2019).* The first five units of the training course were designed to ensure that participants of all backgrounds shared a common foundation in data fundamentals, including using spreadsheets, finding and working with data, visualizing data, and using data for storytelling and decision making.
- **Phase 2:** *Blended instruction (4-month practicum with virtual office hours in July and August 2019).* Participants began putting their newly-acquired skills to use by writing data-driven papers, blog posts/stories, and delivering one- or two-day training courses in their own organizations where there was interest, with technical support from the World Bank team.
- **Phase 3:** *Classroom-based instruction (60 hours over 15 days in August/September 2019).* The final phase focused on intermediate topics including probability and inferential statistics, Python, machine learning, Tableau, and management of data-driven projects. It culminated in capstone projects – participants worked in teams to create and present a compelling data-driven story in the form of an infographic, poster, or short document; for an example, see Annex 2.

“I used to think data is the subject of statisticians and economists; this is not my subject. But data is more related to communities, people from excluded and marginalized groups. Data speaks stories, it should be open, and we all need to know about data privacy as well.”

– Babita Basnet, program participant
(via Twitter, July 2019)

FIGURE 1. NEPAL DATA LITERACY TRAINING PROGRAM PHASES



7 Hammer (undated).

8 <https://dataliteracy.github.io/>

The program prioritized building a diverse cohort of carefully vetted early- to mid-career professionals, with a focus on ensuring heterogeneity in terms of sector, job description, and gender, resulting in 45 percent of the participants being women. The recruiting and selection process began with a public call to organizations in Kathmandu for applications. It asked them to nominate up to three candidates, including at least one woman, who were committed to developing their own and others' capacity to use data to work toward development priorities. More than 160 people from more than 70 organizations were nominated, and 83 people representing diverse backgrounds and professional experiences were selected (Figure 2). More than 50 percent of the participants had 5 or more years of professional experience. Sponsors from the participating institutions were also asked to sign a form before the course began indicating their commitment to their nominees' completion of the program.

The training team brought a range of expertise, including computer science, mathematics, and economics, and came from Nepal, Nigeria, Pakistan, and the United States. The team's diversity was a deliberate choice, reflecting the "data ecosystem" ethos. Each trainer brought a different perspective on how to use data to further development aims. Moreover, this created a dynamic team that was able to adjust the content and delivery of the pre-planned curriculum on a daily basis to respond to participants' progress and needs.

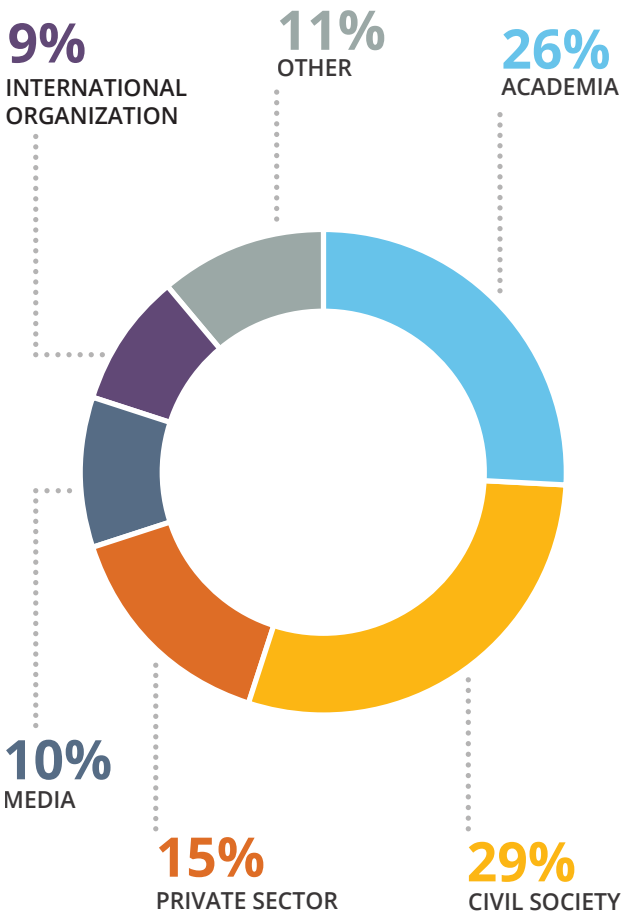
Frequently surveying participants before and during the program was an integral part of course delivery, and elicited valuable input that was used to course-correct in real time. A questionnaire answered by participants before the course began gave instructors a better sense of the group's existing data skills. Questionnaires after the completion of every module asking about the pace and content of a particular section then allowed instructors to adapt, following the mantra "no one left behind". Incentives for participants were also in place to encourage their full engagement. These included gifts (phone recharge cards) for joining in discussion, the opportunity to publish their projects, and completion certificates.

In parallel to the training course, the World Bank partnered with the Kathmandu University School of Management (KUSOM) to enhance its data analytics curriculum for business students and train other faculties from all seven provinces of the country. Through this partnership, several faculty members at the university aimed to update existing course offerings and launch new courses by adapting materials and approaches

from the Data Literacy Program. KUSOM also organized a data literacy training for faculties of provincial colleges (see Appendix at the end of this chapter for more detail). This partnership enabled the data literacy program to broaden its impact.

Additionally, special data-related events after the program ended provided more networking and collaboration opportunities for data literacy participants and other data enthusiasts. In December 2019, the World Bank, FCDO, and the Asia Foundation collaborated to host a two-day "Solve-a-thon" engaging young data enthusiasts in tackling development challenges by designing data-driven solutions.⁹ The World Bank also organized an expo that convened 14 local and regional organizations from the open data community to exhibit their work, attracting around 100 participants.

FIGURE 2. PROFESSIONAL PROFILE OF PARTICIPANTS (PHASE I)



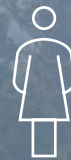
⁹ For more detail, see World Bank (2019b).

Course Feedback

Feedback from participants and partners during and immediately following the program was overwhelmingly positive. During Phase 1, retention was excellent with an average attendance of 78 participants over the 10 days, reflecting strong commitment. The cohort appreciated the team dynamics, bonded with one another, and created a Facebook group to enable them to share knowledge and experiences after the program ended. In a participant survey immediately after Phase 3, nearly all respondents (94 percent) said that they gained useful skills that would help them do their jobs better, and that they would recommend the program to others. Nearly everyone agreed (54 percent) or strongly agreed (38 percent) that the course lived up to their expectations. Eighty-three percent liked the project-based approach. While most respondents (58 percent) found the difficulty of Phase 3 to be “just right”, 15 percent thought it was easy, while 27 percent thought it was hard. Zero respondents picked the more extreme options of “very easy” or “very hard”.

While the participants almost universally found the course useful and said that the course had lived up to their expectations (92 percent), the fact that a somewhat higher percentage “agreed” (54 percent) rather than “strongly agreed” (38 percent) on meeting expectations potentially suggests two things. First, participants may have entered the program with high expectations. Second, the diversity of participants’ backgrounds and baseline level of data skills may have led to diverse expectations and interests, making it difficult to satisfy everyone equally. However, the fact that most indicated that the difficulty of Phase 3 was “just right” suggests that the approach of offering one program for a group of participants coming in with different levels of skill broadly worked.

Overall, participants were enthusiastic about what they learned in the course, and about the general approach, which emphasized building rapport among the participants and instructors. The open-ended survey responses reflected a great deal of appreciation for the experience immediately following the program’s completion. Evidently, all involved were personally committed to the mission of boosting data literacy in Nepal and believed in its importance to building the economy and solving social issues. This shared commitment and energy emerged as a key factor in the program’s success.



45% of participants were women



94 % would recommend the workshop to others



Additional 100+ people trained by course participants



“ This training has become a career booster. The attitude of employing data-driven decision making and storytelling has made me more influential and credible in my delivery. ”

-Sijal Pokharel, program participant

III. Program Results

The Nepal Data Literacy Program built data skills directly among a carefully selected cohort through the course, and indirectly to a wider network via the “train the trainers” approach. The program trained 83 early- to mid-level professionals in Phase 1 (July 2019) and graduated 50 individuals who successfully completed all three phases of the program (September 2019). By November 2019, the participants had in turn trained more than 100 additional people in their own organizations or communities, providing 22 data trainings and workshops at an average length of two to four hours each.¹⁰

The data literacy curriculum, a key output created for the course, was made available as a public good on an open platform and has been used subsequently in other countries. DUAL adapted the curriculum for the 2022 Data Literacy Program in the Philippines, which basically followed the Nepal approach, to build capacity for data use within the government’s National Commission on Indigenous Peoples (see Chapter 2). The curriculum was also used for a World Bank-funded training program implemented in Myanmar in 2019 that was subsequently rolled out by the East-West Management Institute (EWMI) to many countries in the Mekong region, including Cambodia, Lao PDR, Thailand, and Vietnam (see Chapter 3). In 2020, Code for Africa leveraged the data literacy curriculum to build capacity and strengthen data use culture in West African countries.¹¹ KUSOM has also made extensive use of the data literacy training materials in Nepal (see Appendix to this chapter).

10 For an example from Nepal’s Center for Media Research, see <http://research.butmedia.org/two-day-data-literacy-workshop/>.

11 See Hammer, Ottaviani, and Kumar (2021).

The projects (such as data analysis, visualizations, and stories) created by participants during and after the program raised awareness of the importance of data literacy and contributed to strengthening Nepal’s data ecosystem. For example, in Phase 2, participants had the opportunity to take on the “trainer” role and trained members of their professional communities by making use of the data literacy curriculum, with support from the program team. During this time, participants also produced blog posts, policy reports, and a municipal data portal. One of the participating academic institutions, the British College in Kathmandu, also started incorporating data literacy components into its curriculum. In 2020, long after the program ended, when the COVID-19 pandemic hit, some program participants seized opportunities to use their data skills to analyze and inform. For example, two participants worked together to study the link between air pollution and COVID-19 mortality and wrote an op-ed to argue for more attention to environmental health.¹² Box 1 and Annex 2 provide more examples of participants applying their data literacy skills in their work.

BOX 1. NEPAL’S ACCOUNTABILITY LAB

In a 2021 World Bank guest blog post, a trio of Data Literacy Program participants from Nepal’s Accountability Lab shared how they applied what they learned. After completing the program, the three Accountability Lab staff members provided training for more than 20 government officials on data management, collection, and sharing, with a particular emphasis on the importance of open data. Shortly thereafter, when the pandemic struck, they decided to apply their skills in a different way, publishing the Coronavirus CivActs Campaign bulletins, tracking COVID-19 indicators (including on government spending), and creating infographics to inform the public. Their work was noteworthy as it involved not only disseminating information from government to citizens, but also the reverse; they studied citizen perceptions of the government’s pandemic response and shared their findings with the government. Reflecting on the Data Literacy Program, the blog’s authors wrote, “It has helped us become more visionary when it comes to data collection and analysis”.

Source: Ghimire, Khanal, and Shrestha (2021).

12 Maharjan and Paudel (2020).

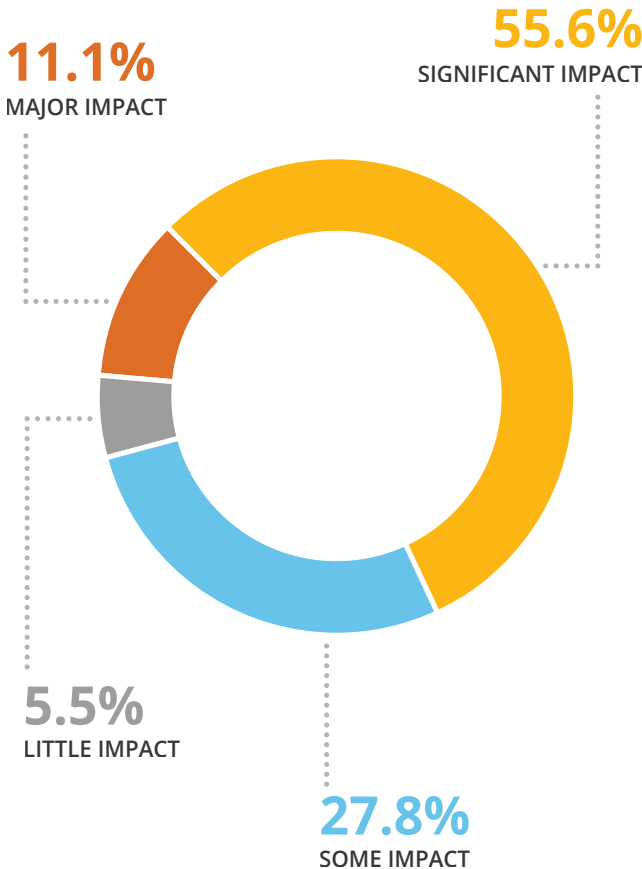
In June 2023, nearly four years after the program ended, a questionnaire was sent to all participants to ask about the impact the program has had on their work over the long term.

The follow-up survey suggested that even after a significant amount of time had passed, participants still felt that what they learned remained relevant and was helpful for them. Eighteen program participants responded to the questionnaire, of whom 44 percent said they have used what they learned very often, and 28 percent said they have used it often.¹³ When asked to select which aspects of the curriculum were specifically helpful (checking all that apply), the most frequently chosen options were “Data-driven decision making and storytelling” (88 percent), “Data-driven projects (data collection, survey design, and methodologies)” (82 percent), “Data fundamentals and finding data online” (77 percent), and “Web and spreadsheet basics” (71 percent). Nearly all respondents reported that the program has had at least some impact on their work, with roughly two-thirds reporting major (11 percent) or significant (56 percent) impact (Figure 3). The networking opportunity afforded by the program was also important, with 72 percent of respondents saying that they have collaborated or kept in touch with someone they met at the program. For example, participants from KUSOM have remained in touch with participants from the Society of Economic Journalists Nepal, which opens possibilities for real-life collaborations.

The responses from the questionnaire suggest the program had a lasting impact on participants’ careers. Just over half of the questionnaire respondents have provided training to others since the program ended, and all of them used the program’s curriculum to do so. Additionally, half reported that they have gone on to at least one other formal data course for further data training. One questionnaire respondent created an open budget portal, and has used the skills acquired in the program in writing reports. Another, an economic and political journalist who has trained 50 journalists and interns in data-driven storytelling since the program ended, shared a data-rich story that he wrote in 2022.¹⁴

The survey results should be interpreted with some caution given the somewhat low response rate; also, academics are overrepresented in the responses. Still, these responses suggest that the program largely achieved its aim of equipping professionals in different sectors with the skills needed to incorporate data into their work more effectively. This is particularly noteworthy considering that just a few months after the program concluded, the COVID-19 pandemic struck, introducing disruptions to various initiatives that people may have intended or planned. This underscores the success of the program’s design and implementation.

FIGURE 3. RETROSPECTIVE SURVEY FEEDBACK
Overall, how much impact has the program had on your work? 18 Responses



13 The questionnaire defined “very often” as 10 or more times per year, and “often” as 5-9 times per year.

14 See <https://ekagaj.com/article/special-report/91357/>.



IV. Conclusions

In future data literacy work in Nepal and beyond, it would be advisable to replicate the core components of this program, albeit with structural changes and add-ons as required to respond to local needs. This includes retaining a participant-centered curriculum, project-based teaching and team-based interactive activities, while customizing the content for the audience. Timely and intentional requests for feedback from participants are helpful to enable real-time adjustments. Equally advisable is providing incentives for engagement and rewarding participation (e.g., phone recharge cards and other forms of recognition).

One of the key benefits of the program was its success in convening participants with different backgrounds and perspectives, allowing them to work with each other and cross-pollinate their ideas. Participants concurred that the group's diversity was valuable. This suggests the benefits of an approach that brings together a heterogeneous, highly-motivated group, backed by institutional sponsorship where possible. Given the differences in existing data skills in such a group, however, in the future it could be worth considering introducing some differentiation by offering specific topics (perhaps software or programming languages, e.g., Python, R) as elective choices on designated days. That could allow participants with more advanced skills or who have a specific interest to do a deeper dive into a topic. If they presented what they learned to the full group afterward, everyone would still gain some exposure to every topic. Alternatively, there could be a choice between a basic or advanced track for some subset of days. Asking participants about their expectations and top areas of interest before the program starts could also be beneficial.

Another achievement was the development and dissemination of the curriculum as a public good. Now that several years have passed, it could be valuable as some survey respondents suggested to update some of the course materials with content on new technologies (such as artificial intelligence) and new real-life examples. Another participant suggested getting feedback on the course content and delivery method from less-represented groups such as college students and rural stakeholders. As is often true in such cases, the program's vision that the curriculum website would be a "living" portal does not seem to have come to pass, as web traffic and activity on the site have trailed off. Making such an initiative sustainable likely requires dedicated resources for updating content, and an ongoing effort to promote the site. The World Bank could consider whether further investment in this would be valuable, given what seems to be high demand for data literacy resources. This could potentially be done in conjunction with live or on-demand online courses as well.

While the results of the program were significant and promising, expanding data literacy also depends heavily on the enabling environment. In particular, expanding access to affordable Internet is imperative to promote the use of data across the country. In addition to data infrastructure, political support for the data agenda is crucial. Power dynamics in government and in organizations affect how data is produced, used, and shared. Future data literacy courses could consider holding a mini-conference at the end of the program to showcase the key outcomes and messages to leaders from the participants' institutions or organizations. Taking advantage of the World Bank's convening power to engage with higher-level decision makers and encouraging them to feel invested in turning these new skills into results for their organizations could be an effective way to magnify the program's impact and make it more sustainable.

Appendix 1. Partnership with the Kathmandu University School of Management¹⁵

Through a partnership with the Kathmandu University School of Management (KUSOM), the World Bank supported faculty in enhancing the data analytics curriculum for business students. As a preliminary step, faculty assessed the demand for data courses among students and prospective employers. To gauge student interest, they surveyed 50 business students and found a high level of interest in data-related courses. As part of the assessment, faculty also created a focus group with representatives from several employer groups – government, the private sector, NGOs, and the media – to better understand what skills they seek in job recruits. The input from the focus group suggested that there is significant demand among employers in all these groups for employees with mid-level skills for evidence-based decision-making, and that this reflects a gap in labor market supply. Although there are many potential hires with very limited data skills, and there are experts such as data scientists, it is difficult to find potential hires in between these two extremes. Employers are keenly interested in recruiting recent university graduates who are not necessarily data experts, but have strong enough data skills to work on business analytics, spreadsheet analysis, project planning, and monitoring and evaluation.

The World Bank provided support for a group of nine KUSOM faculty members, who also completed the data course themselves, to expand the university's data skills curriculum. After the program ended, these faculty created a course entitled “Evidence-Based Decision Making” for second year undergraduate students in the School of Management. This adapted curriculum aims to teach students to understand, analyze, and argue with data, and is available as a public good. Originally, the aim was to train 1,000 or more undergraduate and graduate students within three years, and 25 or more academics in other parts of the country. In February 2020, faculty participants from KUSOM organized a 40-hour training course for teachers outside the Kathmandu Valley, but COVID-19 delayed the rollout of the course for undergraduate students, which was ultimately launched in Fall 2022. Faculty have also been using some components of the curriculum (such as Python and Tableau) in masters’ level courses.

“Everything is connected – that’s how we need to think. Any student entering the college years now will probably retire in the year 2070. We don’t know how the world is going to be in 2070, so we need people from different areas – from social science, from science, from engineering, from medicine, from law, from policy, from economics – to come together. And data is going to be the connective tissue.”

– Dipesh Karki, Assistant Professor of Economics, KUSOM

KUSOM is currently in the process of restructuring its Master’s program and will add data analytics as a new specialization, which will include a graduate-level offering of the Evidence-Based Decision Making course.

Student interest in data analytics is growing, which mirrors the strong demand by employers for data skills. There was enthusiastic uptake of the new course by students – 80 undergraduates took the course in the 2022-2023 school year, and have provided positive feedback, as well as indicating interest in using the newly-acquired skills as part of their thesis work. Employers have also been impressed by the curriculum, saying that the graduates who took the course are good with numbers, and have a shorter learning curve with new software relative to other new hires.

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¹⁵ This Appendix is based on a 2023 interview with Asst. Prof. Dipesh Karki of KUSOM.



2. PHILIPPINES: IMPROVING THE WELFARE OF INDIGENOUS PEOPLES VIA DATA

I. Introduction and Context

The Philippines has achieved robust economic growth in recent years and is on track to become an upper-middle income country, but Indigenous Peoples (IPs) are disadvantaged relative to the population as a whole.¹⁶ Poverty has declined in the Philippines overall and the middle class is expanding. However, the distribution of wealth is extremely unequal. Additionally, the country is at high risk of natural disasters and climate-related events, creating pockets of poverty and vulnerability. IPs are particularly disadvantaged, experiencing higher than average rates of malnutrition and poverty, and less access to services. Displacement of IPs from their ancestral domains and land tenure disputes are also “endemic drivers of violence” in the western Mindanao region of the country.¹⁷

A lack of data on IPs in the Philippines is a barrier to effective policymaking and advocacy. There is no official figure for the number of IPs in the country, as census data do not allow for a precise count due to significant practical challenges involved in implementing the census in remote areas. While the best estimates suggest around 9.4 million IPs as of 2020, the classification of IPs has also evolved over the last two decades making it difficult to compare data from different years.¹⁸ Moreover, there is a lack of sufficiently granular ethnicity variables in

government data to enable analysis of the welfare of IPs, as many household surveys do not include ethnicity-related variables.¹⁹ This lack of reliable and consistent data undermines the government’s ability to design policies that serve the IP population and address deficits they face, and makes research and policy advocacy by non-government stakeholders more difficult. As a result of inadequate data, relatively little is understood about the needs of IPs compared to the rest of the country, or about the differences among the dozens of ethnic groups within the IP population. Addressing the lack of data, and then leveraging data to answer critical policy questions, will be essential to improving the well-being of IPs in the Philippines.

The World Bank works with the Government of the Philippines toward national development priorities²⁰ through the Bank’s “Country Partnership Framework (CPF) for the Republic of the Philippines (2019-2023)”.²¹

The CPF has a cross-cutting focus on governance and digital transformation, which includes support for improved planning at the local level, and a more agile and citizen-centric civil service. Effective use of data will be important to making progress in these areas.

16 World Bank (2019c).

17 Ibid.

18 Madrigal, Cuesta, and Somerville (2024) and analytical work conducted under the World Bank’s Indigenous Peoples in the Philippines project.

19 Perez-Brito (2021).

20 Laid out in the national development vision, *AmBisyon Natin 2040*, and medium-term national development plans, available at <https://2040.neda.gov.ph/>.

21 World Bank (2019c).

More specifically, the data literacy capacity building described in this case study supported implementation of the World Bank’s Indigenous Peoples in the Philippines project (“IPs Project”, P177409). The IPs Project aimed to inform policy dialogue, operations, and the research agenda for the promotion of social inclusion strategies targeted at IPs. The project focused on 1) data and information mapping and data collection efforts; and 2) analysis of IPs in the Philippines with an emphasis on inequality and social conflict. Through this project, the World Bank partnered with the National Commission on Indigenous Peoples (NCIP), a national government agency charged with protecting the rights of IPs, to build its capacity for data collection and use in policymaking and program management. In fall 2022, under the auspices of the IPs Project, the World Bank’s Data Use and Literacy Program (DUAL) conducted a workshop to train NCIP staff on techniques and platforms for leveraging data in their work. The workshop also received support from a GovTech Global Partnership²² grant, “Data and Information Portal on Indigenous Peoples for Inclusive Development in the Philippines”.

II. Program Design and Implementation

Responding to a request from the IPs Project team, the DUAL program organized and held a Data Literacy Workshop in Manila from September 21-29, 2022. The workshop engaged more than 50 NCIP staff who serve as ICT or Data Focal Points within the organization, plus a few civil servants from the Department of Health. Taking a “training of trainers” approach, the idea was to ensure a sustainable transfer of skills and create a multiplier effect throughout the organization. The workshop incorporated practical lessons, using project-based instructional techniques, to build capacity for data management, analysis, and presentation. Ultimately the goal was to support evidence-based policymaking by the NCIP. As a result of the workshop, it was expected that the participants would:

- Organize training workshops for additional colleagues, ultimately reaching 1,000+ staff
- Create data visualizations/dashboards to support decision making
- Publish data-driven analysis/blogs on topics related to the mission of the NCIP

22 <https://www.worldbank.org/en/programs/govtech/partners>

“The workshop will help me in dealing with IP data in line with program implementation, especially in planning and monitoring activities. I plan to introduce some ideas using some of the applications presented in the handling of data to help colleagues and enhance capacity to deliver services to the IPs and communities.”

– Data Literacy Workshop participant

Prior to the workshop, the IPs Project team adapted the Digital Government Readiness Assessment (DGRA)²³ toolkit for the NCIP and conducted a data inventory and mapping exercise. This analytical work shed light on the landscape in which NCIP staff work and informed the instructors’ preparation of the workshop curriculum. Some key insights are as follows:

- The DGRA found that of the areas assessed (Leadership and Governance; User-Centered Design; Capabilities, Culture and Skills; and Technology and Infrastructure) the weakest area by a significant margin is Technology and Infrastructure, underscoring the importance of the broader enabling environment for the data and digital transformation agenda.
- The data inventory revealed that nearly all data (96 percent) used by NCIP is stored on desktops or Google drive, indicating potential for increased use of database management systems to make the use of data more efficient and effective, particularly as about half of the data is updated on a fairly frequent basis (daily or monthly).
- The data mapping exercise further revealed that there is no central registry that consolidates information on IPs, no single agency with a clear mandate to coordinate work on IP data, and a general lack of microdata that includes variables on IP status to enable robust analysis.

23 For the DGRA methodology, see <https://www.worldbank.org/en/data/interactive/2022/08/22/digital-government-readiness-assessment-dgra-toolkit>.



The IPs Project team also supported the formation of an interagency IPs data governance working group chaired by NCIP and involving a total of five national agencies, with the World Bank as a facilitator, to represent the data interests of IPs and shape priorities for the IP-related data agenda.

To ensure a smooth start for the workshop, participants were asked to complete several tasks ahead of time.

One was to equip themselves with required software and user logins. They also completed a questionnaire about their current data skills and the kinds of resources they thought would be useful, to help guide workshop preparation. According to the questionnaire, they were most interested in learning about data analysis (85 percent) and evidence-based decision making (64 percent) from a list of possible options. Once the workshop was underway, questionnaires fielded at several points during the week asked for real-time feedback to help the facilitators adjust content and pacing or logistics as needed.

The workshop kicked off with an introduction to the digital transformation agenda, followed by ten data skills modules that were created for the World Bank’s Nepal Data Literacy Program (see Chapter 1), with adaptations for the Philippines context. The total workshop delivered 50 hours of training with each day packed with group instruction and project-based activities (see examples in Annex 2). The workshop instructor team included seven World Bank experts, two of whom were in person in Manila while the others were remote (in France and the US). Some of the NCIP staff also participated remotely. An online portal was established to disseminate the curriculum and training materials to participants and the general public.²⁴ The curriculum is licensed under Creative Commons, allowing for its adaptation and reuse. On the last day of the workshop, the NCIP Chairperson and the World Bank Operations Manager for the Philippines shared remarks and awarded certificates.

In parallel to the workshop, the World Bank and a local partner supported the NCIP in developing a proof of concept for an IP data dashboard driven by ArcGIS. The dashboard and its analytics are intended to support data-driven decision making within the NCIP, addressing the challenge posed by the lack of access to detailed, reliable IP-related data. The plan included integrating social data such as population census data, household survey data, and administrative data (e.g., poverty incidence, ancestral domain, education, and incidences of conflict) and make it publicly available through data visualizations and spatial analysis software.

Course Feedback

Immediately following the workshop, participants shared their feedback through a questionnaire.

They were enthusiastic about the course, either strongly agreeing (63 percent) or agreeing (34 percent) that the course content would be useful to them going forward. Half of the 38 questionnaire respondents found the course “just right” in terms of difficulty, while a substantial number (42 percent) found it to be “hard”. Some further elaborated that it was difficult to grasp all the concepts in the relatively short amount of time available but noted that the course instructors provided helpful explanations. They liked the balance between theory and practice and the project-based approach. The most oft-cited options for improving the course (respondents could select as many as they wished) were allotting more time (61 percent) and providing better information beforehand (40 percent). Other significant responses were slowing down the pace (32 percent), making the activities more stimulating (32 percent), and improving instructional methods (29 percent).

²⁴ <https://dataliteracy.github.io/ph22/>

“This program would help me perform my duties and job at NCIP specifically in generating or presenting valuable reports and conducting data analysis. With the skills and concepts I have learned, I can be able to share with my colleagues how we can contribute to the advancement of the mission of NCIP through Digital Transformation.”

– Data Literacy Workshop participant

III. Program Results

The Data Literacy Workshop trained approximately 50 NCIP ICT/Data focal points, who have since organized and facilitated data trainings in eight regions of the country. Each additional training reached approximately 30 staff members, leading to a cumulative total of around 240 additional people trained. This figure represents about a quarter of NCIP’s overall staff. The regional trainings were each held over a period of two to four days, for a few hours per day, providing a condensed version of the original workshop. A facilitator of one of the regional trainings explained that they used some of the curriculum and materials from the original workshop, starting with Excel-based skills and then focusing on the dashboard, which culminated in participants building their own dashboards. Some staff noted that they are now using the dashboard instead of Excel when they make presentations. The focus in each regional training seems to have aligned with the participants’ baseline level of data literacy, and their professional needs. For example, in one of the other regions, there was a greater focus on basic Excel use and data cleaning, rather than analytics and data visualization. The primary challenge to implementing the training effectively, as highlighted by some of the trainers, has been the burden on staff time given their daily workload. Additionally, internet connectivity can also be a challenge if people are participating remotely.



Participants have trained another 240+ people

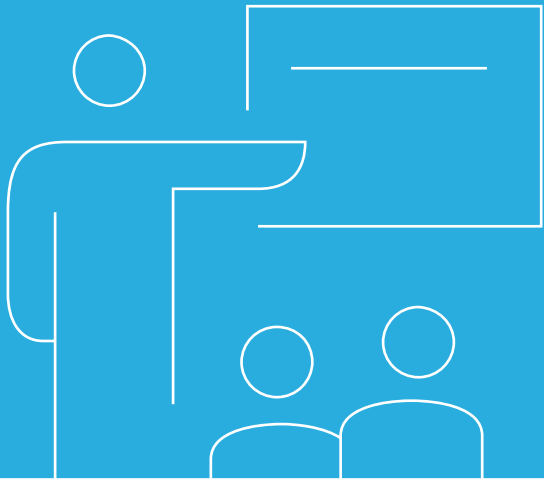


97% agreed the course content would be useful in their jobs



95% found the project-based approach helpful

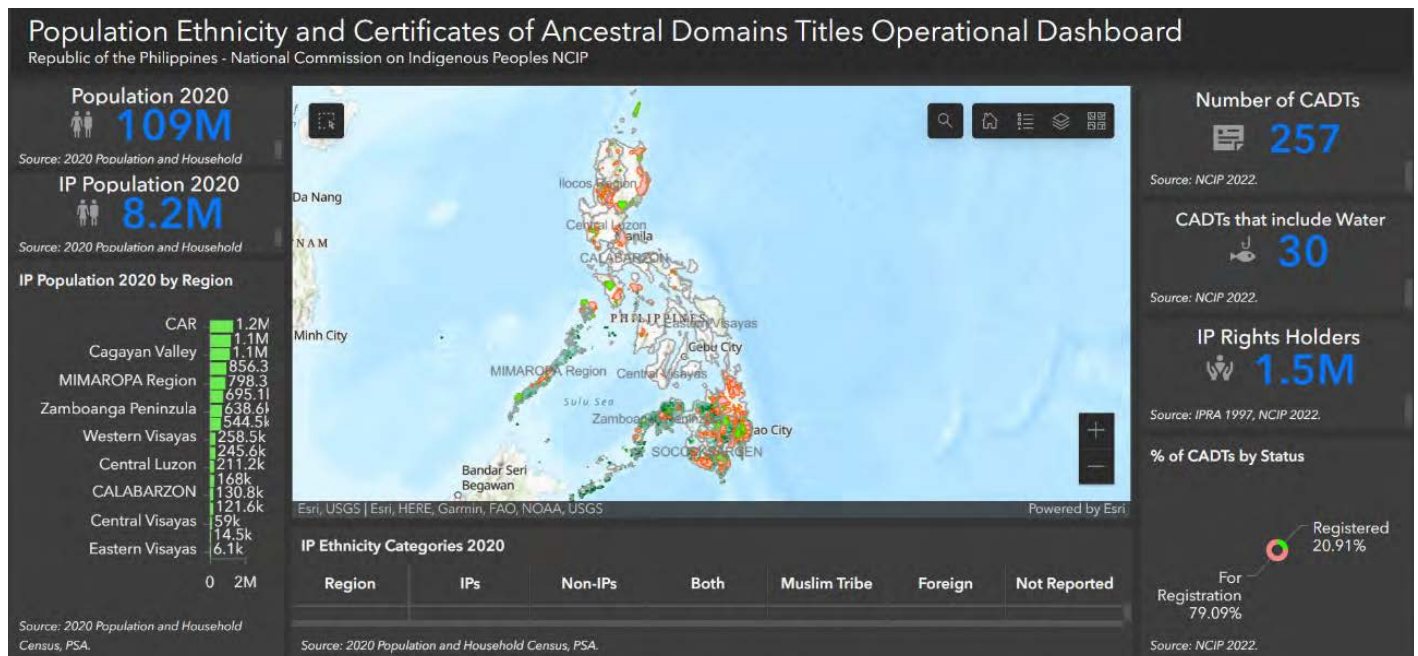




The IPs Project closed in 2023 with a development effectiveness rating of “Highly Satisfactory”. Its outputs included the prototype dashboard (Figure 4), which has been much appreciated by NCIP executives and is expected to be officially approved by the government. Work is underway to transfer the software and infrastructure to the NCIP for hosting and maintenance, including making it available to the public. In the meantime, the NCIP has been working on cleaning datasets and linking various data sources so they can

be seen together in the dashboard. They are using the national ID through an Application Programming Interface (API) as a common data point to link various datasets. Another output of the IPs Project was the initiation of the first IP-specific household survey, including sampling and household survey design. The objective is to improve statistical data and strengthen evidence-based decision making. Data literacy capacity building should help facilitate maximum utilization and long-term management of this new resource.

FIGURE 4. POPULATION ETHNICITY AND CERTIFICATES OF ANCESTRAL DOMAINS TITLES: OPERATIONAL DASHBOARD





A follow-up questionnaire sent to participants in June 2023 asked them to reflect on the impact the program has had on their work in the months since the workshop ended. Nearly all 20 respondents said that they have used what they learned at least often (40 percent) or sometimes (45 percent; Figure 5), and 75 percent said it had a major or significant impact on their work (Figure 6). “Web and spreadsheet basics” was the course module most

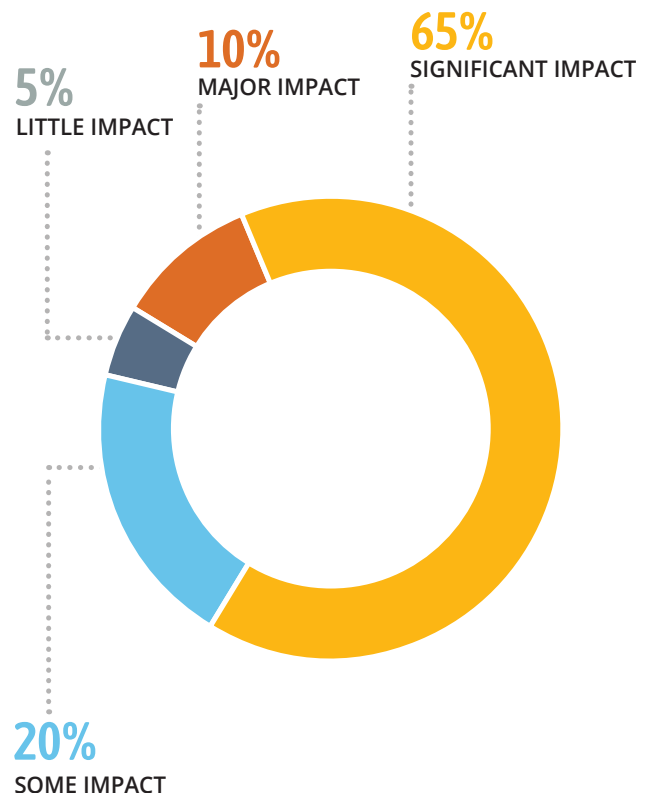
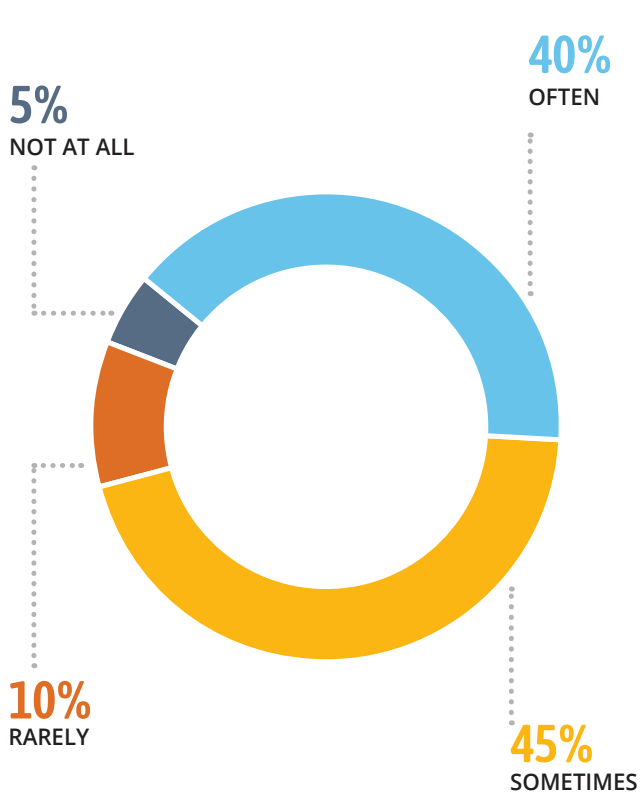
frequently cited as one they have applied (90 percent), followed by “Intro to Dashboard Power BI” (68 percent) and “Best Practices in Data Management” (63 percent). Some participants particularly appreciated the usefulness of Power BI and other tools as interactive alternatives to Power Point for presenting data. When asked what skills they would like to focus on strengthening next, there was no clear consensus, as answers spanned the full spectrum.

FIGURE 5. RELEVANCE OF DATA LITERACY WORKSHOP

Since September, how often have you used what you learned from the Data Literacy Training? 20 responses

FIGURE 6. IMPACT ON NCIP STAFF'S WORK

Overall, how much impact has the program had on your work? 20 responses



IV. Conclusions

The example of the Philippines Data Literacy Workshop illustrates the value of a skills transfer program embedded in a larger capacity building effort. As a training program designed specifically for a single government agency and its unique needs, the workshop complemented ongoing data work at the NCIP. One of the workshop's key areas of focus was preparing data and presenting it in dashboards using various tools and platforms, which translated directly into working with the new IPs dashboard developed under the IPs Project. Also, the analytical work conducted prior to the workshop helped instructors better understand the objectives and needs of NCIP staff.

Overall, the workshop's approach seems to have been effective, successfully achieving the set goals. Feedback from participants after the workshop ended was overwhelmingly positive, and the strategy of using questionnaires to gauge sentiment during the training was a useful way to enable instructors to adjust as needed. In open-ended comments provided through the follow-up questionnaire, many participants expressed that the workshop was highly relevant to them.

The workshop achieved one of its primary goals: to enable NCIP ICT/Data Focal Points to provide training to staff across the organization. However, as this process is ongoing, the targets for staff training have not been fully met yet. Workshop participants who have since provided training to others noted a couple of key challenges. One challenge is related to technology availability; additional funding for laptops, tech support, and software licenses would be useful. The other challenge involves trainees finding time to focus on skills acquisition amidst the competing demands of their daily work. Addressing this challenge may require stronger messaging about the importance of skills development, and an associated allocation of resources, from NCIP leadership.

Although it's premature to evaluate the enduring effects of these data literacy initiatives, there's a clear eagerness within the NCIP to continue improving data analysis capabilities across the organization. Additional support in this regard would likely be beneficial to their ongoing activities. A sizeable share of the workshop participants reported finding the material difficult, and many indicated that additional training time would be useful. A third phase of the program, building upon the initial workshop and the subsequent internal NCIP training, would help staff to solidify and expand their skills, especially for processing data, linking new data to the dashboard, and using data for decision making.



Data Literacy Training in Vietnam; Source: Hien (2020).

3. MEKONG REGION: BETTER POLICY THROUGH DATA LITERACY

I. Introduction and Context²⁵

Indigenous Peoples in the Mekong Region face multiple challenges, ranging from discrimination to lack of recognition—of themselves, individually and collectively, and of their land and resources. At the same time, these at-risk communities are typically unrepresented in data. In this context, the East-West Management Institute (EWMI) created the Open Development Initiative (EWMI-ODI) to facilitate grassroots movements through peacebuilding, forestry and Indigenous Peoples’ networks in the Mekong region. Later, it launched the Open Development Mekong (ODM) platform²⁶ to support the sharing and analysis of data to inform dialogue and decision making. Through this platform, EWMI aims to “level the playing field” within the existing Mekong data ecosystem by building data-related skills and capacity.

EWMI is a non-governmental organization (NGO) that helps to build accountable, capable, and transparent government institutions through a collaborative approach involving civil society, government, and the private sector. Through its Indigenous Data Sovereignty (IDS) and Voices for Mekong Forests (V4MF) programs, EWMI’s data literacy work has a particular focus on at-risk communities, and on specific thematic areas including forestry, pollution, and Indigenous Peoples’ land.

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²⁵ This chapter was written by Pyrou Chung (Director, EWMI-ODI) and Saowalak Jingjungvisut (Communications and Partnership Manager, EWMI-ODI), with contributions from World Bank staff.

²⁶ <https://opendevdevelopmentmekong.net/>

This case study documents EWMI’s experience adapting and replicating the World Bank’s Data Literacy Program throughout the Mekong region.

The work was catalyzed by funding that the World Bank provided for EWMI-ODI to implement the program in 2019 with its partner Phandeeyar in Myanmar. Following that successful pilot, EWMI has continued a rollout of the program to other countries in the region including Cambodia, Lao PDR, Thailand, and Vietnam, in cooperation with local partners and leveraging funding from other sources. In 2021, EWMI received a Digital Skills Innovation Award from the World Bank for this work.

Increasing the capacity of citizens and civil society organizations to access, interpret, share, and generate data is critical for building equitable and effective national data ecosystems, and for enabling meaningful citizen engagement in governance. To this end, EWMI and its partners have been helping to strengthen the data skills of a wide range of stakeholders through the Data Literacy Program. The objective is to educate leaders across organizations including government-affiliated think tanks, civil society groups, media groups, research institutes and universities about the benefits of a data-driven culture, and to help them realize the potential of investment in data training and upskilling. The idea is that enabling individuals to work with data will not only improve their ability to realize its value, but also embolden them to act using these insights.



EWMI-ODI's work on data literacy complements World Bank activities across the Mekong region, where improving natural resource management and strengthening climate resilience are crucial to fostering inclusive and sustainable development.

For example, in Cambodia, economic pressures and unsustainable land practices mean that forest cover declined from nearly 60 percent of the country's land area in 2006 to less than 47 percent in 2014.²⁷ Deforestation and land degradation pose direct threats to local livelihoods in addition to contributing to national and global environmental crises. The World Bank's Country Partnership Framework (CPF) for Cambodia (2019-2023)²⁸ has a heavy emphasis on sustainable natural resource management and a cross-cutting theme on governance, institutions and citizen engagement. Sustainable management of natural resources is one of the three pillars of the Lao PDR CPF (2023-2026)²⁹. Similarly, in Thailand, the World Bank strategy includes emphasis on the government's Bio-Circular-Green (BCG) economic model and on digital transformation.³⁰ In Vietnam, through projects like the Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project, the World Bank is supporting monitoring and analytics for climate-smart planning and resilience. On the data side, a World Bank Open Data Readiness Assessment notes that while data journalism is developing in Vietnam, the country has a shortage of people with advanced data analysis skills, with the private sector absorbing most of those trained in this area.³¹ EWMI-ODI's Data Literacy Program serves as a crucial intervention, helping to build these much-needed skills for use in the policy and advocacy arena.

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27 World Bank (2017b).

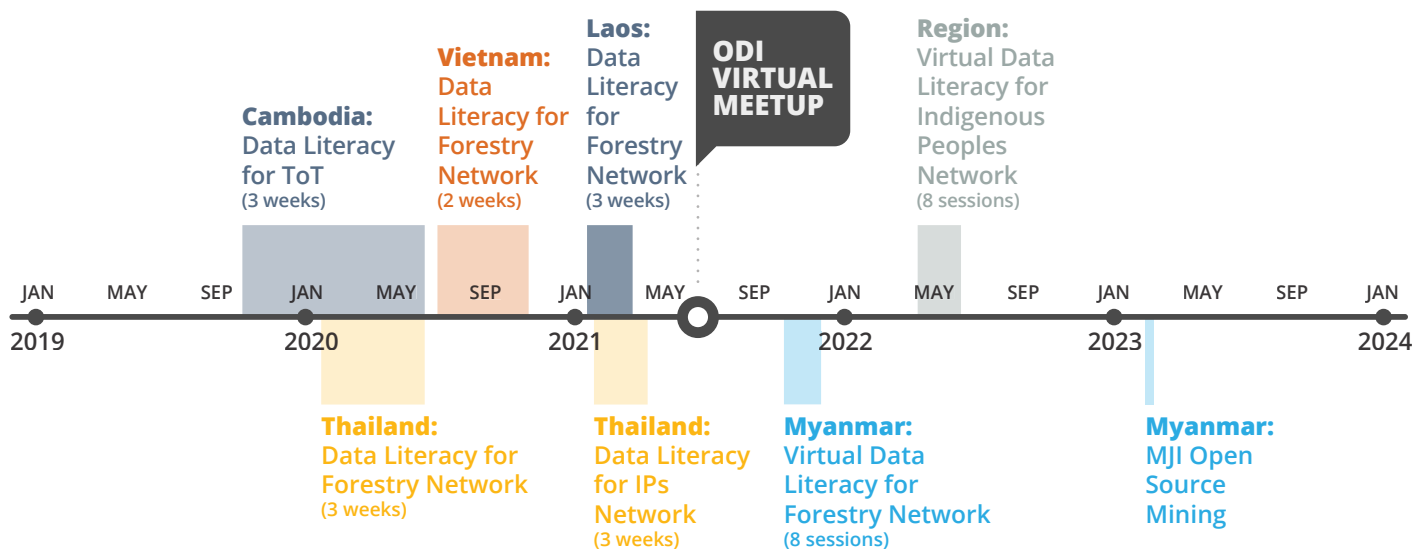
28 World Bank (2019d).

29 World Bank (2023a).

30 World Bank (2023b).

31 Andreasson, Boyera, and Herzog, et al. (2019).

FIGURE 7. TIMELINE OF EWMI-ODI'S DATA LITERACY PROGRAM, 2019-2023



II. Program Design and Implementation

As described in Chapter 1, the World Bank launched its Data Literacy Program in Nepal in 2019, featuring a 100-hour course curriculum intended for in-person delivery. After EWMI-ODI successfully implemented a version of this course in one country via World Bank funding, EWMI-ODI continued to adapt the curriculum and proceeded to implement workshops in other countries in the Mekong region in collaboration with donor and NGO partners.

EWMI-ODI's curriculum focuses on developing technical skills such as data visualization, as well as analytical and critical thinking skills. Each country- and sector-specific training is adapted to the needs of the participants, including translation into local languages.³² The core elements of the program include data collection and processing, data storytelling, data-driven journalism, and data visualization. Together, these elements provide participants with new tools for their analytical and advocacy work. The curriculum also includes data rights,

“Data tools such as Mapeo and Piktochart will revolutionize how my organization will collect and share data with stakeholders, donors, and the public. The skills I learned and these tools will democratize the use of data to help local communities.”

-Chantha Ouanthavongsi, program participant and forest governance advocate in Lao PDR³²

data security, and data ethics training so that participants are aware of the risks and ethical issues involved. Additionally, there is a targeted mentorship component to help participants make the transition from skill acquisition to working with data in their professional roles. Figure 7 summarizes the training EWMI-ODI has provided in the region.

Initial Rollout - Cambodia

The Data Literacy Program that EWMI-ODI organized in Cambodia was widely perceived as the first of its kind in the country and made an important contribution to promoting digital and data literacy and enhancing skills on data-driven and evidence-based storytelling. The year-long program consisted of three in-person workshops of five days each, a virtual follow up session, and a results-focused follow up meeting, plus ongoing mentorship support. A total of 29 professionals participated in the workshop, which was held under EWMI's USAID-supported Cambodian Civil Society Strengthening project³⁴, implemented by Open Development Cambodia. To be eligible, applicants needed to be a journalist or staff member at a media outlet, NGO, or think tank; have at least a year of work experience; have English language skills; and exhibit a strong interest in data and storytelling. Each applicant was required to commit to the program, which was confirmed by an endorsement from the applicant's employer. Indigenous People, women, and youth were particularly encouraged to apply. Key objectives of the workshop included providing participants with skills in data analysis and data-driven storytelling, with a broader goal of promoting informed decision-making regarding natural resources management in Cambodia.

³² Open Development Laos (2021).

³³ The curriculum modules are publicly available in Thai; search for "Data Literacy Modules" at https://data.thailand.opendevopmentmekong.net/en/library_record/.

³⁴ See EWMI (2017).



Working with Forest Governance Advocates and Indigenous Peoples

EWMI-ODI subsequently adapted the program to focus on data literacy skills for strengthening forest governance, and worked with Indigenous Peoples and marginalized populations on engaging with data to enable evidence-based policy advocacy. A collaboration with the Center for People and Forests (RECOFTC) through the EU-funded Voices for Mekong Forests Project enabled EWMI to advance its work on forest governance across Thailand, Vietnam, Myanmar, and Lao PDR. EWMI-ODI also partnered with the Asia Indigenous Peoples Pact (AIPP) to localize data literacy training in Thailand and Vietnam. Programs included the following:

- Thailand.** Starting in February 2020, EWMI-ODI and RECOFTC implemented a 3-week training tailored to the needs of forest governance advocates, focusing on data skills needed to tackle challenges specific to this sector. The training came at a key time for civil society advocates because of an ongoing negotiation between the government and the European Union on a Voluntary Partnership Agreement (VPA) related to illegal logging.³⁵ Also, in collaboration with AIPP and the Indigenous Peoples’ Foundation for Education and Environment (IPF) Thailand, EWMI-ODI delivered data literacy training for Indigenous Peoples and youth groups in northern Thailand starting in April 2021. With IPF, EWMI-ODI delivered an additional training in a compressed 3-day timeframe on “Infographic and Data Visualizations for Indigenous Peoples in Thailand” in September 2022. In total, these programs in Thailand reached 50 people of whom 42 percent were female.

³⁵ Open Development Thailand (2020).

- Vietnam.** In collaboration with People and Nature Reconciliation (PanNature), EWMI-ODI organized a “Training of Trainers” workshop in July 2020 for participants from civil society organizations, research institutes, and press agencies.³⁶ EWMI-ODI also initiated the Women’s Storytelling Project in 2021 in Vietnam to preserve, share, and protect Indigenous cultural values through digital and data literacy skills training and mentorship among Indigenous women. This project had two phases, directly supporting 50 women of four ethnicities in four provinces of Vietnam and providing training to 20 more Indigenous members of the Vietnam Indigenous Knowledge Network. Through a parallel effort to promote human rights and community forest and land rights, EWMI-ODI also provided data literacy training for 45 Indigenous Peoples, of whom one third were female, in two provinces of Vietnam.
- Lao PDR.** As part of an extensive effort to increase the data skills of non-state actors and NGOs in the forest sector, EWMI-ODI, in collaboration with RECOFTC Laos, conducted a similar training in Lao PDR for fourteen participants. The training focused on participants’ interest areas including secure online data tools to help communities and stakeholders in collecting, visualizing, and presenting data in a user-friendly format for public advocacy campaigns.
- Asia Pacific Region.** Partnering with AIPP, EWMI-ODI extended virtual data literacy training to target Indigenous Peoples across the Asia Pacific region. In April and May 2022, they engaged with 30 Ethnic and Indigenous minority peoples from India, Lao PDR, Bangladesh, Cambodia, Malaysia, Nepal, Philippines, and Vietnam, of whom 43 percent were women.

³⁶ Ngoc (2020).

“ I wish to continue working with data of an entire community to raise awareness for access to public services and increase community participation to protect their rights. ”

-Liwan Srisutayakhun, program participant and forest governance advocate in Thailand³⁷

III. Program Results

The EWMI-ODI program has reached a range of stakeholders, encompassing not only individuals already well versed in data work but also researchers, activists, and government staff who could benefit significantly from beginning to leverage data in their roles.

Results have been very promising overall, with strong engagement by participants, and good feedback about the data skills they have gained.

One tool that program participants particularly embraced is Mapeo,³⁸ a mapping application that was co-designed and developed with Indigenous communities, specifically tailored for users with limited digital skills and connectivity. Forest governance advocates in Thailand used Mapeo to visualize data for their work related to forest protection and land rights advocacy. Mapeo also helped program participants build a foundation of key skills for creating a CSO-led forest governance management system in northern Thailand.³⁹ In Southern Thailand, a participant from the Raks Thai Foundation used Mapeo to collect data with geographic coordinates on the elderly and disabled population across ten villages, to enable immediate and targeted help in case of natural disasters. This successful initiative was also publicized via a mass media channel.⁴⁰ Likewise in Vietnam, Mapeo enabled Indigenous women to create and share stories about their lives, catalyzing a transformative change in mainstream narratives through the effective use of data and information.

Data literacy and skills training, especially for vulnerable communities, empowers people to use data-driven approaches for safeguarding their land tenure and other rights. In Cambodia, Indigenous communities who learned how to use Mapeo to document and share photos and maps have effectively used this data to substantiate their claims and provide precise information on the location of violations. This approach has not only strengthened their cases but also fostered more positive relationships with local officials, who now see their complaints supported by compelling evidence. The data literacy training, incorporating modules on Indigenous Data Sovereignty (IDS), has had a significant impact among Indigenous Peoples networks in Cambodia, where it has been leveraged to help formulate a regional framework for ensuring Indigenous data rights for self-identification.⁴¹ The Regional Asian Framework on Indigenous Knowledge and Data Sovereignty (IKDS) has been validated by members of Asian Indigenous Peoples’ networks, translated into nine local languages, and is now available from Open Development Mekong.⁴²

Participants represented 10 countries



Trainees learned skills for data-driven advocacy and storytelling



Over 50% of program participants were women



37 Open Development Thailand (2020).

38 <https://www.earthdefenderstoolkit.com/toolkit/mapeo-monitor-and-document-the-world-around-you/>

39 <https://nanportal.com/> is a product of multi-stakeholder consultation where local communities were engaged in the process with local authorities and academic institutions.

40 ThaiPBS posted on their official Facebook channel (in Thai): <https://www.facebook.com/citizenthaipbs/posts/3938411329520710>. Read more at Open Development Mekong (2020).

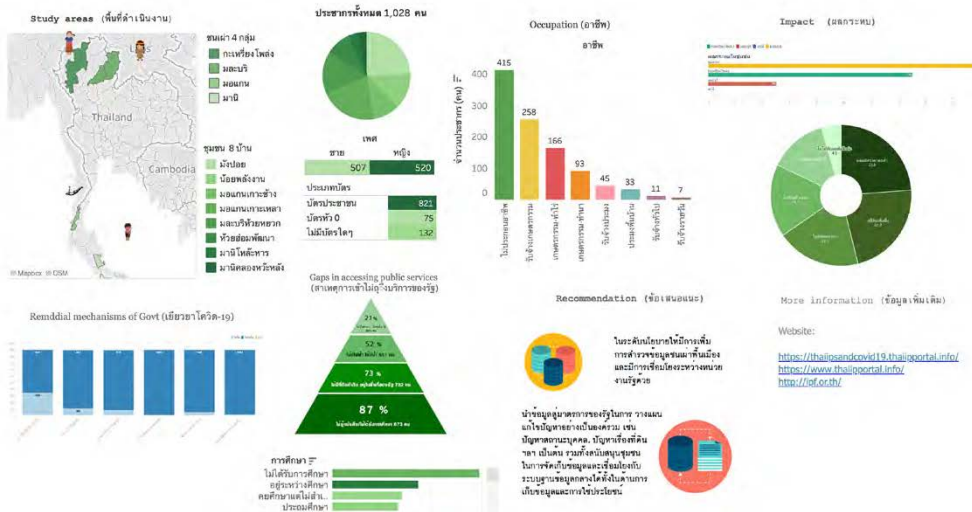
41 Open Development Mekong (2022).

42 https://data.opendevlopmentmekong.net/library_record/asian-framework-on-indigenous-knowledge-and-data-sovereignty

Training participants have also used their newly acquired data visualization skills to make compelling presentations of data. One Thai training participant used data collected from three minority groups from a sample set of eight villages in Thailand and created a data dashboard to show the COVID19 pandemic's impacts on Indigenous communities, gaps in accessing public services, and remedy mechanisms of the government,

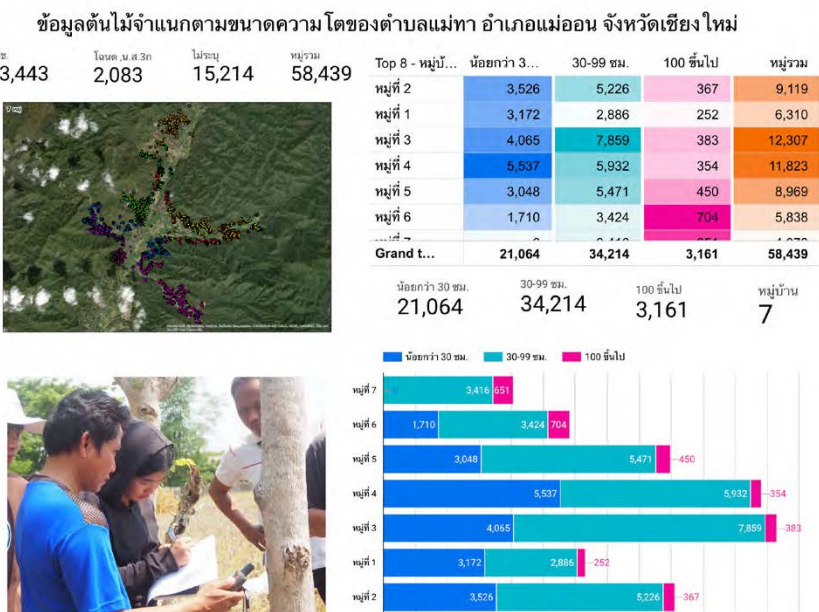
and remedy mechanisms provided by the government (Figure 8). In another case, a project officer from RECOFTC Thailand produced a data dashboard on Timber Harvesting in the Mae Tha Sub-district of Mae On district, Chiang Mai Province (Figure 9). It shows timber harvesting information classified by timber size from the seven villages in Mae Tha Sub-district.

FIGURE 8. A DATA DASHBOARD CREATED BY A THAI TRAINING PARTICIPANT COVID-19: impacts to indigenous communities and gaps in accessing public services data and remedial mechanisms of the government



Source: <https://public.tableau.com/app/profile/kanjana.maran/viz/Project-Spider/Dashboard1>

FIGURE 9. TIMBER HARVESTING DATA DASHBOARD



Source: Open Development Thailand (2020).

IV. Conclusions

Since the initial World Bank-supported pilot in 2019, EWMI-ODI has adapted and shared the Data Literacy Program with Indigenous, marginalized, and at-risk communities from nine additional countries in the Asia Pacific Region.⁴³ This effort has benefitted 290 additional community members, including at least 154 women (53 percent of the total). The program illustrates the transformative potential of a modest amount of seed funding, in this case from the World Bank, to create a multiplier effect.

Over the past three years, the EWMI-ODI team has learned that one-time, stand-alone data literacy and skills training is not enough. Regular use of these skills by participants, and continued upskilling, is necessary to keep up with changes in tools and technology. As EWMI-ODI has grown the network, it has seen an increase in demand not only for data training, but also for help in shifting the power dynamics within traditional data ecosystems. This includes fostering inclusion of grassroots actors (women, Indigenous and marginalized communities) and ensuring representation of these communities in the datasets that are used to design policies that impact them.

In June 2021, EWMI-ODI hosted a virtual meetup for Mekong alumni from the Data Literacy Program to explore the impact it had on their work. From the discussion, some key messages around program challenges emerged, including issues around data quality and availability, continued skills gaps, and access to both data and technology. These challenges that attendees noted were consistent with those observed during the workshops, many of which were conducted remotely during the COVID-19 pandemic.

Many participants expressed that:

- They gained more from face-to-face rather than online training
- Time limitations for practicing use of online tools and data skills matter significantly
- A lack of appropriate laptops/computers and Internet access constrains learning
- Translation is crucial for better understanding

Indeed, language remains a persistent challenge. Despite efforts by EWMI-ODI to translate course materials, the key tools and technologies for data work are predominantly in English, with limited or no multilingual user interface functionality. Relatedly, a general deficiency in computer literacy can be barrier to using data effectively.

Moving forward, EWMI-ODI aims to scale up these data literacy and storytelling training initiatives, and to monitor progress by alumni, ensuring ongoing mentoring and skills refresher training as needed. It is actively pursuing additional funding and collaborative opportunities to leverage new technologies to strengthen the curriculum and customize the materials to meet the unique needs of marginalized groups. The goal is also to leverage the training of trainers approach by empowering those who have completed the program to become trainers themselves. By supporting development and use of crucial data generation, analysis, and communication skills, EWMI-ODI hopes to enable these communities to shift embedded narratives, and to play an active role in co-creating stronger data ecosystems.

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⁴³ For more stories, use cases, and information on the program, see <https://opendevdevelopmentmekong.net/>.



REFERENCES

- Andreasson, Kim Johan; Stephane Boyera; Timothy Grant Herzog; Seunghyun Kim; Alla V. Kuznetsova Morrison; Tran Thi Lan Huong; and Nguyen Thi Lan Huong. 2019. *Digital Government and Open Data Readiness Assessment* (English). Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/311651553511049630/Digital-Government-and-Open-Data-Readiness-Assessment>.
- EWMI. 2017. "Cambodian Civil Society Strengthening Project: FY18 Q1 Report." https://pdf.usaid.gov/pdf_docs/PA00TQPN.pdf.
- Ghimire, Bikin; Soni Khanal; and Nitee Shrestha. 2021. "Data Literacy: A Tool for Change in Nepal." *Data Blog* (World Bank blog), March 24, 2021. <https://blogs.worldbank.org/opendata/data-literacy-tool-change-nepal>.
- Hammer, Craig. Undated. "Data Skills: Capacity Development Offerings." <https://documents1.worldbank.org/curated/en/401861555307409590/pdf/Data-Skills-Capacity-Development.pdf>.
- Hammer, Craig; Jacopo Ottaviani; and Ravi Kumar. 2021. "Strengthening Data Use Culture in West African Countries." *Data Blog* (World Bank blog), Sept. 28, 2021. <https://blogs.worldbank.org/opendata/strengthening-data-use-culture-west-african-countries>.
- Hien, Nguyen Ngoc. 2020. "Participants of a Data Literacy Training in Viet Nam learn new techniques and tools to visualize data on forest governance." *V4MF Stories* (blog), Dec. 11, 2020. <https://voices4mekongforests.org/stories/data-and-untold-stories>.
- Madrigal, Lucia; Jose Cuesta; and Sergio Somerville. 2024. "Indigenous Peoples, Land and Conflict in Mindanao, Philippines." Policy Research Working Paper No. 10700. Washington, DC: World Bank Group. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099605402122420595/idu1344414f71079c143dd1826b1a7e6ecd4a71d>.
- Maharjan, Liza and Avinashi Paudel. 2020. "Youth in Nepal Use Data to Respond to COVID-19." *End Poverty in South Asia* (World Bank blog), Aug. 27, 2020. <https://blogs.worldbank.org/endpovertyinsouthasia/youth-nepal-use-data-respond-covid-19>.
- Ngoc, To Bich. 2020. "Data and the Untold Stories". *PanNature* (blog), Dec. 14, 2020. <https://www.nature.org.vn/en/2020/12/data-and-the-untold-stories/>.
- OECD. 2017. "Core Skills for Public Sector Innovation." April 2017. Paris: OECD. https://www.oecd.org/media/oecdorg/satellitesites/opsi/contents/files/OECD_OPSI-core_skills_for_public_sector_innovation-201704.pdf.
- Open Development Laos. 2021. "Lao Civil Society Improves Advocacy with Data Visualization." Web story, June 1, 2021. Accessed July 31, 2023. <https://laos.opendevlopmentmekong.net/stories/lao-civil-society-improves-advocacy-with-data-visualization/>.
- Open Development Mekong. 2020. "Mapeo App Manages Disaster Risks for Elderly in Southern Thailand." Web story, OD Mekong, Dec. 7, 2020. Accessed July 31, 2023. <https://medium.com/opendevlopmentmekong/mapeo-app-manages-disaster-risks-for-elderly-in-southern-thailand-3157be345a5b>.
- Open Development Mekong. 2022. "Discussions Prioritize Self-Determination Rights for Indigenous Data." Web story, Oct. 17, 2022. Accessed July 31, 2023. <https://opendevmekong.medium.com/calling-priorities-on-self-determination-rights-for-indigenous-data-bills-for-cabinet-approval-bf8f69004a60>.
- Open Development Thailand. 2020. "Thai Foresters Complete Data Literacy Training to Advocate for Improved Forest Governance." Web story, July 24, 2020. Accessed July 31, 2023. <https://thailand.opendevlopmentmekong.net/stories/thai-foresters-complete-data-literacy-training-to-advocate-for-improved-forest-governance/>.

Perez-Brito, Carlos. 2021. "No Data, No Story: What the Absence of Indigenous Peoples-specific Data Reveals." *Data Blog* (World Bank blog), Sept. 9, 2021. <https://blogs.worldbank.org/opendata/no-data-no-story-what-absence-indigenous-peoples-specific-data-reveals>.

World Bank. 2017a. "World Bank Support for Open Data 2012-2017." June 2017. Washington, DC: World Bank. <https://doi.org/10.1596/28616>.

World Bank. 2017b. *Cambodia - Sustaining strong growth for the benefit of all*. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/620151496155751423/Cambodia-Sustaining-strong-growth-for-the-benefit-of-all-a-systematic-country-diagnostic>.

World Bank. 2018. *Nepal - Country partnership framework for the period of FY2019-FY2023* (English). Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/998361534181363354/Nepal-Country-partnership-framework-for-the-period-of-FY2019-FY2023>.

World Bank. 2019a. "Envisioning a Future Data Ecosystem in Federal Nepal." December 2019. Washington, DC: World Bank. <https://elibrary.worldbank.org/doi/abs/10.1596/32891>.

World Bank. 2019b. "Young Data Enthusiasts Tackle Development Challenges at First-of-its-kind Nepal Solve-a-thon 2019." Press Release, World Bank, Dec. 27, 2019. <https://www.worldbank.org/en/news/press-release/2019/12/17/young-data-enthusiasts-tackle-development-challenges-at-first-of-its-kind-nepal-solve-a-thon-2019>.

World Bank. 2019c. *Philippines - Country Partnership Framework for the Period July 2019 - December 2023* (English). Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/891661574699296055/Philippines-Country-Partnership-Framework-for-the-Period-July-2019-December-2023>.

World Bank Group. 2019d. *Cambodia - Country Partnership Framework for the Period of FY2019-2023* (English). Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/872721559440966260/Cambodia-Country-Partnership-Framework-for-the-Period-of-FY2019-2023>.

World Bank. 2023a. *Lao People's Democratic Republic - Country Partnership Framework for the Period FY2023-FY2026* (English). Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/099717312222228702/BOSIB0ba4460490c70b52a08b105fa5296a>.

World Bank. 2023b. "Thailand and the World Bank Group Extend Partnership with Greater Focus on Climate Change, Digital Development, and Rapid Aging." Brief, Jan. 16, 2023. <https://www.worldbank.org/en/country/thailand/brief/thailand-and-the-world-bank-group-extend-partnership>.

ANNEX 1. DATA LITERACY CURRICULUM – AVAILABLE MODULES



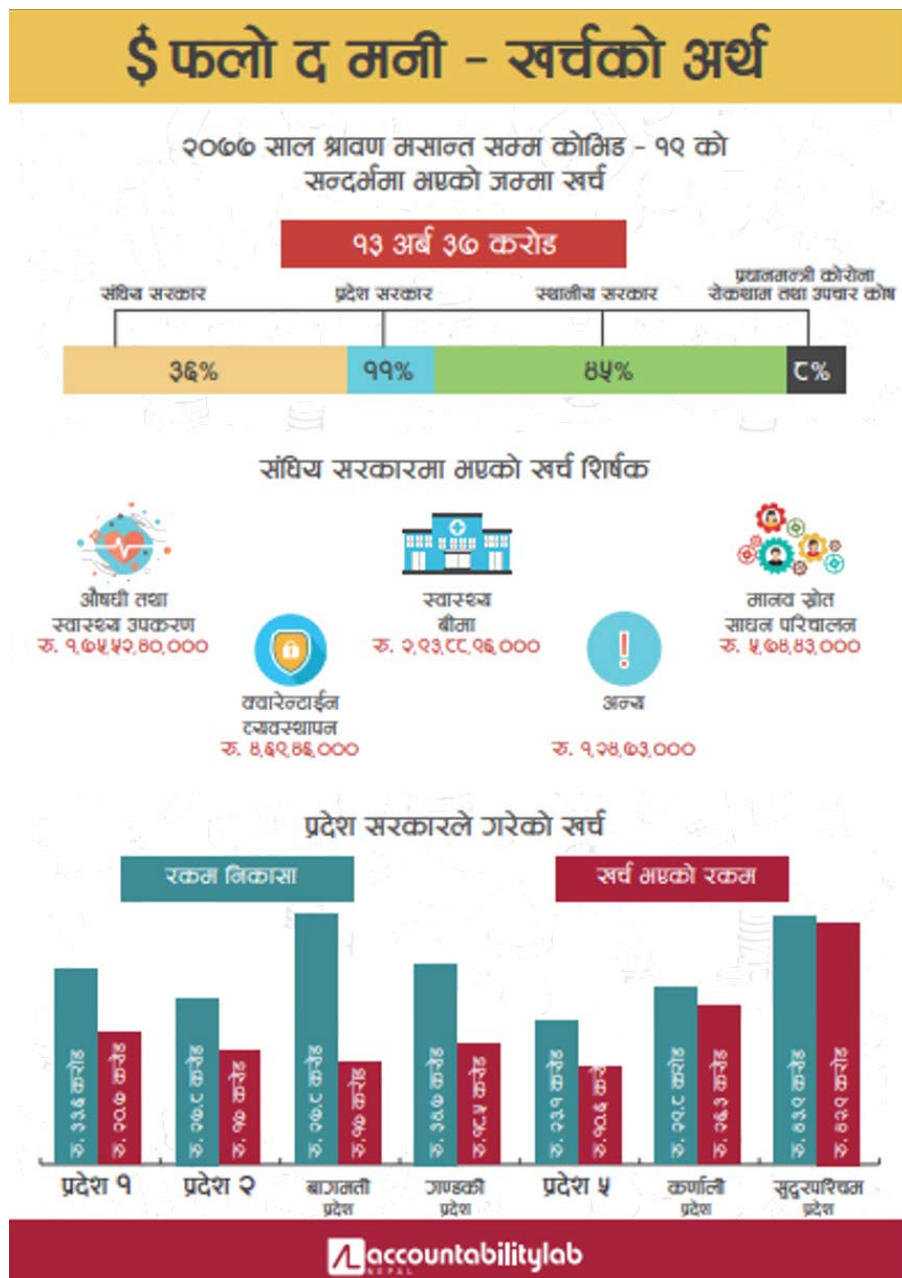
The following course modules are available at <https://dataliteracy.github.io/> and can be freely used and adapted by anyone:

- Intro to Web and Data Tools
- Introduction to Web, Data and Spreadsheet Basics
- Intro to Data Fundamentals and Finding Data Online
- Obtaining, Wrangling, and Analyzing Messy Data
- Introduction to Thematic Mapping using ArcGIS Pro
- The Story of the Atlas of Sustainable Development Goals
- Making Claims with Data
- Introduction to Dashboard Power BI
- Data-driven Decision Making and Storytelling
- Best Practices in Data Management
- From Data to Knowledge
- Intro to Probability and Inferential Statistics
- Intro to Python and Machine Learning
- Advanced Dataviz with Tableau
- Leadership and Design

ANNEX 2. EXAMPLES OF DATA WORK BY TRAINING PARTICIPANTS

Data work by Nepal Data Literacy Program participants

ACCOUNTABILITY LAB INFOGRAPHICS



Source: <https://accountabilitylab.org/bulletins/>

**DATA-DRIVEN JOURNALISM
BY SIJAL POKHREL AND
NIKESH BALAMI**

Source: *The Rising Nepal*

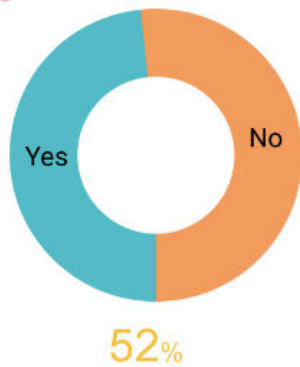


**DATA LITERACY PROGRAM CAPSTONE PROJECT ON USING GOVERNMENT DATA TO ASSESS AWARENESS
OF TAXI COMPLAINT HOTLINE**

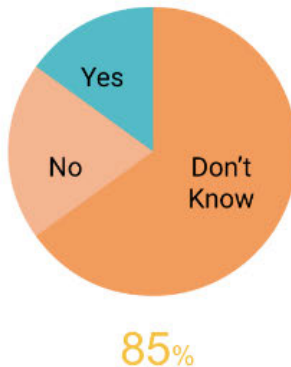


Level of Awareness

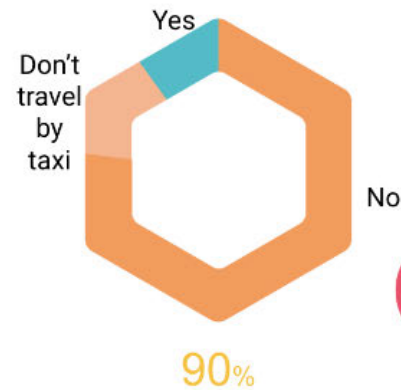
Awareness level of people is quite low



Of the respondents were unaware about the ability to issue complaints regarding Taxis through the 103 hotline



Of the respondents were either negative or didn't know if the Traffic Police Followed up with the cases

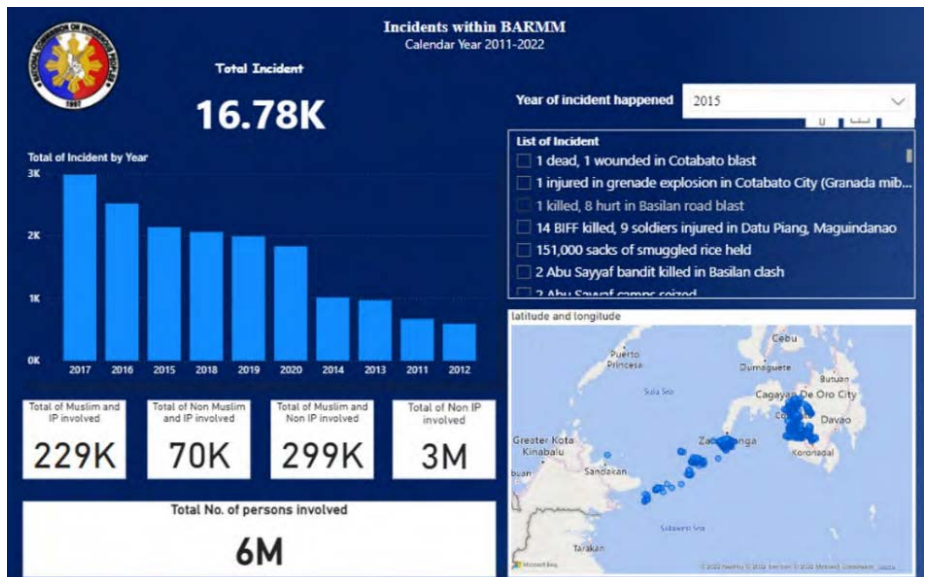
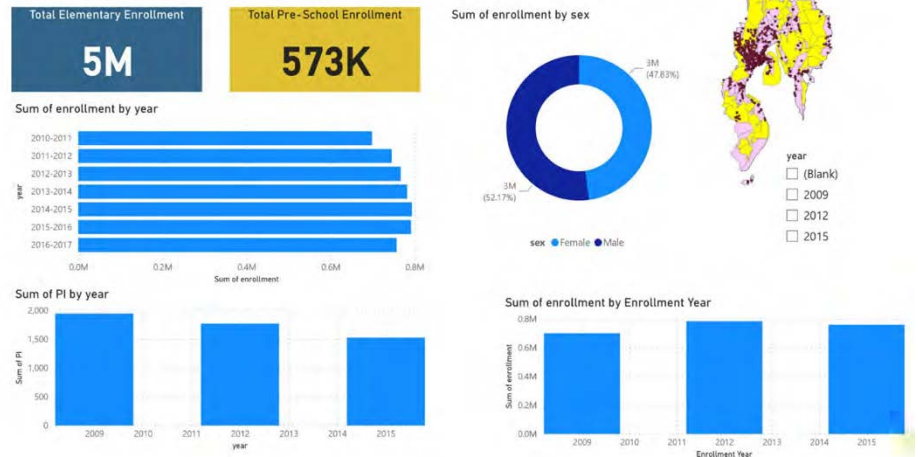


Of the respondents have never made a complaint through 103 hotline

Selected team projects created by participants in the Philippines Data Literacy Program



Poverty Incidence and Enrollment of Primary and Elementary in Region 11



**USING DATA TO EMPOWER
INDIGENOUS PEOPLES AND
ACCELERATE DEVELOPMENT:
DATA SKILLS TRAINING CASE
STUDIES FROM ASIA**
April 2024

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