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APIDTT Grant Agreement: 2023 End of year report

This end of year report provides information on each project in the 2023 grant agreement between the Asia Pacific Internet Development Trust (APIDTT, the Trust) and the APNIC Foundation. It reports on the progress of each project from 1 January 2023 to 31 December 2023, providing a summary of the year's activities.

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Financial Reports

Attached as separate documents.

Appendices

Appendices are attached as a separate document. This includes:

1. Project detailed status indicators
2. AI3 SOI Asia summary financial report
3. Receipt from Keio University
4. Status of 2021 and 2022 ISIF Asia grantees
5. Foundation Community Assistance grantees
6. Affirmation of Commitments

Abbreviations

ADDIE	analysis, design, development, implementation, evaluation
AI3	Asian Internet Interconnection Initiatives
AITAC	Advanced IT Architect Human Resource Development Council
APIE	Asia Pacific Internet Engineering Course
AINTEC	Asian Internet Engineering Conference
APNIC	Asia Pacific Network Information Centre
ARENA-PAC	Arterial Research and Educational Network in Asia-Pacific
BGP	border gateway protocol
CBR	community-based research
CERT	computer emergency response team
CT	community trainer
DFAT	Australian Department of Foreign Affairs and Trade
DNSSEC	domain name system security extension
EBA	evidence-based approach
EoI	expression of interest
F2F	face to face
GESI	gender equality and social inclusion
IP	Internet protocol
ISIF	Information Society Innovation Fund
IPv6	Internet Protocol version 6
Lao PDR	Lao People's Democratic Republic
M&E	monitoring and evaluation
NOG	network operator group
NTN	non-terrestrial network
PDP	professional development plan
Q	quarter
REN	research and education network
ROV	route origin validation
RPKI	resource public key infrastructure
SOI	School on Internet

Executive summary and analysis

This report covers the period from 1 January 2023 to 31 December 2023. The 12 projects funded by the grant for this period are listed in Table 1.

Each project report provides details on their individual objectives, benefits to the community and their status as of December 31. The financial report provides details on project spending and remaining budget.

Based on the project forecast as at December 31, the Foundation expects to return unspent fund of \$268,144, plus GST. Please refer to Table 1 for breakdowns. Full details of these calculations are in the attached financial report.

The Trust's 2023 grant to the Foundation supported the continuation of all 12 projects previously funded by the Trust's 2022 grant.

One project has been renamed since the grant agreement was signed: Foundation Grants has been renamed Foundation Community Assistance (FCA). The total grant request for 2023 including overhead was \$12,614,620.

Table 1: Project Expenditure Summary – as of 31 December 2023 (USD)

Project #	2023 Grant Projects	Managed and Implemented by	Project Budget (Fund Received)	Project Actual	Remaining Budget (To be Returned)	
					\$	%
2021-03	APNIC Academy	APNIC	1,021,545	983,445	38,100	4%
2022-01	Training Delivery and Community Trainers	APNIC	1,223,439	1,404,734	(181,295)	-15%
2021-04	Curriculum Development for Non-technical Audiences	APNIC	55,214	54,026	1,188	2%
2022-03	Cybersecurity: Honeynet and Threat Sharing	APNIC	53,130	49,696	3,434	6%
2021-02	M-Root Deployment Support	APNIC	725,840	409,862	315,978	44%
2022-02	Research and Internet Measurement	APNIC	200,000	178,176	21,824	11%
2021-01	ISIF Asia (incl. IPv6)	Foundation	2,718,546	2,764,883	(46,337)	-2%
2022-04	Foundation Community Assistance*	Foundation	303,107	302,988	119	0%
2022-06	Switch! Gender and Diversity Project	Foundation	1,385,946	1,180,285	205,661	15%
2022-05	Technical training and mentoring support to Internet professionals in Afghanistan	Foundation	185,572	189,738	(4,166)	-2%
2021-08	Trust Discretionary Fund	Foundation	250,000	496,118	(246,118)	-98%
2021-05 2021-06 2021-07	AI3 & SOI Asia	Keio University (Japan)	2,846,896	2,687,139	159,757	6%
2023 Grant Project Total			10,969,234	10,701,090	268,144	2%

* Project #2022-04 Foundation Grants has been renamed to Foundation Community Assistance per Trust's request.

Project highlights and challenges

Foundation and Keio University-led projects

As of the end of 2023, ISIF Asia has now provided support to 145 grants and 34 awardees allocating over USD 9.4 million across 32 economies. There were 24 ISIF Asia grants allocated in 2023, and three ISIF Asia awards. This brings the total number of active projects that were tracked and received support in 2023 to 71, including a grant for Palau increasing the total number of economies supported to 32. Funding management activities are on schedule.

Over the course of the year, with the launch of the new Foundation website, content and technical reports from the former ISIF Asia site and the former online application site were migrated. The ISIF Asia site is expected to be fully decommissioned by mid-2024. Under the new website architecture, each individual ISIF Asia project has its own project page (see [example](#)), with a summarized profile that includes embedded multimedia resources and links. The project profile page was designed to provide a digestible summary for casual readers. The technical reports page (see [example](#)) design maintained the structure used for the reports that were published on the previous ISIF Asia site, while adjusting to the new website layout and style. Technical report pages provide more detailed information around project implementation as well as other technical details that are relevant for researchers and practitioners and allow for free sharing of the knowledge acquired as part of the project implementation.

The Technical Training and Mentoring Support for Internet Professionals in Afghanistan project completed its planned professional development support for 29 project participants and was also able to act as a catalyst for three local Internet initiatives to resume operation. It also supported the establishment of a brand-new initiative, the Afghanistan Network Operator Group (AFNOG). The project is well positioned for its planned scale-up in 2024 to include the Maldives and Pakistan, under the name 'Digital Leap South Asia'.

The Switch! Gender and Diversity project consolidated its expansion to two economies, supporting the professional development of 176 project participants with national events held in each of the six economies. The project continues to grow from strength to strength with delegations of Switch! participants actively participating in key technical community events including APRICOT 2023.

For SOI Asia, a significant milestone was achieved through the formalization of relationships with six partners via the signing of MoUs with Keio University, enhancing the avenues for smoother collaboration and cooperation among universities. In addition, the APIE program held its first APIE Camp in February at Keio University in Japan, which brought together a diverse group (students, teaching assistants, mentors, lecturers, and specialists from different economies and backgrounds) for onsite workshops. A local version of the APIE Camp was later hosted by Institut Teknologi Bandung (ITB) in Indonesia in August, offering the program in the local language to ITB students and broadening the program's reach. This is in conjunction with the online course activities, which attracted over 1280 learners registered from more than 90 economies. The session running from September to November alone registered more than 300 participants.

Challenges:

Project implementation challenges were managed accordingly by Foundation staff, with specific strategies and responses included in the individual project reports included in this report. Responses included resourcing, compliance, project management and communication including:

- Strengthening communication among Foundation staff, APNIC and Keio teams as a response to the uncertainties of the CEO transition process, APNIC restructuring, and recruitment and onboarding of new APNIC legal counsel.
- Coordination was also increased as a response to the increased number of funding requests under TDF and FCA and the delays to the identification of suitable IXPs under the MoU with the Internet Society, APIX and APNIC.
- Quarterly monitoring of budgets and reducing expenditure where appropriate and offsetting overspent budget lines;
- Carefully monitoring mechanisms for the Foundation engagement in economies where sanctions from either government or financial institutions are at play;

- Identifying and recruiting a technical reports reviewer to assist with the team's limited Internet development technical expertise to be able to process technical reports to authorise subsequent disbursements as well as identification of focus areas to assist in the process of collating metrics and highlight areas of impact for communications;
- Identification of areas of improvement in the technical reports collection forms, to reduce editing requirements before publication on the website;
- Complete a review of the training providers engaged for the professional development projects to assess their performance and suitability based on a predefined set of criteria.

APNIC-led projects

Highlights:

The Training Delivery team exceeded 2023 targets for instructor-led training targets, delivering 188 training events, with 114 being led by APNIC staff and the remaining 74 being led by Community Trainers (both volunteers and retained). Five new community trainers were successfully recruited under the Retained Community Trainers model from Sri Lanka, Bangladesh, Laos, Vanuatu and Papua New Guinea. Training and technical content were delivered in support of three new NOGs that were supported – KRNOG, AFNOG and LANOG.

The APNIC Academy released self-paced online courses on Cybersecurity Fundamentals and Introduction to BGP, as well as several new labs.

In the Honeynet project, significant achievements were made in enhancing understanding of cybersecurity threats to infrastructure and increased knowledge sharing and collaboration efforts. The number of honeypot sensors saw the upgrade of the Honeynet backend infrastructure and the deployment of 100 new sensors taking the total to 203 globally.

The Research and Internet Measurement project engaged in significant knowledge dissemination with 35 blog posts and 34 presentations at technical conferences.

In the M-Root project, five M-Root instances were deployed, with seven deployments underway and five new sites identified for future deployment.

Challenges:

Project implementation challenges were managed accordingly by APNIC staff, with specific strategies and responses included in the individual project reports included in this report. Responses included strategies around procurement processes, resourcing, project management and analysis including:

- Tailored approaches to address scenarios at different locations for a steadier rate of deployment to meet project plans and budget, carefully crafting legal agreements to guarantee root server operations, procurement of equipment and adequate technical skills;
- A train-the-trainer program was outlined for development in 2024, to facilitate onboarding new trainers for a high-quality and consistent approach to training delivery;
- A content lifecycle development process will also be developed to support consistency and ensure high quality content and training materials;
- Develop a more structured approach for honeynet data analysis with adequate resourcing.

Delays in deployment and procurement: The M-Root project saw delays, the causes of which varied from location to location.

Response: A variety of responses are being formulated – in one case, an additional engineer is being sourced, while procurement delays are being mitigated with more liaison with legal advice.

Bringing new staff up to speed: With new trainers coming on board, there has been a need to ensure consistency in quality and approach of training.

Response: Train-the-trainer program for 2024 is in development to support trainers upskilling their technical and soft skills. A content lifecycle development process will also be developed to support consistency and ensure high quality content and materials.

Insufficient time for analysis: The Honeynet project has gathered an enormous amount of data, but lacked time to properly analyze these findings.

Response: Allocating more time to looking at the data is planned for the next 6 months.

Project metrics and analysis

Throughout 2023, work was conducted on a metrics-gathering app to aid in the process of gathering, aggregating and refining an initial set of Foundation metrics across the portfolio of projects directly implemented by the Foundation, as well as projects implemented by partners. User acceptance testing was carried out in October and November with app completion slated for 2024.

The app will capture metrics across 21 focus areas included in the three strategic pillars of the Foundation - (10 for Infrastructure, six for Inclusion, five for Knowledge). Each focus area has multiple metrics.

For 2023, metrics were gathered manually by Foundation staff, but in future years the app will streamline this function.

Below is a selection of metrics for 2023, rather than listing all (as some metrics may not be covered in a given year depending on the nature of projects selected for implementation):

Infrastructure

The Foundation team identified metrics, based on the projects reporting, that 16 sustainable low-cost solutions were deployed in 2023 and report it against focus area and metric below. The following projects highlight the importance of applying a low-cost criteria for the deployment of complementary connectivity solutions, as well as in environmental initiatives. This is a key criteria towards sustainability. Some examples include:

- In the Philippines, a [project](#) deployed two LACS instances to support connectivity, one solar-powered Wi-Fi hub and three point-to-point connections for a total of six low-cost solutions;
- A [project](#) in Thailand is using Unmanned Aerial Vehicles for fire prevention;
- In Timor-Leste a weather station was deployed as part of a [project](#) using IoT for water conservation;
- In Korea, [drones are being used to enhance Beekeeping](#);
- In Indonesia, [a network of low cost Wi-Fi hotspots](#) is managed and operated by community organizations
- In India, an innovative [project](#) supports villages to set up their own wireless network from a portable kit.

On IPv6 deployment, the metric below refers to which sector of the economy is benefitting from the support provided. In 2023, two deployments supported the education sector in [India](#) and [Indonesia](#), while one more [in Tonga](#), was focused on the telecommunications sector.

Infrastructure		
Focus area	Metric	Number
CONNECTIVITY Design, deploy and operate low-cost connectivity solutions that use wireless technologies, GSM and/or fibre connections:	Number and type of low-cost, sustainable solutions in place (incorporating operational and maintenance plans, ensuring cost-effectiveness)	16

MONITORING Hardware and software development and/or deployment to support Internet network monitoring and management	Number of hardware and software deployment solutions (tools) (to support Internet network monitoring and management)	11
	Number of analyses produced (to support Internet network monitoring and management)	7
PRIVACY Hardware and software development and/or deployment to improve security and privacy online	Number of hardware and software deployment solutions (to improve security and privacy online)	4
IPv6 IPv6 adoption by enabling network, computing devices, business applications and services	Community benefit by sector (entertainment, social media, education, business, health)	3

Inclusion

The Foundation team identified metrics, based on the projects reporting, and report them against the focus areas below. Behind the numbers below are examples included that highlight the achievements of ISIF Asia supported projects working to increase availability and affordability of Internet access. There were 98 unique locations where connectivity coverage was expanded to reach unserved communities: 40 of these were reported as part of a project in [Myanmar](#) that serves community libraries, while another 51 were identified serving schools through a project in [Samoa](#) and the remaining seven were in rural [India](#). On a separate metric, 29 cases of more connectivity solutions for underserved communities were identified across 2 locations (28 were [Wi-Fi spots in Bangladesh](#), and one was a 20Mbps connection to a university in Timor Leste via the A13 project. In addition, a [project](#) in India is providing high speed connectivity to 7,000 marginalized households.

In addition, under the metrics related to diversity, the examples below highlight common efforts to improve technical skills for women in the Internet industry as well as the increased participation in networking opportunities that bring visibility to their contributions to the development of the industry. 226 women or gender diverse people were supported: 176 through [Switch!](#) across six South East Asia economies, and another 50 via a [project](#) in Mongolia. Switch! was also notably involved in participation and representation efforts, with 739 instances of participants engaging with the broader Internet industry through a variety of speaking engagements.

Inclusion		
Focus area	Metric	Figure
AVAILABILITY Increase Internet availability in unserved and underserved communities in the Asia Pacific region	Number and distribution of locations providing unserved communities with connectivity (urban poor, rural, remote)	98
	Number and distribution of locations providing additional connectivity (beyond 2G) to underserved communities (urban poor, rural, remote)	29
AFFORDABILITY Improve Internet affordability and support local access networks and expand connectivity to underserved areas	Number and type of technical deployments (fibre, Wi-Fi, satellite, LoRa, LTE)	30
	Number and type of marginalized households provided with Internet connectivity (women led, urban poor, rural, remote, ethnic minority)	7,000
DIVERSITY Support targeted capacity building efforts to address diversity in the Internet industry (network management and operations, security and IPv6)	Number of women and gender diverse network engineers receive support for professional development	212
REPRESENTATION	Number of representations made (race, ethnicity, language, literacy, gender, sexual orientation,	739

Increased participation and representation based on dimensions of race, ethnicity, language, literacy, gender, sexual orientation, socio-economic status, age and physical abilities across the Internet industry	socio-economic status, age and physical abilities)	
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Knowledge

The Foundation team identified, based on the projects reporting, metrics related to outreach for non-technical audiences. For example, a project in [Cambodia](#) focused on cybersecurity awareness for school students was able to engage 16,917 students while also getting their app incorporated into the national curriculum. In [Samoa](#), outreach strategies engaged 993 students. The [IPGO puzzle](#) had over 1300 downloads and increased engagement at APNIC56 and IGF 2023 in Kyoto, APIGA in Seoul, and TWIGF in Taipei.

The APNIC-led Training Delivery and Community Trainers projects reported 4,697 people trained. These were supplemented by ongoing training activities in the Switch! and Afghanistan projects (176 and 29 respectively) and another 20 receiving cybersecurity training through [FCA](#) support.

From the network of ISIF Asia-funded projects, one [project](#) focusing on AI supported 25 people while, information sessions conducted as part of a [project on climate misinformation](#) also involved capacity building for 1,994 people in Indonesia. Capacity building around entrepreneurship for complementary connectivity solutions benefited 556 through another [project](#) across three economies.

The Curriculum Development for Non-technical audiences project contributed to knowledge development, with 968 instances of users logging in to the app and learning about routing via the puzzle. Training events continued with an additional 188 and 142 events coming from the APNIC training program and Afghanistan project, respectively.

The 34 research presentations at technical conferences were a result of Geoff Huston's work on Internet Measurement, while the collaborative events came primarily from Keio University's SOI Asia project (56), with the remainder spread around Trust Discretionary Funding and ISIF Asia activities as well as the Afghanistan project.

Knowledge		
Focus area	Metric	Figure
RELIABILITY Increased technical capacity strengthens a robust, stable and reliable Internet	Number of training events held (F2F, hybrid, online/instructor led, self-paced)	1,330
	Number of training participants supported (by gender and disability)	7,486
OUTREACH Non-technical audiences improved understanding of network operations and security, strengthen an open, stable and reliable Internet	Number of individuals supported by audience type (academic, students, corporate, other)	17,910
RESEARCH Improved research capacity on network operations and security to diagnose, analyse and report on Internet infrastructure	Number of papers published (network operations and security and gender of lead researcher)	5
	Number of presentations at technical conferences (network operations and security and gender of lead presenter)	34
COLLABORATION Strengthened knowledge sharing and collaboration across communities of practice	Number of collaborative engagements/events initiated (including virtual)	94
	Number of partnerships by stakeholder groups engaged (academia, civil society,	51

	government, private sector, social enterprise, technical community)	
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Nurturing collaboration

Over the last three years, since the Trust started supporting the Foundation, opportunities for cross-pollination and collaboration have increased, as funding became available for strategic networking events to strengthen the community of partners and engage with donors. This, in turn increased the profile of the Foundation. Some examples in the last year include:

- Organizations, community initiatives and individuals that have received funding from the Foundation for professional development (via Switch! or Afghanistan projects, for example) have collaborated with APNIC, to structure the agendas for their NOGs (PHNOG, AFNOG and LANOG) and Internet Governance events (national, regional initiatives such as PKSIG, APriGF).
- Switch! and ISIF Asia supported individuals have volunteered to join the [APNIC Community Trainers](#) programs, actively supporting technical training in the region. That includes Liezel Manangan, Thitima Pratama and Vasira Mysavath (former Switch! participants), as well as funding recipients from past ISIF Asia grants and the PNG Training project that the Foundation conducted a few years ago, including Etuate Cocker, Bayani (Bani) Benjamin Lara, Jethro Tambiana, Sonia Edward.
- Attendees of the IPv6 webinars organized by IIESoc, sought out their support to submit grant applications for the IPv6 deployment grants. One of those proposals was selected, to support the [upgrade of the NITK campus](#) 45,000 devices to IPv6.
- A former Switch! participant, Challiz Omorog, is partnering with current ISIF Asia grant recipients PREGINET and OpenRAN on their IPv6 Deployment grant. As a result of their engagement and collaboration, her university - Camarines Sur Polytechnic Colleges - is working towards becoming an APNIC member.
- For the IGF in Kyoto, 5 Foundation-funded organizations collaborated to submit session proposals together, focused on Artificial Intelligence. Through that collaboration, they engaged with APNG, and applied for the camp planned for 2024 in Bangkok (funded by the Foundation).
- The [Bond University Law Clinic](#) received case requests from the SOI Asia project and from MakerBox in Lao. The information and case reports produced supported the production of a set of checklists to be published in 2024. Drafts were shared with funding recipients working on complementary connectivity solutions, for review and analysis, to assist organizations experiencing challenges related to regulatory frameworks at play.
- Prof. Ulrich Speidel conducted a review of Starlink use and collaborated with Geoff Huston to share it at the APNIC conferences in 2023. He also provided commentary and advice based on his expertise to the interpretation of measurements other ISIF Asia grant recipients were doing with their own use of Starlink in the Philippines and with the BEACON project, considering the government signed an agreement for Starlink to operate in the Philippines.

Project Communications and Activities

A variety of communication products and activities were produced during the reporting period to document and inform the community of projects funded by the Trust.

The Foundation website saw a widespread overhaul in 2023 – the task was to incorporate content from four websites in one location, to serve as a promotional tool for the Foundation as well as a repository and single source of truth for all project activities to aid in transparency.

The four websites incorporated into the new website were:

- The old apnic.foundation site
- isif.asia (to be closed early 2024)

- seedalliance.net
- The isif.asia application site, which served as the input destination for grantees before the Foundation adopted the Fluxx grants management system.

There were some challenges in the timeline for the establishment of the new site – APNIC faced extensive shortages in web development staff during the year, with new hires needed for both APNIC and Foundation web development work. In addition, there were added complexities in bringing across all the content from ISIF Asia technical reports, which came in multiple formats across the many years since its establishment in 2008. Content also needed to be reviewed and brought up to date, plus pages needed to be set up for every single project, so that bespoke links could be provided for them when they were discussed in reports (see the links in project metrics and analysis for examples).

As of the end of 2023, the new site was up and running, and basic blog functionality had been established. The Foundation blog was up and running just in time for the Internet Governance Forum and to be able to host content for the ISIF Asia awards. Further work on the blog is planned for 2024. The APNIC Blog remains a suitable place for certain technically focused pieces of content and key announcements, but the Foundation requires its own lines of communication with the community.

Slide deck and branding were also refreshed in line with the new integrated website.

Conference Activities:

In February, the Foundation held two sessions at APNIC 55 / APRICOT 2023 in Manila.

- [APNIC Foundation: Fostering technical community action on climate and inclusion](#)

This session was an opportunity to showcase the [Switch!](#) project, as well as ISIF Asia's IPv6 deployment grants. ISIF Asia grantee DotAsia also presented on their [EcoInternet project](#).

- [Diversity and inclusivity in tech](#)

Several Switch! participants took part in a panel discussion on issues around gender in the technical sector. The Philippines Department of Science and Technology featured the panel discussion [on their website](#).



In addition, the Foundation supported 26 Switch! participants to attend the conference. Five of them came from other economies (Thailand, Cambodia, Laos, Timor Leste, Viet Nam) and 21 were from the Philippines, ensuring every economy supported by the project was represented. They were readily visible to other attendees thanks to their green badges.



The project video was updated to accommodate the additional scope and economies and is available on [YouTube](#).



Internet Governance Forum 2023 and the ISIF Asia awards

The [Foundation blog](#) was established just in time for the ISIF Asia awards ceremony at the IGF. Videos were created and commissioned for [each of the award winners](#) at the conference.









Foundation staff and project participants/grantees participated in nine sessions at the conference, all of which were mentioned in a [blog roundup](#). Of particular note, the ISIF Asia awards received media coverage in English and Urdu in Pakistan, due to a Pakistani professor receiving the award.



MEANINGFUL IMPACT / ISIF ASIA

ISIF Asia awards 2023

- Three Internet Exchange Point (IXP) projects awarded
 - Lahore University of Management Sciences (LUMS)
 - Myanmar Internet Exchange (MMIX)
 - University of Malaya, Malaysia
- Coverage of LUMS award in Pakistan media – English and Urdu



In addition, Foundation head of Programs and Partnerships Sylvia Cadena addressed the closing session of the IGF, and the full text of her remarks addressing issues of Internet Governance [were shared on LinkedIn](#).



APNIC Blog:

The following APNIC blog posts tagged with the Foundation were produced in 2023:

1. [Foundation snapshot 2022](#)
2. [APNIC Academy: Year in review](#)
3. [Upcoming Foundation activities at APRICOT 2023](#)
4. [ISIF Asia grants open for applications](#)
5. [Getting hands-on with Starlink](#)
6. [APRICOT 2023 through the eyes of Switch participants](#)
7. [Join APNIC Foundation sessions on diversity and connectivity at the APRIGF 2023](#)
8. [Interactive storytelling IPGO app launched for the next generation](#)
9. [Event Wrap: APAN 56](#)
10. [2023 ISIF Asia grant recipients announced](#)

11. [Event Wrap: APriGF 2023, Net Thing 2023, and PaclGF 2023](#)
12. [A review of Lawful Interception legislation in Oceania](#)
13. [2023 ISIF Asia award winners announced](#)
14. [Event Wrap: IGF 2023](#)
15. [Rajesh Singh appointed APNIC Foundation CEO](#)
16. [APNIC celebrates 30 years: Part 8 — The Information Society Innovation Fund](#)

Foundation blog (starting from the blog's establishment in September)

1. [2023 ISIF Asia grant recipients announced](#)
2. [Foundation activities at APriGF 2023](#)
3. [Foundation activities at APNIC 56](#)
4. [Join APNIC Foundation sessions at the IGF 2023](#)
5. [Announcing the ISIF Asia awards 2023](#)
6. [IGF 2023 Foundation roundup](#)
7. [A word from the Foundation's new CEO Raj Singh](#)
8. [Happy Holidays from the APNIC Foundation](#)

External references by partners - highlights

- SOI Asia set up a [LinkedIn account](#) and has regularly been sharing Foundation branded or tagged content.
- The Philippines's Government Department of Science and Technology (DOST-ASTI) [highlighted](#) their participation in APRICOT 2023 Gender and Diversity session.
- Solomon Islands Ministry of Communication and Aviation shared the details of the Foundation grant to establish the Solomon Islands CERT (SolCERT) [on their website](#).
- ISIF Asia grantee CVISNET Foundation created a video featuring the project funded by the Foundation. The Foundation [uploaded it on the ISIF Asia channel](#) and they then distributed that as well. The project was also highlighted by the Philippine's media <https://www.sunstar.com.ph/article/1961567/cebu/local-news/satellite-connects-isolated-cebu-island-to-the-internet>
- Charles Lim, project leader of Swiss German University, referenced Foundation support through the promotion for scholarships that are part of the project budget.
- ISIF Asia grantee BlueWave Wireless have shared numerous [updates about their project](#), tagging the Foundation and setting up a specific page.
- [Papua New Guinea government representatives highlighted Foundation cooperation on LinkedIn](#)
- [Switch! participant Maris Miranda writing in the Philippines media](#)
- The Foundation has also been tagged on LinkedIn by participants of Switch! The Foundation is also increasingly tagged on LinkedIn by participants of Switch! and Afghanistan projects when they receive certification.
- The ISIF Asia awards resulted in media attention in multiple Pakistani outlets – starting [with this press release](#). Foundation communications liaised with the awardee to prepare the press release on a tight half hour time frame. It was also [picked up elsewhere](#).

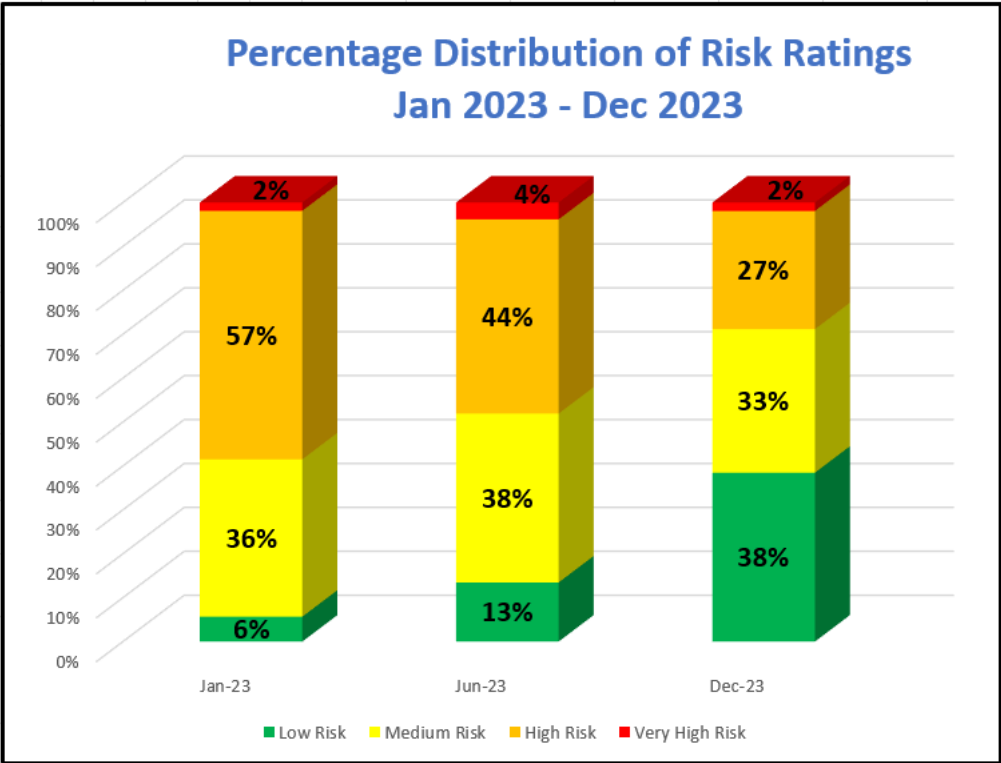
Projects Risk Management

Our risk management report offers a comprehensive view of the evolving risk landscape across our projects, using January 2022 as the baseline for identifying project risks and subsequent assessments in June and December 2023. This methodology enables us to track the progression of our portfolio of risks over time and assess the effectiveness of our risk management strategies. Behind this macro-level analysis, detailed project risk registers are maintained, which provide insights into individual risk trends and mitigation efforts specific to each project.

Significantly, the distribution of risks across different levels reveals positive shifts over the reporting period. There has been a consistent decrease in high and very high-risk categories, indicating successful risk mitigation and proactive management. Currently, all risks, except one, maintain stable risk ratings or have decreased in trend since the last reporting period, reflecting the maturity of projects and the successful management of immediate risks. In January 2023, high and very high-risk categories collectively accounted

for 59% of all risks, a figure that decreased to 29% by December 2023. This improvement is credited to enhanced risk management practices in activity delivery, operational capacity, addressing skilled worker shortages, and refining communication strategies. However, high risks persist in areas such as funding uncertainty, Internet connectivity, and political instability, particularly in Afghanistan. The Foundation maintains a vigilant approach to due diligence regarding terrorism financing.

Conversely, there has been a corresponding increase in low and medium-risk categories. These improvements can be attributed to the changing risk environment, effective implementation of mitigation strategies, continuous evaluation, and increased awareness and preparedness in risk management within each project.



Current risks	Risk rating			
	Low	Medium	High	Very High
January 2022 (67)	11	42	12	2
	Low	Medium	High	Very High
December 2022 (51)	23	26	2	0
	Low	Medium	High	Very High
June 2023 (52)	16	30	4	2

Number of projects	Risk trend		
	Decreasing	Stable	Increasing

Number of projects	Risk trend		
December 2023	19	27	1

Financial Summary

Under the terms of the grant agreement, the total funding request was \$12,614,620, with \$10,969,234 for projects and \$1,645,385 for overhead. This funding was received in full via two tranches during 2023. The project expenditure summary for 2023 is provided in the introduction to this report in Table 1.

Table 1 and the attached finance report shows the spending of each project against budget. Across all 12 projects, the total project expenditure is \$10,701,090, with \$268,144 noted as funds remaining which will be returned to the Trust. For details on project expenditure, please refer to the attached financial report.

Key points of project expenditure:

- The Training Delivery and Community Trainer project: overspending of \$181,295 (15%) compared to the budget. The project had experienced higher training demand from the community, therefore more training sessions and activities were provided by the team in order to support this project's key deliverables. Associated costs of delivering these trainings, such as travel and lab platform, had also increased accordingly due to higher volume of activities.
- The M-Root project: underspending of \$315,978 (44%) compared to the budget. This project has continuously faced the challenges of equipment procurement in less developed economies, with limited vendor options, higher pricing and slow delivery of equipment. Additionally, the WIDE manpower budget of \$103,500 was not utilized as the position had not been filled.
- Switch! project: underspending of \$205,661 (15%) compared to the budget. The project had lower than expected professional development support requests in 2023 while some participants were still completing their 2022 enrolments. Additionally, there were challenges in recruiting a software developer which led to delays in filling the position.
- The Trust Discretionary Fund: The project reported \$246,118 overspending compared to the budget. This is mainly due to a change of the reporting condition. The project is now reporting on cash expenditure basis, instead of accruals basis as in previous years. As a result, a one-off adjustment of \$228,026 from the previous year's unclaimed expenditure has been included in 2023.

Project Reports

1. Training Delivery and Community Trainers

1.1. Background

The delivery of instructor-led training and technical assistance is an important part of APNIC training offerings to the community, leveraging the APNIC Academy product, composed of platform, content and curriculum. APNIC provides several formats to accommodate the needs of the Asia Pacific Internet community, and to ensure accessibility and continuity of learning. These include online courses; virtual labs; webinars; instructor-led training; tutorials; and workshops.

The courses APNIC offers teach participants to proficiently understand, configure, and manage their Internet infrastructure and services whilst embracing current best practices. APNIC training collaborates with several partners to develop course material, as well as host and sponsor training courses. To further expand the availability of APNIC training – supported by the Foundation - Community Trainers (CTs) continue to be recruited in different economies to provide focused training in local languages.

Website page: <https://apnic.foundation/projects/supporting-training-delivery-in-the-asia-pacific/>

Objectives

The project seeks to help the Asia Pacific Internet technical community operate and manage Internet infrastructure and services according to current industry best practice by offering the following:

- **Instructor-led training.** Supporting increased operational knowledge and skills in the community by delivering instructor-led training on operational deployment and best practices, either face-to-face (F2F), online or hybrid.
- **Technical assistance.** Assists members with the adoption of best practices (such as IPv6) when implementing networking technologies after training.
- **Community trainers.** Expands the reach, scope and effectiveness of APNIC Academy training to help meet increasing community demand for technical skill development by recruiting, retaining and developing more CTs locally to deliver training across the region. CTs are also supported to remain active in their local network operator groups (NOGs) and technical communities.
- **Resource public key infrastructure (RPKI) awareness and deployment support.** Increase the adoption of RPKI and routing security by providing training and technical assistance on RPKI and route origin validation (ROV) deployment, raising awareness and sharing best practice through presentations at relevant events and online, including blog posts.
- **IPv6 awareness and deployment support.** Encourage increased deployment of IPv6 in the APNIC region by providing training and technical assistance and sharing IPv6 best practices, information resources and case studies.

1.2. Status Update

The Training Delivery team exceeded instructor-led training targets, delivering 188 training events in 2023 (staff-led -114 and CT-led – 74). Five new RCTs were also successfully recruited in Sri Lanka, Bangladesh, Laos, Vanuatu and Papua New Guinea.

From a technical community perspective, the project continued to foster the development of new NOGs, supporting the startup of KRNOG, AFNOG and LANOG through training and financial sponsorship.

RPKI and IPv6 awareness, deployment and support continued in 2023, with training on this topic exceeding expectations with the support of RCTs contributing to this success.

Successes and challenges

Successes	Effect on project	
Exceeded target for instructor-led training	Exceeded target for staff and CT-led instructor led trainings by 68. An increase in APNIC and CT trainers has provided more opportunity to offer online and face-to-face trainings and therefore continue developing Internet capability and capacity to a greater audience.	
Training model modifications	Opportunity to experiment with different training types – from partnering with different type of community organizations to different formats has allowed the training team to explore delivering training to other audiences. For instance, collaborating with IGFs to support learning to participants from a government background or interest in policy; and combining regions e.g. Southeast Asia, South Asia, to deliver online training to specific regions with the support of RCTs.	
Challenges	Effect on project	Actions taken for challenges
Participant next steps	Participants provided feedback that they would like more information on	A post event email has been developed to thank participants for attending, promote other courses and contact information should they

	other courses or next steps of their training.	have more questions about their learning journey.
Developing the training team	With new APNIC and CT trainers onboard, ensuring consistency in delivery and development of course materials is required to maintain APNIC's high standard of training delivery	Train-the-trainer program for 2024 is in development to support trainers upskill their technical and soft skills. A content lifecycle development process will also be developed to support consistency and ensure high quality content and materials.

Lessons learned and recommendations

With a full complement of trainers, there is an opportunity to develop consistency in all aspects of training delivery including presentation style and course materials. In addition to this, more trainer resources provide an opportunity to review and re-think training delivery strategy and focus on developing a plan to evolve training beyond direct delivery.

2. Research and Internet Measurement

2.1. Background

The project supports the operation of a large-scale Internet measurement laboratory. The objective is to measure the properties of the Internet's infrastructure in the same manner as users see the network, namely by measuring the behaviour of clients as they access network-hosted services. There has been a paucity of reliable public information on the state of Internet infrastructure and this activity is intended to address that by providing reliable, very large scale, informative and accurate data on the current status of Internet infrastructure. It also provides a time series of such indicators to illustrate where and when effort has taken place to address previous shortcomings.

This is a unique resource for the Internet. The data reports, updated daily, are openly available for all. The reports offer unique insights and usable data for policy analysts, commentators, network operators, service providers, and of course users.

Website page: <https://apnic.foundation/projects/research-and-internet-measurement/>

Objectives

This project operates the largest Internet-scale measurement platform in operation. It gathers data from users located across the global Internet on an ongoing basis.

To enrol users into the measurement, the project uses an advertising network, the advertising platform operated by Google. The ad campaigns use an embedded script that is activated upon impression of an ad in the user's context. The ad is directed to perform several URL fetches. The URLs all point to servers operated by the measurement system, and the variation in behaviour of the server in managing the manner of DNS resolution and the subsequent URL fetch provides the data for the measurement results.

The advertising campaigns are configured to deliver some 20M – 25M impressions per day, with as broad a cross section of users as possible, and with sufficient volume to reach beyond the largest network providers into the second and third tier providers in most countries.

The other side of the measurement system is a set of virtual servers. We use a distributed set of servers to locate the servers relatively close to the tested users. This is necessarily a coarse arrangement, and the servers are distributed on a continental basis, with servers located in Dallas, Frankfurt, Singapore, Mumbai, Hong Kong, and Sao Paulo.

The project measures several aspects of Internet infrastructure, including the level of adoption of IPv6 at the end user level, the relative performance of IPv6 in terms of reliability and latency, the adoption of DNSSEC validating in the DNS by recursive resolvers, the market share of open recursive resolvers, and the use of route origination validation in the inter-domain system.

2.2. Status Update

Over the past 12 months, the Research and Internet Measurement project has exceeded all planned activity targets. The project continued assembling long-term data series that shows the uptake of a number of technologies across the network, notably IPv6 uptake and DNSSEC update in recursive resolvers. Deployment measures were processed and published on the APNIC Labs Measurements and Data website within 24 hours. Additionally, measurement scripts were placed on user systems that were located in all "significant" national economies where "significant" is a population threshold of 100,000 people.

Significant highlights include a 4.1 star rating from 35 blogs and 34 research presentations conducted on topics including DNS, DoH and DoT (DNS over transport layer security [TLS] versus DNS over HTTP over TLS), IPv6, the QUIC general-purpose transport layer network protocol, DNSSEC and border gateway protocol (BGP).

Successes and challenges

Successes	Effect on project	
IPv6 Extension Headers	We performed an intensive audit of an aspect of the IPv6 Extension Header measurement due to other reports indicating a different level of support for this protocol mechanism. In collaboration with the University of Aberdeen we used a different measurement vantage point to conduct a detailed examination of the UK IPv6 infrastructure and noted a variation in behaviour across network providers in the manner in which this particular protocol feature.	
Challenges	Effect on project	Actions taken for challenges
Measuring China	There have been some changes in the visibility of the Singapore servers from China due to apparent changes in the GFW filtering	We have opened up a new server location in Hong Kong and operate the China measurements from this location as a short-term remedy. In the longer term we are in discussions with CNNIC to operate a server within China to perform these measurements.

Lessons learned and recommendations

Reliable large-scale measurements continue to be a critical aspect of the Internet, informing all stakeholders of the true nature of network infrastructure and its behaviours.

3. Cybersecurity: Honeynet and Threat Sharing

3.1. Background

The [APNIC Community Honeynet Project](#) was initiated in 2019. The project collects threat data such as suspicious traffic and malware samples from honeypot sensors. The project hosts and maintains backend infrastructure for data collection, analysis and sharing with partners, actively providing daily feeds to Dashboard for Autonomous System Health (DASH). Various security engagement activities are also carried out based on observations from the data collected.

Website page: <https://apnic.foundation/projects/cybersecurity-honeynet-threat-sharing/>

Objectives

This project collects threat data (i.e., suspicious traffic and malware samples) from honeypot sensors by:

- Building and deploying honeypot sensors and maintaining a scalable infrastructure of honeypot sensor network;
- Collecting and processing data (including logs and malware samples), sharing feeds, threat indicators with partners, APNIC members, and the security community, and sharing observations and insights in APNIC security community engagements;

- Collaborating with external partners to deploy sensors, perform analysis and remediation

3.2. Status Update

Over the last 12 months, significant achievements were made in enhancing the cybersecurity infrastructure and collaboration efforts. The number of honeypot sensors saw the upgrade of the HoneyNet backend infrastructure and the deployment of 100 new sensors taking the total to 203 globally. Additionally, Community HoneyNet & Threat Sharing Platform Partners also expanded by 30%, with three new partners joining, resulting in a total of 26 partners. Quarterly threat sharing sessions were held with topics including using MISP to observe threats, and an analysis of cryptominers. Furthermore, continuous daily feeds for DASH, ShadowServer Foundation, MISP and CERT/CSIRT community were conducted. Research findings were regularly shared, including 7 presentations and blog posts on HoneyNet. These accomplishments demonstrate commendable progress in bolstering cybersecurity initiatives and fostering a more secure online environment.

Successes and challenges

Successes	Effect on project	
APNIC is providing interesting insights to APNIC members regarding potentially malicious activity on their networks.	This provides an opportunity for future engagement and encourages future training opportunities.	
Real data is available for our training and workshops.	Using data from honeynet allows us to translate it into training materials for participants. Rather than rehashing old theory, we can provide real-time data useful for generating discussion and engagement.	
Usefulness of the project in terms of engagement and building technical capacity. Partners are mentoring students using the HoneyNet dataset	Dataset benefits the Internet community broadly.	
Challenges	Effect on project	Actions taken for challenges
Having the time to analyse all the datasets. Some datasets are simple to analyse, but other data require in-depth analysis.	There is real potential for lost insights within the community at large for lack of data analysis.	Allocating more time looking at the data is planned for the next 6 months

Lessons learned and recommendations

Recognising that designing honeynets well in advance is needed to handle large datasets.

4. Foundation Community Assistance

4.1. Background

In 2021, The Foundation presented a proposal to the Trust to establish a funding mechanism to support activities from the technical community on a discretionary basis, with an initial focus on supporting IXP, CERT and NOG development, disaster preparedness and recovery as well as activities associated with Internet Governance. This mechanism was to be flexible but include a reporting component. The Foundation introduced this program in 2022.

This community-focused fund has enabled the Foundation to be responsive to immediate needs that need support to be successful. It also reinforces the multi stakeholder approach to events and activities that

discuss critical issues around Internet Development in the region. See appendices for a full list of FCA grantees.

Website page: <https://apnic.foundation/projects/>

Objectives

The objective of this funding mechanism is to enhance the Foundation's reputation as a responsive and flexible partner in Internet development, by providing quick turnaround support when other types of funding may not be available. This is achieved by:

- Funding and supporting Internet development activities in Asia Pacific
- Developing communication assets from Foundation grantees and sharing with the community where appropriate for wider dissemination

4.2. Status Update

During 2023, twelve funding requests were processed under the 2023 grant budget, and one 2022 funding request was processed in January (SolCERT) resulting in 13 funding requests processed during the year. Events supported were attended by Foundation and/or APNIC staff (where possible and appropriate) and speaking slots were provided by the funding recipients when appropriate, increasing Foundation visibility.

Organization	Economy	Project Title
Ministry of Communication and Aviation	Solomon Islands	Developing SolCERT
EngageMedia	Thailand	Asia-Pacific Digital Rights Festival
IGF Secretariat - UN DESA	Global (activities in Japan)	APAC Remote Hubs and APAC Fellowships from the Global South to attend IGF 2023
APIA as fiscal sponsor and SANOG	South Asia	SANOG Fellowships support
Dot Asia	Hong Kong	APrIGF Fellowships and logistics support
FIRST	Vanuatu	FIRST Regional Symposium for the Pacific
KISA (Korea Internet & Security Agency)	Korea	Fellowship and Conference Support for APIGA 2023
Digital Empowerment Foundation	India	Community Network Xchange: A campaign to highlight Internet access gaps and community solutions among the mountain and indigenous communities in Asia
BKNIX Co. Ltd	Thailand	BKNIX Infrastructure Development
Association for Progressive Communications APC	APAC	APC Comparative economic and social study of networks
World Summit Awards	APAC	WSA Grand Jury Meeting (APAC invitees)
IEEE	APAC	Connecting the Unconnected (CTU) Challenge: Closing the gender digital divide
MISPA-IXP	Mongolia	IXP Support

Successes and challenges

Successes	Effect on project	
Increased diversity in selecting fellows for attending events	Selection processes show improved efforts to broaden representation: 1) increase gender diversity; 2) increase geographical distribution and 3) widen stakeholder representation. This cultivates new perspectives and elevates minority groups.	
Supporting conferences and events has enabled APNIC Foundation to promote other grant recipients as panellists, presenters or sharing of knowledge	APNIC Foundation receives many requests for expertise support. When appropriate, Foundation staff facilitates the identification of funding recipients and project participants as panellists/speakers to take advantage of such opportunities, while balancing the need to position the Foundation and promote its work. This helps build a community of practice.	
Challenges	Effect on project	Actions taken for challenges

Insufficient lead time from funding approval to event.	Even though the turn-around time from when the Foundation receives the approval to when the organization supported receives the funds was above agreed service standards, organizations supported received funding too close to the event dates or after the event was completed, which might push them to manage a deficit until funds are received.	Foundation staff identified in Q3 activities scheduled for 2024 and approached them proactively with a funding support offer for about 25% of the annual fund allocation.
IXP support was supposed to be managed via co-funding for equipment in coordination with APNIC, APIX and ISOC.	The coordination to support 2 IXPs in 2023 among APNIC, ISOC, their identified IXPs and Foundation staff was delayed and created unnecessary delays in the definition of funding allocations and scope.	Process to review and possibly withdraw from MoU with ISOC started. Foundation led several meetings with APNIC staff, seeking to evolve from a basic approach to support equipment purchases only to a more structured project proposal where impact can be better assessed.

Lessons learned and recommendations

Some requests around event support are sometimes addressed to APNIC and it takes some time for those to be passed for Foundation for follow-up. A two-pronged approach could improve this by 1) coordination with APNIC at the ERT level to make the lead time to confirm funding support longer and to improve processing times and 2) improving both internal and external communications about how the community perceives the Foundation as part of APNIC, but they are different organizations with separate funding mechanisms. Although increasing efficiency around funding allocation is important, FCA is the only funding available for the Foundation that can be managed with greater flexibility. This allows the Foundation to also have some funding leverage to cultivate partnerships. It is important to maintain a balance between the administrative needs and costs needed to allocate FCA support, and the need of the Foundation leadership to have funds available.

5. Technical Training and Mentoring Support for Internet Professionals in Afghanistan

5.1. Background

In January 2022, the APNIC Foundation initiated a project to explore ways in which to support the Internet industry in Afghanistan. The aim was to enhance learning among technical professionals through mentoring, learning and access to educational resources around network operations and security topics. Several planning phases (inception, planning, community consultations, development) were completed, as well as access to online training (e.g. APNIC Academy, CompTIA and subscriptions to other providers).

Project staff carried out extensive internal and external consultations related to resourcing, technical learning and identification of needs, gaps, and solutions. 259 responses were received. By December 2022, an initial group of 34 project participants were identified and due diligence was completed. Participants that were confirmed were able to create their own Professional Development Plans (PDPs). Two participants, however, dropped out before the end of the year. This left a group of 32, including 23 men and nine women, to receive support during 2023.

Website page: <https://apnic.foundation/projects/mentoring-network-afghanistan/>

Objectives

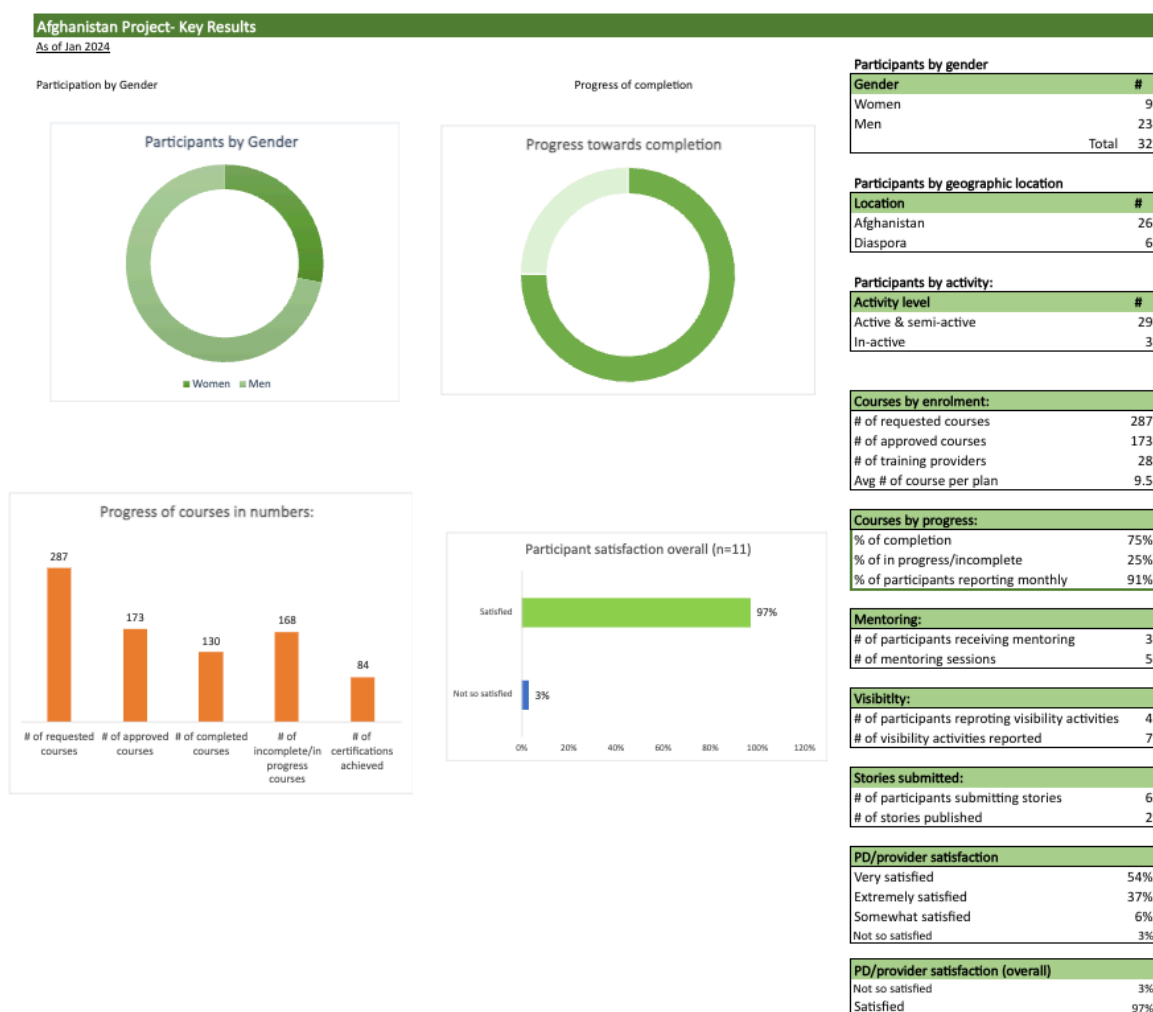
The project seeks to enhance information, technical knowledge, and local and regional engagement of the Afghan technical community. The following objectives support this goal:

- Objective 1 – Information sharing: Define (in collaboration with APNIC) and implement a strategy to raise awareness and increase APNIC engagement with technical audiences, and use of its services and products.
- Objective 2 – Professional development: Support project participants to acquire and use technical knowledge and expertise around network operations and security using online training and mentoring resources that are accessible, inclusive, and demand-driven.

5.2. Status Update

The first six months of the project focused on initial planning and technical training. A comprehensive project plan and logical framework were established to guide the project activities. A detailed project schedule and a roadmap for implementation were developed. Simultaneously, participants recruited formulated their professional development goals, objectives, and activities, including online training courses and certification exams. Partnerships forged with companies such as CBT Nuggets and Coursera, CompTIA and LinkedIn Learning were used to access online training and certifications. The project was also able to resolve the issue of ordering Courses and Certification Exam vouchers with Cisco that it had been facing in earlier years. This enables us to order Cisco learning vouchers from 2024 onwards.

In the subsequent six months, emphasis was put on monitoring the completion of the PDPs community engagement, with support provided to three local Internet initiatives to resume operation, namely Afghanistan Internet Governance Forum (A-IGF), Afghanistan Youth IGF (AyIGF), and Afghanistan School on Internet Governance (AFSIG). In addition, the project supported the establishment of a brand new initiative, the Afghanistan Network Operator Group (AFNOG). Progress during this period includes successful execution of key activities related to technical knowledge, skills, awareness, and community engagement.



Project progress and achievements:

Related to objective 1 – Information sharing:

- Communications strategy: In Q1 a communications and engagement strategy was developed in consultation with the Afghan technical community. This framework became central to the project visibility and alignment with community needs.
- Diverse engagement channels: various channels, including the project webpage, email outreach, mailing lists, social media, events, and direct sessions, were used to share information related to the project and APNIC. This approach ensured effective and widespread dissemination that catered to a variety of preferences.
- Community-led events and meetings: the project actively supported and facilitated APNIC's participation in community-led events and 1:1 meetings. These interactions strengthened community ties and facilitated awareness about APNIC services and products and technical best practices.
- Increased awareness of APNIC and use of the APNIC Academy by users in the economy: the number of annual APNIC Academy subscriptions/ users doubled, from 7 and 14 in 2020 and 2021 to 26 and 21 in 2022 and 2023 respectively – totalling 47 new subscriptions since the project commenced.

Related to objective 2 – Professional development:

- Numbers:
 - Target vs. actual: the project significantly surpassed its targets by recruiting and engaging 32 Afghan participants - more than double the initial target of 15. 29 participants remained active during the year.
 - Gender representation: of the project participants 9 were female, constituting 60% of the initial target and approximately 28% of the overall project.
 - Geographic distribution: in terms of geography 6 participants were from Afghan diaspora, and the remainder residing in various regions, including Kabul and provinces. This distribution and spread reflects the reach and impact of the project.
- Participant engagement and planning- 96% (n=31) out of the total recruited Afghan participants completed their PD Plans requesting 287 courses and learning activities.
- Course completion- out of the requested courses, 173 were approved with 130 (75%) reported as completed. By the end of the reporting period, participants received 92 training and professional certifications. Not all the courses selected issued certifications. Other reasons for the course completion rate include managing schedules and workload, technical and time constraints and shifting participant priorities. In addition, the budget for the project was limited and there are restrictions related to sanctions that didn't allow for wire transfers.
- Diverse learning providers- participants requested to engage with 28 providers, ensuring a diverse and comprehensive learning experience. Exposure to a broad range of providers enriched the perspectives and skill sets of the participants, fostering a unique approach to professional development.
- Active participant progress reporting- by the end of the reporting period, 91% of participants reported monthly progress (the remaining 9% may have been from the 3 inactive participants). This high reporting rate signifies active involvement and commitment of the project in supporting ongoing development of participants.
- Participant satisfaction: preliminary results about participant satisfaction with the PD providers and training received has been overwhelmingly positive, with a combined 97% expressing satisfaction. 91% respondent reported being either very satisfied or extremely satisfied, while only 9% reported lower levels of satisfaction (somewhat satisfied 6% and not so satisfied 3%). The satisfaction ratings were distributed across various PD providers, with CBT Nuggets leading in participant count, followed by Coursera, CompTIA, APNIC Academy, Mikrotik, and Tableau.
- Addressing inactivity challenges- despite challenges, such as three participants being inactive during their period, the project maintained a proactive stance. The project team has been committed to

addressing issues promptly, ensuring the continued success of the professional development activities.

Successes and challenges

Successes	Effect on project	
Awareness of APNIC and its services and community engagement	The community in Afghanistan, a region with limited APNIC engagement, was not much aware of the organization and its services. The project organized and supported over 50 group and 1:1 and sessions on various topics of mutual interest. The sessions involved over 250 total attendees including the project participants and community members who supported and attended the community-led initiatives. The project also conducted several email and social media outreach to raise awareness among the community members. As a result, from the prior low engagement level in Afghanistan, the organization now has a large number of active contacts in the economy and diaspora.	
Leading role by project participants	Six of the project participants have already taken on leadership roles in their communities. All the four national Internet initiatives re/launched, including national Afghanistan Internet Governance Forum (AF-IGF); Youth Internet Governance Forum (AFyIGF); School on Internet Governance (AFSIG) and Afghanistan Network Operators Group (AFNOG) were led by the participants of the project.	
Women's participation and active role	Of the 32 project participants 9 were women, constituting approximately 28% of the project. Two of the four community-led initiatives, AFSIG and AFyIGF, were coordinated by women. Women participation in the community-led initiatives supported by the project included 29.4% of the total 60 at AFSIG, 12% of the registered 75 people at AFNOG, and 22.5% of 80 attendees at IGFA. Women played an important role in the community-led initiatives by being part of the organizing committees, advisory committees or volunteering with management teams.	
Improved prospects and technical skills	Four of the participants reported that the project had a positive impact on their studies or professional career. Acquiring certification from Mikrotik was valuable for one of the project participants who can now offer consultancy services in Afghanistan and the wider region; a former senior executive who learned new cybersecurity skills is able to offer policy consulting; and a network administrator at a local ISP who received 3 CompTIA certifications is now working in telecoms in a senior role in Kabul, and a masters student who took courses on cloud computing has been much more successful in their studies since then.	
Challenges	Effect on project	Actions taken for challenges
Three participants were inactive during the period	Impacted overall participation and progress reporting	The project recruited double the target to be able to address the issues with possible shortage and dropout rates.
Connectivity Issues/ Limited/unstable Internet connectivity in some areas	Participants facing connectivity issues encountered difficulties in accessing online training and mentoring resources. This hindered their ability to fully engage in the project's activities and impacted their learning outcomes.	Addressing the connectivity challenges required additional efforts, such as exploring alternative access options and advice to the participants about where they can look for alternatives.
Language barriers:	Language barriers faced by some participants impacted their learning experiences.	To overcome this challenge, the project had to enhance language support, such as providing guidance in local language and translations where necessary through meetings in local languages to guide participants and community members on issues related to online learning and community engagement.
Monitoring and evaluation	Challenges related to conducting analysis of collected data had implications for assessing	A data collection system was essential for capturing relevant data and measuring progress toward the participants Professional Development Plans. Overcoming this challenge involved developing a data collection and progress reporting system in

	the project's results accurately.	collaboration with the Switch! project, as well as establishing practices for project participants to document their progress regularly and using the insights to make informed decisions and improvements.
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Lessons learned and recommendations

Lessons learned:

- Provision of training based on local demand and specific needs of the Afghan technical community resulted in higher participant engagement and knowledge retention.
- Building partnerships with reputable online training providers in the industry, such as CompTIA, CBT Nuggets, and Coursera, enhanced access to quality technical training resources and expertise.
- Regularly tracking participant progress and conducting assessments using a data collection system allows for adaptive management and timely adjustments to training programs.
- Despite the complexities and hardships, it is possible to ensure gender balance and diversity considerations in activities. The project achieved a remarkable female participation rate of over 28%. By disaggregating data based on gender elements, the project can map the impact on different groups within Afghanistan and the diaspora leading to more inclusive and targeted interventions.
- Adaptability is key: flexibility in project plans and delivery methods is crucial, particularly in the face of external disruptions.
- Continuous communication: Regular communication channels are vital for maintaining engagement, especially in virtual environments.

Recommendations:

- Enhanced participant recruitment, planning, and progress monitoring: implement system for proactive participant recruitment, planning, monitoring, identifying, and addressing inactivity promptly.
- Diversification of engagement channels: explore additional channels for community engagement beyond virtual events, considering the evolving nature of external circumstances.
- Filling vacancies- drop inactive participants early-on and filling in vacancies with a new candidate from a possible waiting list. In addition, allowing a manageable number of courses requested by the participants.
- Continue information and engagement sessions for network engineers and security professionals, raising awareness about APNIC, its services and technical best practices.
- Increased collaboration between local and regional Internet Governance initiatives, fostering increased engagement within the economy, on regional level and with APNIC.
- Provision of support and resources for resumption and sustainability of local community-led Internet governance initiatives, promoting a sense of ownership and active engagement within the community.

6. Switch! Gender and Diversity Project

6.1. Background

Between 1 May 2020 to 31 May 2022, the APNIC Foundation received a grant from the Australian Government (DFAT) to improve the knowledge, skills and confidence of women and gender diverse technical staff working on Internet network management and operations in Cambodia, the Philippines, Thailand and Viet Nam. After a community consultation and adjustment required due to the pandemic, the project was designed so that every participant was able to define their own learning and professional development goals and plan and keep track of their progress using a format provided by the project. During

this period, the project supported 74 participants across a variety of industries and stakeholder groups, comprising 71 women and 3 gender-diverse people, including 10 in Cambodia, 25 in the Philippines, 19 in Thailand and 20 in Viet Nam. In January 2022, Lao PDR and Timor-Leste were added as part of a new phase of the project funded by the Trust, which complemented funding from DFAT until May 2022. This second group of participants started receiving professional development support from late 2022.

In the 2022 end of year survey, 94% of participants reported greater confidence in their ability to understand the technical subjects they had chosen for their professional development plans (PDPs), while 87% reported completing their monthly PDP progress reports, up from 60% in the previous phase. 88% of participants agreed or strongly agreed that their communication skills had improved, while 77% reported participation in networking activities after the first four months of support. Participants that requested research support during 2022 also reported steady progress with their research during 2023, and 7% shared research outcomes during the first half of the year. 37% of participants joined the 2023 coaching process.

Between its inception and the end of 2022, the APNIC Foundation allocated USD 1,466,385 to support 218 women and gender diverse technical professionals across two enrolment processes.

Website page: <https://apnic.foundation/projects/switch-fostering-womens-technical-participation-in-the-internet-industry-in-south-east-asia/>

Objectives

The original project goal was simplified and updated as part of a review of the results framework to: “Women and gender diverse technical staff working in Internet development in South East Asia build technical capacity, are recognized for their professional contributions, and are empowered within three years to promote and protect the open, free and secure Internet across their areas of influence”. The project tracked the following objectives:

- **Project management:** Foundation staff and national coordinators strengthen project management and M&E, design and plan project activities effectively, and review project strategy based on lessons learned.
- **Participant recruitment:** Project participants sign agreements to join the project and submit their Professional Development Plans (PDPs)
- **Professional development:** Project participants make progress against their **PDPs** (training/certification and coaching)
- **Visibility & Networking:** Project participants are better prepared to share their knowledge with the community, are empowered to bring their technical expertise to discussions to protect the open, free and secure Internet.

6.2. Status Update

For the 2023 reporting period, a total of 176 participants were recruited, with 162 women and 14 gender diverse people joining the project, including 26 in Cambodia, 25 in Laos, 35 in the Philippines, 34 in Thailand, 27 in Timor-Leste and 29 in Viet Nam. 100% of the participants submitted their Professional Development Plans (PDPs) to receive 12 months of support, ending in September 2023. 97% reported that structuring their plans was an empowering exercise to take ownership of their learning.

99% of participants remained active (1% dropout rate, representing 4 project participants) throughout the year and completed at least 77% of their plan. Across the 2075 activities approved in the PDPs, 85% were reported as completed, with an average of 12 training requests completed per active participant. 87% reported completing their monthly PDP progress reports, up from 60% in the previous project.

90% of participants received a Certificate of Achievement (meaning they completed at least 65% of their originally approved PD Plan) and achieved 934 certifications (average 5 per active participant). Participants that requested research support for 21 small projects reported steady progress with their research. 52% shared research outcomes for a total of 11 publications from the 13% reported in the first six months of the year, including research outcomes associated with gender related issues.

Efforts to elevate participation and engagement continued steadily, from 24% of active participants reporting engagement across 138 networking activities during the beginning of the year, to 93% of active participants reporting engagement across 738 networking activities at the end of the year, an average of 4 engagements

per participant during the year at local, national, regional and/or global levels. Out of the 131 participants that joined the coaching program, 71% completed the program.

Participants reported being relatively engaged with the Orbit mailing lists (32%) with 60% finding the information shared on the list useful and engaging. Participants shared their Most Significant Exercise stories, as well as sharing details about events they were involved in, and shared in their own language/script. Throughout the year, participants started to share their achievements on their LinkedIn profiles as well as other social media networks and added those certifications to their profiles which helped improve their visibility in the industry. The National Coordinators were able to identify, through the process, remarkable stories of personal development and growth, for example:

- 1) Morokot Cheat worked as a Technical Official at the Ministry of Post and Telecommunications in Cambodia and was recently promoted to Deputy Director. Besides support for training, she received support to boost her skills and to develop her confidence, which has helped her advance in her career. She received research support on Data Compression and Cryptography, and shared it at a national conference in Cambodia;
- 2) JC Cueto works at the Department of Information and Communications Technology of the Philippines Government where he is involved in projects such as Free Wi-Fi and Government Emergency Comms System. He obtained CompTIA Security+ and ISC2 certifications as well as an Advanced Diploma in Internet Governance from DiploFoundation. The knowledge and certifications gained opened opportunities to be part of PhNOG as host and panelist, and to be selected as Fellow in APriGF, ASEAN youth, Netmission Academy, and APNG Camp.
- 3) Kanokwan Aimsung is the Head of IT Security in a large-scale fintech company, Ascend Money, in Thailand. She pursued certifications as CISSP and ISO 27001 Lead Implementer, alongside soft skill development in policy development, English, and storytelling. Through her development and attending mentoring sessions, she enhanced her team management skills, mastering delegation, and communication.
- 4) Le Tung Hoa is a lecturer from Posts and Telecommunications Institute of Technology in Viet Nam. She has taught in the field of Wireless Communication for over 10 years. When she joined the project she lacked motivation, but after receiving research support from the project, she rekindled her interest in research and started a PhD program in Telecommunication Technology.
- 5) Dircia da Silva spent eleven years working for Timor Telecom on Mobile Access Network Planning and Optimization. Among others, she completed certifications in cybersecurity and artificial intelligence, which led her to a new role in Network and Data Center Planning at TIC TIMOR I.P (a public institution for the Timor-Leste government).
- 6) Anisone Kingsada is the Deputy Director General of the Center of Technology Promotion and Transfer at the Ministry of Technology and Communications in Laos. When she joined Switch!, she was the Director of the National Domain Name Division of LANIC. She developed her skills and confidence by participating in mentoring sessions, leadership and public speaking courses, along with several technical courses. All these helped her improve her confidence and skills, and she credits being part of Switch! Project as a significant milestone in her career. Six national events were organized during 2023 (photos from all events are [available on Flickr](#)). The agenda for the events include three main elements. First, to use the time to further develop and strengthen the participants' support network closer to the end of their 12 months of support so that they have shared experiences to bond around using the Most Significant Change methodology and help the participants reflect on their journey. The events also incorporated a learning opportunity in a topic of their choosing, sometimes with a facilitator, like in the case of Thailand with storytelling, or like in the case of Laos, to share research outcomes. Finally, the events used some of the time to reflect on gender equality and social inclusion issues, and the role it plays in their lives and workplace. 99% of survey respondents were satisfied with project activities that were conducted during the national events.

During the year, the project team completed a number of collaborative activities across all economies. The list below is further elaborated in the Successes section of this report:

- Design, testing and deployment of a Microsoft Power Apps app to improve data collection.
- Comprehensive Training Provider evaluation.
- Training providers engagement through executive account managers.
- Two project team events focusing on planning and coordination as well as incorporating feedback received.

As part of the end of year survey, project participants shared:

- 100% participants reported being satisfied with the project activities conducted
- 70% experienced positive changes in their roles such as promotions, salary increases, recognitions/awards and/or appointments to internal or external leadership positions where they believed the support provided by the Switch! project had contributed
- 95% of participants (up from 88% the previous year) agreeing or strongly agreeing that their communication skills had improved, while 93% reported participation in networking activities, up from 77% reported in the previous reporting period.
- 63% of participants reported already taking action to continue their professional development after the project support has concluded
- 96% reported their intention to actively support and promote professional development opportunities that work to improve diversity and inclusion within the industry
- 99% of participants reported greater confidence in their ability to understand the technical subjects they had chosen for their professional development plans (PDPs)

Successes and challenges

Successes	Effect on project
Better chances of improved learning outcomes through support network and camaraderie	Some participants took some courses together, e.g. technical, public speaking, management and leadership. They helped and checked on each other about attendance and understandings and supported each other through completion. Once participants complete their 12 months of support, they rely on that network to continue on a life-long learning journey, which is part of working on Internet development as technologies change at a very fast pace.
Continuous improvement incorporated across two key project components by 1) Comprehensive Training Provider evaluation and engagement and 2) Power Apps app	Project consolidated the feedback from participants and NC's experience. The review significantly decreased the number of providers and provided a standard list of international and local providers. The project constantly engaged with account executives especially with the top chosen providers like CompTIA, LinkedIn, and Spring pod coaching. This enabled the providers to tailor their programs or offerings to the project's and participants' needs thus improving project support. This also helped in faster problem resolution i.e. accessing courses, financial reports, and monitoring progress. The design of a new app using Microsoft Power Apps and moved all the data from the existing data collection system. The app will considerably improve the data collection process and analysis. It will also be used by the Digital Leap South Asia project. Monitoring by NCs as well as self-monitoring is expected to improve through better visualizations, user-friendly interface, and progress update reminders.
Increased visibility of participants in a regional Internet conference (APRICOT 2023)	With Switch! supporting 27 participants (22 PH locals, 5 from other economies) to attend a regional Internet conference held in the Philippines, it increased the visibility of women and gender diverse attendees highlighting the project and the effect of its support

Successes	Effect on project	
National events offered multiple opportunities to strengthen community and GESI understanding	<p>Lessons learned from past events enabled improvements, that were incorporated by NCs based on the needs and unique circumstance of each economy, including 1) colocation with a local technical conference, 2) extended event length to two days to account for more networking, learning, and team building, and 3) incorporating Most Significant Story (MSC) exchanges and retrospectives to gather project feedback</p> <p>Laos participants and NC tightened their relationship during the National Event, so that they helped each other in other situations beside Switch!.</p> <p>GESI awareness was included across all six national events. With support from the GESI Advisor, sessions were successfully conducted and participants also responded to both the pre and post-evaluation. The results show average participants increased their knowledge from a below average understanding to an above average understanding.</p> <p>In Viet Nam, the event helped to promote the project to a broader audience especially the cybersecurity community.</p>	
Research support provided participants with opportunities to explore practical implementations within their area of expertise	<p>Research participants became more conscious of the significance of their work and its potential to positively influence industry. The motivation led them to pursue further research and publish their findings, ensuring that their voice and knowledge reached a broader audience. The research experiences not only enhanced their problem-solving abilities but also provided them with unique insights and perspectives that they could apply directly to their daily work responsibilities.</p> <p>During their research journey, they managed to work with other colleagues not only in their team, but also across organizations. More importantly, they were able to present the research findings and analysis to their managers and other colleagues. Some of these participants acknowledge that this recognition contributed to promotions during the project support period.</p>	
Personal growth through coaching	<p>Pod coaching has helped participants improve their habits, way of thinking, helped in guiding their life purpose, and in particular the personalized guidance to improve work-life balance.</p> <p>Participants accepted that their mindset, mood, reaction, action and view on dealing with problems had changed. They realized they became more calm, mature and reasonable when facing challenges and working with other people. They felt that their leadership skills had been improved.</p>	
Challenges	Effect on project	Actions taken for challenges
Motivation and time management	Participants tend to postpone self-paced courses and rush to take exams for vouchers with longer validity	Map possible mechanisms to issue reminders
Limited opportunities for interaction and networking across all the cohort of project participants	Collaboration and support is limited to national groups	Pod coaching with groups from different economies Use of Orbit
High number of training providers adds complexity to project administration	<p>Difficult to manage and take time to monitor learning progress through each of the providers as they have different platforms and ways to report progress or define success</p> <p>Difficult to verify vendors details and process disbursements</p>	Participants and NCs evaluated training providers. All NCs worked together on this and conducted analysis on the input received and removed some providers from the list of options
Limited English proficiency affects some participants	<p>Limited choice for courses and vendors</p> <p>Less opportunity to join international conferences/stage</p>	<p>Project supported English courses and classes</p> <p>Participants register for courses with local vendors and wait for the class to fill</p> <p>Recommended Laos participants to consider courses and vendors available in Thai language as an option</p>

Successes	Effect on project	
	Increased translation cost for the project Delay in work because of some translation processes Low confidence to engage in networking opportunities at regional/global level	Proactive assistance via interpretation services or with the NCs help
Local vendor's limitation on payment methods	In Laos, credit card payment option or accepting USD transfers are not widely available	Added flexibility for financial management by 1) Processing wired transfers directly to vendors, 2) Send cash advance to NCs to convert to local currency to process transactions locally, and assist with NC advanced payment and/or 3) Process advanced payment to participants.
Difficulty to select and track research outcomes and assess quality	Additional demands on NCs to identify mechanisms to support first-time researchers in areas outside of their expertise	Link researchers with professionals in that field through network of contacts; request researchers to seek support from potential advisors; encourage researchers to proactively share their outcomes and seek feedback for future improvement.
Different file access levels of staff and external contractors continues to challenge collaboration in the preparation of documents	Difficulty in tracking file versions and collaborating input	Placing common files in external folders only so staff don't keep internal copies.

Lessons learned and recommendations

- Review networking practices to 1) Increase face-to-face meetings to share knowledge and work experiences (at all levels, local, national, regional and international); 2) Promote networking and build community among cohorts and across economies; 3) Improve confidence to communicate in English; 4) Establish mechanisms and practices for participants to request and offer support and 5) Improve adoption of Orbit for more fluid communication
- Review motivation strategies for completion of professional development plans: 1) Incorporate study groups; 2) Set regular reminders for progress for training vouchers to avoid rushing for completion
- Continue to support English proficiency through lessons and conversation classes
- Practical training in communication e.g. Storytelling is a useful factor in facilitating effective communication and knowledge transfer.

Improve GESI understanding by including concepts and practice as part of project activities.

7. Information Society Innovation Fund (ISIF Asia)

7.1. Background

The Information Society Innovation Fund (ISIF Asia) has provided grants and awards since 2008 to support and build technical communities in the Asia Pacific.

ISIF Asia's investment focus is mainly technical and operational – supporting research and development projects across a wide range of technical topics – while also supporting initiatives increasing participation and representation through a gender equality and social inclusion lens, as well as dedicating funding to build capacity and strengthening the organizations supported. Funding is structured in alignment with the Foundation programs.

As of December 2023, ISIF Asia has supported 145 grants and 34 awards allocating over USD 9.4 million across 32 economies.

ISIF Asia has supported partner organizations based in Australia, Bangladesh, Bhutan, Cambodia, China, Cook Islands, Hong Kong, India, Indonesia, Japan, Lao PDR, Malaysia, Federated States of Micronesia,

Mongolia, Myanmar, Nepal, New Zealand, Niue, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor Leste, Tonga, Vanuatu and Viet Nam.

Website page: <https://apnic.foundation/isif-asia/about/>

Objectives

ISIF Asia is dedicated to empowering organizations that research, design and implement technical solutions that support Internet development and facilitate human and economic development in the Asia Pacific, with a focus on Inclusion, Infrastructure and Knowledge from a technical and operational perspective.

Objective 1 - Grants and awards management: ISIF Asia effectively and efficiently provides support to a diverse range of community-focused Internet development projects across the Foundation's programmatic areas (Inclusion, Infrastructure and Knowledge).

Objective 2 - Expanded impact: ISIF Asia deepens its network of connections in the field to: 1) Validate ISIF Asia's focus areas, 2) Expand the applicant and grantee pool across all areas (particularly on Internet and the Environment) and its geographical diversity, 3) Strengthen the alumni network, and 4) Promote field-wide exchanges of information.

Objective 3 - Partnership development: ISIF Asia grows the network of partners supporting Asia Pacific Internet development.

7.2. Status update

As of the end of 2023, ISIF Asia has now provided support to 145 grants and 34 awardees allocating over USD 9.4 million across 32 economies. During 2023, 71 funding recipients were supported, including three award winners. Activities remained on schedule.

A new Grants Management Lead was hired in April to support the 2023 ISIF Asia application process and the existing 2021 and 2022 projects. The team engaged a Technical Reviewer to assist the Grants Management Lead in the processing of technical reports. In addition, 23 Selection Committee members were recruited and onboarded during this period to serve across five Selection Committees.

The 2023 call for proposals opened between March to April 2023 and received 135 applications distributed across five specific funding opportunities as listed below, with 24 grant recipients selected for funding. This was a 12% increase from the 120 proposals received in 2022, thanks to consistent efforts to promote the funding opportunity made across the Foundation network of contacts, events and social media. The following is the distribution of the proposals received vs the proposals selected for funding:

- Inclusion: 52 proposals received, seven were funded
- Infrastructure: 27 proposals received, nine funded including five IPv6 deployment proposals
- Knowledge: 27 proposals received, six funded
- Ian Peter Grants for Internet and the Environment: 29 proposals received, two funded.

All proposals had undergone staff screening, while selection committee reviews (pair review and full review) were conducted depending on the decisions made at the previous step of the review process. A shortlist was made considering evaluation scores, geographic diversity and balancing across programs. The Foundation Board and Trust's endorsement were received prior to the formal announcement made at the APNIC 56 conference.

The 24 grant recipients selected were welcomed by the Foundation staff at a meet and greet session. Promotion and communication of the new projects across our existing alumni was undertaken with efforts to encourage similar projects and/or economies to network.

Before approving their first disbursements, each recipient was required to submit their project indicators and detailed budgets. This allowed for any changes from the time the proposal was originally submitted to the start of the project to be discussed with the Grants Management Lead.

At the Internet Governance Forum (IGF) in Kyoto, the Foundation celebrated three ISIF Asia funding recipients that are working on issues related to the development of Internet Exchange Points in Indonesia,

Myanmar and Pakistan. Their contributions were recognized at the ISIF Asia Awards ceremony. Short videos were produced, and their work was amplified through social media and picked up by their respective media outlets.

Foundation staff continued to promote and share the impact of funded projects and promote the fund by routinely identifying networking opportunities as well as promoting the issues being addressed through the selected projects. The results can be seen in blog and social media posts including active participation at conferencing events by current and past grantees.

Many of our recipients this year were referred to be speakers at other events not specifically hosted by the APNIC Foundation. Below are some of the highlights in 2023:

- APRICOT 2023: promotion for application process, partners breakfast and IPv6 deployment presentations from Indonesia
- AVPN 2023: Foundation session organized around connectivity; DealShare portal submissions from former/current funding recipients
- IGF Kyoto: Organized networking session to facilitate connections with existing, former and potential donors investing in Internet Development in the APAC region; participated on the panel to present the eco-Internet index
- Agents of inclusion - Community networks & media meet-up: panel presentation
- Adaptation Fund Climate Innovation Accelerator Partnership for Development: panel presentation
- IEEE Global Communications Conference: panel presentation
- TrustCon 2023: panel presentation
- APriGF - Five funding recipients were panellists for a session titled “Sustainability of Complementary Connectivity Initiatives” organized by the Institute for Social Entrepreneurship in Asia (ISEA)
- APNIC 56 Conference: session on IPv6 deployment included two ISIF Asia funding recipients' presentations from Tonga and Mongolia; partners breakfast organized

Work on the new Foundation website has integrated selected content from the old ISIF Asia website and developed improved project profiles covering all 15 years of operations of the fund. Publication of final reports started in the last quarter of the year. The ISIF Asia recipients for 2022 were showcased in the 2022 annual report that was published in 2023 (during the current Trust reporting period).

Throughout the year, the following reports were received by Foundation staff and processed for necessary approvals. The list below shows the chronological order in which 32 reports were processed by the Foundation staff, with 68 grants active during this period.

Organization	Economy	Project title	Type of Report	Funding cycle
Airjaldi	India	Connectivity Bridges: Reaching remote locations with high-speed Internet services	Progress	2021
University Kebangsaan	Malaysia	Hybrid LoRa Network for Underserved Community Internet	Progress	2021
Servelots	India	An Inclusive DIY Community Operated Wireless Kit for enabling local communications at remote locations	Progress	2021
Tsinghua University	China	Developing a Collaborative BGP Routing Analyzing and Diagnosing Platform	Progress	2021
Makerbox Lao	Lao PDR	Empowering remote agricultural communities through long range wide area networks	Progress	2021
SCoReLab	Sri Lanka	Bug Zero	Progress	2021
Common Room Networks Foundation	Indonesia	Local Community-Based Internet Infrastructure Development and Internet Utilization in Rural Indonesia	Progress	2021
Tonga Communications Corporation	Tonga	Ucall in IPv6 World (IPv6)	Progress	2021
University of Malaya	Malaysia	Design, Development and Operation of an SDN-based Internet eXchange Playground for networkers	Final	2021
Swiss German University	Indonesia	Intelligent Honeynet Threat Sharing Platform	Final	2021

Organization	Economy	Project title	Type of Report	Funding cycle
IIESoc	India	IPv6 Knowledge Transfer	Final	2021
Davao Medical School Foundation	Philippines	Internet Connections to 4 Villages in Mindanao	Final	2021
Myanmar Book Aid and Preservation Foundation	Myanmar	Equal Access to Information Society	Final	2021
Centre for Digital Society	Indonesia	Tackling Climate Misinformation in Indonesia	Progress	2022
Similie	Timor Leste	IoT Data-Driven Water Management for Climate Resilient Communities	Progress	2022
Code Avengers	Samoa	Indigitech PacificCODE Project	Progress	2022
Ulen Tyekhnologi Sonirkhogch Zалу Injyenyruudiin Bulgem TBB	Mongolia	Empowering Women, Youth, and Special needs people in the Tech Sector in Mongolia through Capacity Building and Community Building	Progress	2022
Universitas Islam Indonesia	Indonesia	IPv6 Anywhere, Accelerating IPv6 Adoption with Multiple Models of IPv6 Deployments	Progress	2022
Passerelles Numerquest Cambodia	Cambodia	CyberSecurity - Cambodia	Final	2021
SCoRe Lab	Sri Lanka	Bug Zero, a project of SCoRe Lab	Final	2021
Tsinghua University	China	Developing a Collaborative BGP Routing Analyzing and Diagnosing Platform	Final	2021
Boom! Inc	Yap	Deploying IPv6 in Yap FSM	Progress	2021
The University of Auckland	NZ / Kiribatti	Field-ready network-coded tunnels for satellite links	Progress	2021
Code Avengers	Samoa	INDIGITECH PacificCODE Project - Samoa	Final	2022
Bluewave	Samoa	Samoa District Connectivity Project	Progress	2022
Similie	Timor Leste	IoT Data-Driven Water Management for Climate Resilient Communities	Progress	2022
Institute for Social Entrepreneurship in Asia	Bangladesh, China, Philippines	Model building of community networks linked to social enterprise and sustainable local economic development	Progress	2022
CVISNET Foundation, Inc.	Philippines	"Internet for Safety, Livelihood, e-Education and Tourism for Vulnerable Islands of Cebu Province - ISLET Connect"	Progress	2022
Janata WIFI	Bangladesh	Janata Wifi - Affordable Internet For The Community By The Community	Progress	2022
National Electronics and Computer Technology Center	Thailand	Open-source SOC-as-a-Service for Strengthening Cybersecurity in Small and Medium Manufacturers in Thailand toward Industry 4.0	Progress	2022
Universitas Prasetya Mulya	Indonesia	PumonAI: Multi Institutional Collaboration via Federated Learning for Pneumonia Screening in Indonesia	Progress	2022
Universiti Kebangsaan Malaysia	Malaysia	Combating Cyberbullying for Better Internet Inclusivity: An Optimized Deep Learning Approach	Progress	2022

Successes and challenges

Successes	Effect on project
Grants and Awards Management process and system underwent a review and continuous improvement exercise	Feedback was sourced from grantees, applicants, selection committee members, consultants and internal staff. This feedback along with an end-to-end review provided inputs for a three week intensive improvement exercise. The on-site visit of the Fluxx consultant enabled real time changes to the system.
Number of applications received demonstrates successful outreach and relevance of the program (from interim report)	The call for proposals received a good response rate across all three programs. This is evidence of the success of the active promotion of the funding opportunity available through a wider network of contacts and using LinkedIn more effectively as well as consistent promotion across online and face-to-face events that Foundation and APNIC staff participated in. In addition, the promotion of the outcomes, events and activities of existing funding recipients has also raised interest. Former recipients see the Foundation as a good supporter of their work not only though the possibility to apply for new funding to expand or continue their

	previously funded work, but also to showcase their work and support connections through the Orbit space, APNIC conference and community events.	
Five IPv6 proposals accepted for funding by mid-May (from interim report)	The proposals received were all approved for funding - with one more lodged looking for 2024 funding support - shows that this new mechanism is needed by the community to advance IPv6 adoption.	
Backlog of 2021 and 2022 reporting progressing	The Grants Management Lead was able to implement effective strategies to manage the workload related to ongoing projects approved in 2021 and 2022 and review how to apply processes consistently, managing the support required for reviews of reports and provision of feedback.	
Challenges	Effect on project	Actions taken for challenges
Applicants understanding of focus areas in relation to Inclusion and Environment is limited. (interim report)	Applicants not able to explain in a persuasive manner, how their work is aligned with the funding focus areas.	Specific questions were incorporated into the feedback processes issued to applicants to capture improvement opportunities in the application form and the FAQ section. Key improvements were applied for 2024.
Balancing time needed for effective new staff onboarding (as the application period came to a close) with the review process and engagement with existing grantees was challenging (interim report)	Reviewing and ensuring applications are eligible to be passed to the selection committee is time consuming and required space for learning. It was particularly challenging to complete that process while working through the staff induction and learning about grant management and technical areas in which the Foundation operates.	The support from a Technical Reviewer was made available allowing the new Grants Management Lead to dedicate more time to the 2023 review process. Manager provided ongoing coaching and opportunities to the Grants Management Lead to undertake one field visit to build technical understanding of what is supported by this fund.
Selection committee members availability to complete selection process against proposed timeframe (interim report)	As applications cannot progress for full review until all the members have completed their pair reviews, delays to meet proposed timeframes were experienced.	The Selection Committee members were split into five different groups with committee members serving in only one committee to reduce the number of applications to review, as there were several complaints and withdrawals from last year from committee members that were required to do a full review of a larger number of proposals. The number of proposals to review is important to consider, as reading of applications can vary from 1 hour to 4 hours, depending on how thorough they are. This year the pre-screening was completed in full, and the pair review step was enforced. In this step, only applications that receive approval from both committee members are moved to the full review. That reduced the volume of applications for review by each committee member and allowed for only the stronger applications to move forward. However, as there are delays related to their overall availability, booking the time for both steps can be more complicated to manage.
On average 80% of reports are sent back to recipients for editing	Resourcing needed for effective administration and timely feedback is high. However, as final reports are to be published, it is an important part of the commitment to support knowledge sharing and collaboration	Dedicated coaching was offered to project recipients that are significantly struggling. For 2024 the fund is looking to engage with more technical reviewers to facilitate the follow-up.
There are multiple requests for no-cost extensions for projects' implementation, with implementation teams probably underestimating	Resourcing needed to assess no-cost extensions is high. Expected workload of Grants Management Lead has increased, as number of	These are No-Cost extensions so there is no funding impact (administration only).

factors contributing to possible delays.	active projects during the year has not reduced as initially expected.	
Limited availability to conduct site visits.	Past practice was to minimise site visits budget, as funding was prioritized to support project work. 2023 site visits were organized around the location of approved travel for other events to maximize budget utilization. Original communication materials developed by the Foundation are limited as a result.	Allocation of travel budget for 2024 to be reviewed. Video project will conduct site visits to capture on-site information about project implementation. Foundation active engagement with funding recipients and alumni is a valuable experience.
Fluxx development and integration with Netsuite	Integration between Fluxx (the Foundation's grants management system) and NetSuite (the Foundation's Enterprise Resource Planning platform) took longer than expected, with end-to-end testing conducted in the live environment as Foundation doesn't have access to a fully operational pre-production environment. Some system fixes and process changes were identified for scenarios that were not anticipated, causing delays with planned approvals and disbursement schedules.	Completing the Fluxx Training for all Foundation staff involved in Fluxx administration is key. During this period, staff involved in Fluxx administration completed the Fluxx 101 online course. The Fluxx consultant ran general in-person training sessions with the entire APNIC Foundation team in order for them to be more confident in using the system and self-serving. Grants Management Guide (with screenshots) to assist staff to complete tasks that are not done daily is key to gain confidence and trust the system. The update of this documentation will continue in 2024 as continuous improvements are made to the process, forms, and system which means a revision and update of the guide.

Lessons learned and recommendations

The following lessons learned and recommendations were identified during 2023:

- Although the majority of the cases were funding recipients requesting a no-cost extension, it is clear that the Foundation cannot resolve the barriers experienced by projects that delayed their implementation and reporting. The flexibility provided allows the building of stronger partnerships and understanding real challenges recipients face. However, a balanced approach is needed.
- FAQ section should provide examples based on completed grants and information sessions that can illustrate how an applicant can express the alignment of their work with the Foundation focus areas
- Explore alternatives for planning and coordination of support related to technical report reviews, Fluxx development, administration and communications, that can accommodate peaks of activity such as application periods, increased number of active projects due to requests for no-cost extension, etc. based on resources/budget available
- Prepare a plan to conduct site visits at strategic times for projects, with a team of Foundation staff that now works across functions
- Worth considering the costs of having an up-to-date and reliable Fluxx sandbox space which can facilitate development and testing. Review options for further integrations that were put on hold with other platforms
- Progress report processing including narrative reports and disbursements can be completed in six weeks, but final reports require a longer period (estimated around eight weeks) to allow for necessary reviews related to publication.

8. M-Root Deployment

8.1. Background

To expand the coverage of M-Root across Asia Pacific, the project is a partnership between the WIDE Project, Japan Registry Services (JPRS), and APNIC to implement anycast node deployment of M-Root, which is the sole root server based in the Asia Pacific region and beyond.

Website page: <https://apnic.foundation/projects/m-root-deployment-streamlining-m-root-deployment-and-operations-by-improving-process-and-automation/>

Objectives

The objective of the M-Root Deployment project is to accelerate anycast deployment of M-Root and improve DNS infrastructure in the Asia Pacific. This is being achieved by:

- Streamlining M-Root deployment and operations through continuously improved processes and automation.
- Identifying and preparing new M-Root instances across the Asia Pacific in partnership with the WIDE Project and JPRS.
- Simplifying the models for anycast instances; and investigating various deployment options.

8.2. Status Update

In the past 12 months:

- Five M-Root instances commenced before 2023 were deployed in Indonesia/Jakarta (IIX-JK/OpenIXP), Mongolia/Ulaanbaatar (MISPA), Taiwan/Kaohsiung (TWIX), Hong Kong (HKIX) and Cambodia/Phnom Penh (CNX).
- Seven M-Root anycast nodes are currently being deployed in Dhaka/Bangladesh (BDIX), India/Mumbai (NIXI), India/Kolkata (IIFON), Nepal/Kathmandu (NPIX), Philippines/Quezon City (PhOpenIX), Pakistan/Lahore (PKIX) and Brazil/Sao Paulo (Nic.br) with additional MoUs signed for Myanmar/Mandalay (MMIX), Maldives/Malé (MVIX), and China/Wuhan (CERNET).
- Five sites identified in 2023 are under negotiation / preparation in Lao PDR (LANIC), Papua New Guinea (PNGIX), Samoa (Samoa IX), Tuvalu (Tuvalu Communications), and Kazakhstan (Kazakh Telecom).

Successes and challenges

Successes	Effect on project
Five deployments completed and seven deployments in progress.	Five sites were successfully deployed in Hong Kong (HKIX), Mongolia/Ulaanbaatar (Gemnet), Indonesia/Jakarta (APJII-IDNIC), Taiwan/Kaohsiung (TWIX) and Cambodia/Phnom Penh (CNX) in 2023. Seven M-Root anycast nodes are currently being deployed in Dhaka/Bangladesh (BDIX), India/Mumbai (NIXI), India/Kolkata (IIFON), Nepal/Kathmandu (NPIX), Philippines/Quezon City (PhOpenIX), Pakistan/Lahore (PKIX) and Brazil/Sao Paulo (Nic.br) with equipment delivered. There has been some improvement in the responsiveness of the local hosts, however it is paramount that responsiveness and communication continues to improve further to improve deployment efforts.
Improved coordination and project oversight	The M-Root Deployment manager with the support of other project team members provided helpful recommendations and implemented improvements to enhance the process and productivity of following up with the local hosts. With the support from APNIC Development Operations Team, keeping track of updates for each site has significantly improved. A summary dashboard has been created by the M-Root Deployment Manager to provide better tracking and an overview of the progress of each project site.

Challenges	Effect on project	Actions taken for challenges
MoU signing delay due to local hosts' slow turnaround	Deployment delay	Regular follow up by M-Root Deployment Manager
Deployment installation and setup delay due to lack of response from local host and JPRS SME	Deployment delay	Appointment of an additional engineer is budgeted to support the installation and set up to allow for more regular follow up with the local host.
Less Developed Country (LDC) sites are challenging to find the right vendor when ordering the equipment	Deployment delay Limited vendor options Ordering of wrong network interfaces	Research on new vendor opportunities to provide better service delivery and quality. Regularly follow up with vendors to check the status of each site to ensure no delay in delivery to the local host. Working closely with the local hosts to prevent ordering of wrong network interfaces when collecting information regarding network connections.
An Australian DEC (Defence Export Control) Permit application is now required as part of the procurement process from September 2023	Delay in procurement and delivery as the approval process can take at least one month	Discussions with APNIC Legal team regarding the relevancy of this permit for this specific project is underway to confirm whether it is a requirement.

Lessons learned and recommendations

M-Root deployments are still slower than expected due to heavy dependency on third parties to fulfill their requirements (e.g. local host signing MoU and DEC permit approval process). The M-Root project team are collectively working on improving workflows within our control to quicken the process where possible.

As the number of M-Root sites increase, the project team is growing to maximise efficiency and ensure the continuity of the project. Additional APNIC Operations team members are supporting procurement, and recruitment is in progress of a support engineer (budgeted) to assist with installation and setup.

After gaining good experience, there is a high need to review the configuration of each node. If the hardware requirements are simplified including offering of VM option, it will certainly help with speeding up the equipment ordering and delivery, as well as speeding up the deployment and reducing the equipment budget needed.

There is also an opportunity to improve the procurement process by working directly with manufacturers (such as Dell) rather than third party vendors. Procurement may be faster and cost effective if we dealt directly with the manufacturer.

9. APNIC Academy

9.1. Background

The APNIC Academy is composed of an online platform, training content and training curricula. It is the foundation of all APNIC training with Blended Learning / Flip Classroom / Hybrid Flexible approaches combining online and face-to-face training. The goal of the APNIC Academy is to integrate all APNIC training programs including face-to-face, online, self-paced and hybrid and develop a full curriculum for Internet engineers with high-quality content and full certification.

Website page: <https://apnic.foundation/projects/apnic-academy-platform-and-curriculum-development/>

Website: <https://academy.apnic.net/en>

Objectives

The objective of the APNIC Academy project is to serve as an integrated and community-wide online platform (the APNIC Academy) for the Asia Pacific. This will be achieved through the implementation of four main objectives:

- Integration of various training systems.
- Establishing and supporting online technical assistance.
- Provision of multilingual and mobile support; and
- The development of an Internet infrastructure-focused training curriculum.

The results matrix lists indicators and targets at the outcome level which will be evaluated annually and at the output level which will be monitored on an ongoing basis throughout implementation.

9.2. Status Update

Launched new online, self-paced courses (Cybersecurity Fundamentals and Introduction to BGP) on the APNIC Academy and developed new virtual labs on Hashing, DNS Tunnelling, Brute-force SSH, Syslog Detection, IXP Manager Setup and IXP Peering, BGP Traffic Engineering (Cisco IOS), RPKI (Sandbox), BGP Monitoring with BGPalerter, Memory Forensics (Linux) and Deploy a Honeypot. The following labs were updated: RPKI (with RPKI-Prover), Linux Basics.

Successes and challenges

Successes	Effect on project	
Tripled the combined target of virtual labs and self-paced courses.	The increase in usage significantly improved training participation in training events and other outreach activities, including a greater impact on the success of Internet engineering related training within the Asia Pacific region.	
Challenges	Effect on project	Actions taken for challenges
Greater demand on infrastructure and resources	Increased overall time spent supporting the platform and those engaged in training.	Early planning commenced to modernise the APNIC Academy (2024-2025) to cater for increased growth and to respond to future needs/demands.

Lessons learned and recommendations

Using the new indicators in 2023, targets have been achieved at a faster rate than expected. Most targets have now exceeded their end of year targets. This is largely due to growth in the training delivery teams, increased headcount and increased target for training delivery (where the APNIC Academy is being used).

10. Curriculum Development for Non-technical Audiences

10.1. Background

There are many barriers to young, non-technical audiences participating meaningfully in Internet Governance. One of the biggest is that the ecosystem is unwelcoming, and concepts are usually explained in uninteresting and confusing ways. This audience needs technical knowledge about Internet operations to be seen as credible and have their voices heard in this space. This project aims to address this issue directly by creating an interactive online game that acts as a solution specifically tailored to engage and captivate the target audience.

Website page: <https://apnic.foundation/projects/curriculum-development-for-non-technical-audiences/>
 Google play store app for Android: <https://play.google.com/store/apps/details?id=com.apnic.ipgo>

Objectives

The objective of the Curriculum Development for Non-technical Audiences project is to ensure non-technical audiences better understand Internet operations and improve interactions with the technical community. This will be achieved through the implementation of three main objectives:

- Production of a high-level design document.
- The development and testing of introductory curriculum.

- Implementation/evaluation of the curriculum.

10.2. Status Update

The team accomplished significant milestones during the first half of the year, including the successful development of the Minimum Viable Product. They have successfully addressed all technical defects, ensuring a smooth and functional product. The MVP's technical accuracy has been validated and approved by the APNIC SMEs (Subject Matter Experts) responsible for the project, verifying that it meets the specific requirements of the target audience. Moreover, rigorous testing has been conducted throughout the Alpha and Beta development stages, with at least 50 tests executed to guarantee the product's reliability and performance. These achievements marked a crucial step towards delivering a robust and effective solution to the intended users and marked the completion of the development tasks for the project.

Funding was not approved to proceed with launch-related activities until September, creating a significant impact on what could be realistically achieved in the second half of the year. The delay in funding meant that external project resources had already moved onto other projects and prospects by the time the funding could be confirmed. Despite this, some project resources have been able to provide limited availability to work on launch activities.

The activities in the second half of the year have focused on developing a launch campaign and identifying relevant campaign activities. Because funding into 2024 could not be confirmed until late 2023, the campaign could only focus on activities that could be achieved within the few months left of 2023. The activities were developed in consultation with the APNIC comms team and included:

- Soft launch and promotion of app at APriGF in Brisbane.
- Subsequent promotion of the app via APNIC's, APNIC Foundation's and Chaos Theory Games' blogs and social media accounts.
 - These activities resulted in promotion of the app by prominent industry leaders and organizations (including TWNIC and Yahoo Japan).
- Promotion and competition at IGF 2023 in Kyoto, Japan. Also promotion and feedback sessions during APIGA in Seoul, APNIC-56 in Kyoto and TWIGF in Taipei.
- Promotion via Friends of IPGO network (largely via LinkedIn and X) sharing their 'certificates of appreciation' awarded by APNIC.
 - Members of this network were encouraged to share news of the app and their involvement in its design by posting their certificates to their own networks on social media. In return, APNIC and APNIC Foundation would repost these, expanding exposure of the app to wider audiences.

The app has since been downloaded more than 1300 times and has so far met with positive reviews. Peaks in downloads and user engagement are clearly tied to campaign activities and release of promotional materials.

Successes and challenges

Successes	Effect on project
Development has been completed, despite numerous challenges	A Minimum Viable Product that meets the agreed and evolving direction for the project has been developed and released on both mobile platforms.
Sentiments around the MVP have been positive so far	It has been good to validate that the MVP, whilst not perfect, has met audience expectations. Reviews and comments so far have been overwhelmingly positive and have demonstrated that the app has piqued their curiosity in Internet networking. Despite initial apprehension from the project team, comments from more technical audiences have also been very positive – stating that the app captures the essence (and sometimes frustrating world) of routing.

Many lessons have been learned that can be applied to future projects like this	Where possible, these lessons (documented in previous reports) have been applied to the project to increase traction.	
Launch campaign activities have been successful in increasing downloads and user engagement	The app has been downloaded more than 1300 times and has so far met with positive reviews. Peaks in downloads and user engagement are clearly tied to campaign activities and release of promotional materials.	
Challenges	Effect on project	Actions taken for challenges
Delays and uncertainty in funding.	Funding was only originally approved until the end of July in 2023. Further, but limited funds were approved from early September for the rest of 2023. It was at this point the project encountered a significant reduction in funding. As a result, the external project resources that were initially identified to carry out launch and evaluation activities moved on to other projects and prospects out of necessity. Any availability that resources could provide has now been very limited. This will continue to have an impact for the remainder of 2024. As such, some APNIC and APNIC Foundation staff have had to help out where possible.	The remaining project team have worked within these limitations and have prioritized activities that were realistic to complete but would yield the biggest impact.
Significant reduction in funding	The launch activities originally planned for the project could not all be undertaken. This has likely affected overall uptake and engagement with the app. In addition, all evaluation-related activities have been cut from scope.	As above, the remaining project team have worked within these limitations and have prioritized activities that were realistic to complete but would yield the biggest impact.

Lessons learned and recommendations

User engagement is directly tied to frequency of promotional activities. Whilst certain activities can yield greater and more lasting effects than others, an ongoing schedule of activities needs to be planned to sustain engagement.

Additionally, maintaining an app, and maintaining audience interest and engagement in that app, requires ongoing investment. If that investment is delayed, uncertain or reduced beyond a workable sum, the task of keeping that app 'alive', not just from a functional perspective but also from an audience perspective, becomes increasingly difficult – and, at some point, impossible. Project resources and knowledge are lost, and the scope of feasible work is cut to the bone.

11. Asian Internet Interconnection Initiatives (AI3)

11.1. Background

The Asian Internet Interconnection Initiatives (AI3) project is an international research consortium among research institutes in Asia. AI3 aims to form a group of researchers to develop leading-edge technologies for the Internet, including non-terrestrial networks, IPv6, network monitoring and security, and IoT.

Website page: <https://apnic.foundation/projects/ai3/>

Objectives

The objective of AI3 is for research and education institutions in Asia, including poorly connected sites and communities affected by disasters and emergencies, to have reliable connectivity or alternative connectivity for their activities. This objective will be achieved through the implementation of five main outputs:

- Development of a Non-Terrestrial Network (NTN) in the Asia Pacific.
- Development of an inclusive, emergency-ready, disaster response network.

- Promotion of Internet emergency readiness to Research and Education Network (RENs) communities and strategic partners.
- Development of inclusive networks among poorly served institutions; and
- Support for REN technology development and collaboration.

11.2. Status Update

In 2023, the AI3 initiative resumed its operations, effectively implementing strategies that were postponed due to the challenges posed by the pandemic in preceding years. The reinforcement of partnerships has begun to yield significant benefits, including enhanced communication, accelerated processes, and the engagement of various Community-Based Research (CBR) groups. These improvements have led to an increase in internship opportunities, with partners keen to involve students in research and development projects. Despite a slow start in project output due to internal and external challenges in the first half of the year, which focused on planning and coordination, the latter half witnessed substantial progress, as detailed below:

- A major achievement was the provision of dedicated Internet access (20 Mbps) to the Universidade Nacional de Timor Lorosa'e (UNTL) in East Timor. Initiated in July, this development significantly reduces the geographical and communication barriers between East Timor and its partner institutions, facilitating deeper research collaboration and greater involvement in various programs and activities.
- Non-Terrestrial Networks (NTN) and emergency networks encountered deployment challenges, primarily due to service availability from operators, high costs, and delays in equipment delivery. However, major Low Earth Orbit (LEO) Internet service providers have launched services in Indonesia, the Philippines, and Malaysia in 2023, with plans for deployment in these regions underway.
- Regarding Community-Based Research (CBR), delays in proposal and contract processes for research collaboration activities initially hindered progress toward our goals and adherence to the original plan. Nevertheless, efforts to expedite proposal production and review processes have started to show positive outcomes. We have initiated CBR projects focusing on dynamic network and network monitoring that were previously delayed, and discussions are ongoing to develop new CBR initiatives for 2024.
- The joint and back-to-back CBR meetings have been particularly successful in strengthening partner engagement, showcasing the collective commitment to advancing our research and development objectives.

Successes and challenges

Successes	Effect on project	
Increasing engagement and touch points catalysed CBR activities and impacted research teams' engagement positively	The first CBR general meeting, held back-to-back with the SOI Asia and AI3 Joint meeting enhanced engagement among partners, resulting in better understanding of project activities, and detection of where/what partners struggle with.	
Challenges	Effect on project	Actions taken for challenges
Struggles to establish CBR Internship program at Keio University	CBR activities led by Keio slow down and impact the progress and delivery schedule	<ul style="list-style-type: none"> • Redesign strategy to welcome interns at Keio • Approach industry and potential partners that could collaborate in accepting interns as part of the program

Lessons learned and recommendations

Continuous engagement to ensure buy-in by partners is crucial.

A key lesson is the vital importance of continuous engagement with partners to secure their buy-in for initiatives. In the diverse academic community of AI³ and SOI Asia, understanding and respecting each

partner's unique characteristics is crucial for building trust and ownership, essential for effective collaboration and scalability. Creating project-dedicated meetings, strengthening regular online gatherings and inviting future host institutions to attend CBR, APIE and EBA activities resulted in a better understanding of activities. Consequently, they resulted in a better understanding of activities and more commitment to project development and leadership. Therefore, it is recommended to establish ongoing dialogue and feedback mechanisms with partners to strengthen the project's foundation and impact.

12. School on Internet Asia (SOI Asia)

12.1. Background

The SOI Asia project was established in 2001 to further education collaboration between Southeast Asian universities on the Internet, utilising the infrastructure technology developed by the AI3 Project. SOI Asia has been implementing human resource development programs in various fields in Asia, including information technology, security, marine technologies, environmental issues, cultural understandings, disaster management, and entrepreneurship.

As of 2008, in cooperation with UNESCO, SOI Asia has also been contributing to developing the next generation of global human resources, especially in science and technology. It does this by designing and developing educational activities such as the Evidence-based Approach (EBA) and the Asia Pacific Internet Engineering (APIE) programs.

EBA is a data-focused learning strategy developed previously by SOI Asia. In EBA activities, participants study an emerging issue by collecting and analysing data in the field. They then use the data for storytelling to understand and explore an issue's fundamentals and related topics.

APIE started in 2021 to meet the need to enhance Research and Educational Network (REN) roles and capacity. The APIE program expands on this foundation to develop the next generation of professional network engineers, helping them to build essential Internet engineering skills and knowledge to improve cyberspace for society.

Website page: <https://apnic.foundation/projects/soi-asia/>

Objectives

SOI Asia Project's objective is to develop collaborative communities among Asian universities and research institutions to better support the design of resilient future societies. This will be achieved through the implementation of three main outputs:

- Activities using the Evidence-based Approach program (EBA).
- The Asia Pacific Internet Engineering program (APIE) program and its APIE Camps.
- A platform that will be used for issuing credentials to validate participants' learning experiences (Inxignia).

12.2. Status Update

In 2023, SOI Asia saw its activities flourish without the impediments of travel restrictions for the first time since its collaboration with the APNIC Foundation began. This new landscape facilitated the realization of envisioned mobility for executing pivotal activities, which is essential for fostering community cohesion.

A significant milestone was achieved through the formalization of relationships with six partners via the signing of Memorandums of Understanding (MoUs) with Keio University, enhancing the avenues for smoother collaboration and cooperation among universities.

Also, the engagement of students in various programs, including EBA fieldwork and APIE Online courses, reflects the project's progress toward its goals. It underscores the project's commitment to equipping a generation with the skills and competencies necessary to contribute to a resilient society in the Asia Pacific region.

EBA program

- The year saw the implementation of four fieldwork programs, with three hosted in Japan and one spearheaded by the University of Malaya in Malaysia, marking a significant step in collaborative educational efforts.
- New partnerships were forged for the design of innovative fieldwork and learning opportunities, notably with the Keio Museum Commons in Japan and the Institut Teknologi Bandung (ITB) in Indonesia.
- The EBA Faculty Meeting (partners meeting) in November was a convergence of minds, bringing together 28 faculty members from 17 universities, UNESCO, and the APNIC Foundation, to deliberate on constructing a cooperative framework for future endeavours.

APIE (Asia Pacific Internet Engineering) program

- The online courses reached a milestone attracting over 1280 learners registered from more than 90 countries. The session running from September to November alone registered more than 300 participants.
- The inaugural APIE Camp in February at Keio University in Japan brought together a diverse group (students, teaching assistants, mentors, lecturers, and specialists from different economies and backgrounds) for onsite workshops that captured the course's essence. A local version of the APIE Camp was later hosted by ITB in August, offering the program in the local language to ITB students and broadening the program's reach.
- The APIE Internships saw the involvement of APIE alumni as teaching assistants, providing a platform for engagement in online courses, camps, and other community opportunities such as the WIDE Camp.
- During the December APIE review meeting with both advisory and curriculum committees, the Universitas Brawijaya (UB) in Indonesia highlighted the recruitment of APIE alumni to support the technical team for the IDREN expansion, underscoring the program's impact on professional development.

Inxignia (e-portfolio system)

- The Inxignia system experienced growth in both the number of participating universities and the courses offered. More than 530 badges were issued for more than 18 courses and internship programs within SOI Asia.
- Discussions are ongoing to align with technical standards and potentially transition to the Open-badge 3.0 system.
- Other SOI Asia partners (University Brawijaya and Universitas Syiah Kuala, both in Indonesia) agreed to use the e-platform on a trial basis. ITB has already begun to customise Inxignia for their use.

Successes and challenges

Successes	Effect on project
(APIE) Community Building Design	The recruitment of APIE alumni to support the technical team for the IDREN expansion underscores the program's impact on professional development.
(EBA) Increased efforts engaging with partners - strengthened 1:1 communication, invited guest faculties from non-active partner universities, etc. (TU, ITC, UPD, UNSRAT)	The number of participants from those institutions in fieldwork activities increased.
(Inxignia) Other partners are adopting Inxignia	<ul style="list-style-type: none">• Strengthened the development team

(customising, adopting, interoperability)	<ul style="list-style-type: none"> • Raised the visibility of the platform in the region • Interoperability will make learner experience smoother 	
Challenges	Effect on project	Actions taken for challenges
(APIE) Scheduling (especially, camp) - Struggle to find a common schedule that can meet all partner needs.	Camps require travel, meaning that we target season breaks or long holidays. However, there is no common schedule when all partner institutions have a break simultaneously, limiting the participation of students who are in classes.	Review schedules and explore opportunities for collaboration for camps and other events
(APIE) Dropout rate in online courses	Although APIE dropout rates are below the average, we aim to explore the reasons to make design improvements and increase diversity of learners.	<ul style="list-style-type: none"> • Review of the onboarding process, language, and other barriers faced by students to keep on learning online. • Started conversations with VNNIC to support learners from Vietnam.
(EBA) Partner universities struggle to design their own EBA fieldwork programs	Lack of new fieldwork activities compromises the expansion of the program.	Invite observers to existing fieldwork to deepen their knowledge and empower them to design new ones.
(Inxignia) The limitations of scalability and interoperability among other systems have set challenges to the current operational environment.	<p>Difficulties in monitoring and analysing data.</p> <p>Could not respond properly to requests for customization or expansion.</p>	<p>Review of activity overall and its goals, stakeholders and respective roles.</p> <p>Increase efforts towards Sustainable Development and Operation to increase interoperability.</p> <p>Planning to establish an Inxignia consortium among the partners who use Inxignia in SOI Asia.</p> <p>Open source Inxignia to be developed and operated by the engineers belonging to the consortium.</p>

Lessons learned and recommendations

Differing academic calendars directly impacts participation in different programs.

One crucial lesson we've learned from organising multi-institutional activities is the significant impact that differing academic calendars have on participation levels. Despite our efforts, finding a single timeframe that accommodates the schedules of all partner universities—without compromising their academic commitments—remains a challenge. This experience has highlighted the critical need for thorough planning and coordination well in advance, as well as a strengthened commitment to communication. Moving forward, it is imperative to initiate early dialogue with all participating institutions to gain a comprehensive understanding of their academic timelines.

13. Trust Discretionary Funding

13.1. Background

The Foundation started managing the Trust Discretionary Fund (TDF) in 2021 to provide financial support to the technical community in the Asia Pacific in a flexible and proactive fashion. These funding allocations are determined in close collaboration with APNIC according to its ongoing and established sponsorship activities.

Objectives

Provide timely financial support to organizations working to advance Internet knowledge and education for activities associated with technical knowledge sharing (events, papers, research and online services)

13.2. Status Update

During 2023, nine activities successfully received funding support through this mechanism. The Confluence space was consistently updated as needed, with approvals received from the Trust. The time taken for processing sponsorship agreements was conducted efficiently, with a six-week execution time from the time of approval and confirmation of the terms of the agreement. Discussions related to the establishment of a multiyear commitment with the Web Consortium Asia Pacific General Incorporated Foundation were considerably lengthy due to legal reviews and comments received. On a cash basis, USD258,500 was disbursed, with USD496,118 in total reported based on an accrual basis.

Four activities that were originally planned for 2023 were moved to 2024 to assist with budgeting. The APNIC Foundation logo was prominently displayed as agreed with all sponsored activities and all terms and conditions were met. Social media, blog posts and project profiles on the Foundation website were produced in relation to the participation of the Foundation and/or its partners and funding recipients during events as appropriate. Funding recipients attended the Foundation Partners events at the APNIC Conferences as well as the IGF in Kyoto as referenced in the table below. Annual briefing with Cybergreen was captured in a Salesforce touchpoint. Support was provided to two civil society, one academic, and four technical community organizations.

Organization	Project Name	USD	Scope	Engagement
Internet Society	Internet Protocol Journal	25,000	Global	Partners breakfast APNIC56
Internet Society	MANRS Ambassador & Fellowship Program	12,000	Global	Presented at APNIC56, Foundation presented at MANRS Mentors and Ambassadors Symposium on 28 th November 2023
Asian Institute of Technology	AINTEC conference 2023	8,500	APAC	Foundation project participants from other initiatives attended/presented at the conference, as well as APNIC staff
Asian Institute of Technology	AP* Secretariat Support	5,000	APAC	Two AP* retreats conducted (APRICOT and APNIC56) with Foundation presenting at both
APAN	APAN56	5,000	APAC	Foundation project participants from other initiatives attended/presented at the conference, as well as APNIC staff
auDA	APrIGF 2023	18,000	APAC	Foundation project participants from other initiatives attended/presented at the conference, as well as APNIC staff
Web Consortium Asia Pacific General Incorporated Foundation	Web Consortium Asia Pacific General Incorporated Foundation	75,000	Global	
PeeringDB	PeeringDB	10,000	Global	
CyberGreen Institute	CyberGreen Institute	100,000	Global	Presented at Partners breakfast during APNIC56. Annual briefing

The following four initiatives were moved to 2024 to assist with budgeting, but engagement remained active during the year, with representatives from these projects actively sharing their knowledge/expertise with the community, and actively participating at relevant technical forums.

Organization	Project Name	USD	Scope
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Island Bridge Network Limited	IXP Manager	29,000	Global
IXP Database	IXP Database	17,000	Global
Shadowserver	Shadowserver	100,000	Global
IIESOC	Connections 2023	2,000	Global

Successes and challenges

Successes	Effect on project	
Stronger partnerships, increased engagement and Foundation visibility	Nine activities were supported and coordination with funding recipients was managed effectively, with an increased understanding of their work and funding needs. Sponsorship engagement has strengthened Foundation networks and the Foundation's positive standing in the Asia Pacific technical community.	
Challenges	Effect on project	Actions taken for challenges
Approval times for processing	Lengthy negotiations in relation to legal agreements and Trust approvals, added pressure on the Foundation team to manage the relationship with funding recipients that were expecting to receive funding faster	Proactively communicate with legal, to make sure that delays were not on our end; respond to funding recipients queries in a timely manner and sent reminders to the Trust in reference to approvals either directly by email or through the Finance coordination meetings that the Head of Finance attends.
Funding requests exceed agreed budget	Required additional resources from Foundation staff to meet increasing needs	Continue to explore mechanisms to align expectations between the Trust and Foundation to manage additional funding requests
Difficult to track budget when additional funding requests are approved throughout the year	Project appears to be overspending	Discussions with the Trust took place during the year to be able to report TDF support on a cash basis, instead of accruals, so that figures reflect actual disbursements

Lessons learned and recommendations

Requesting supported organizations to share a short summary report, including blog articles, to promote their achievements through the year is a great way to promote information sharing and support collaboration. Promoting and encouraging funding recipients' participation at technical community events where APNIC and/or APNIC Foundation participated or organized, allowed for increased visibility.