Numbers Policy Development

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APNIC Foundation

Who – What – why?

Background

In 2014, discussions began among the APNIC Executive Council (EC) when it set out to expand the APNIC Development Program. The EC wanted to do this by raising funds, independent from APNIC membership contributions, to support regional Internet development efforts in the future. Those discussions led to the establishment of APNIC Foundation in September 2016.
It became operational in early 2017.

ISIF Asia is the Foundation's grant fund. It was officially launched in 2008, as a partnership between APNIC, the Internet Society (ISOC) and the International Development Research Centre (IDRC). Various other sponsors have supported the fund since.
ISIF Asia provides grant and award funding for Internet development projects supporting Infrastructure, Inclusion and Knowledge in the Asia Pacific.
ISIF Asia was administered by APNIC from 2008 until 2016. As APNIC established the APNIC Foundation in 2016, ISIF Asia was transferred to the Foundation from 2017.

The School on Internet Asia (SOI Asia) is led by Keio University. It was launched in 2001 as a platform for inter-university education and research programs among institutions throughout Asia, focused on science and Internet-related domains. SOI Asia has several major programs, in particular the Asia Pacific Internet Engineers Program (APIE), the Evidence Based Approach (EBA) and Community Based Research (CBR).
In 2021, SOI Asia and the Foundation began working together and the Foundation has a staff member based out of Keio University.

How we work – 2025-2028 Strategic Framework

Building Capabilities
- Reliable, safe, meaningful access
- Inclusive collaboration
- Better livelihoods

Driving Digital Innovation
- Responsible use of tech
- Vendor & tech-neutral frameworks

Supporting Digital Transformation
- Informed technical & policy advice
- Leadership for digital development

Business Sustainability
- Funding Diversification
- Financial Resilience

- Technical Training & Assistance
- Community Development
- Grants & Awards
- Internet Infrastructure Development
- Research & Collaboration

- Enhance technical capability of 100,000+ people
- Enhance digital inclusion for 1 million people
- Influence techno-policy transformation in 10+ economies

Knowledge and Innovation - People and Partnerships - Communication and Impact

Connecting Schools to the Internet: Challenges, Opportunities & Regional Lessons

Leveraging affordable, meaningful connectivity for education and community development

What Does “Connecting Schools” Mean?

Definition

- Providing reliable, affordable Internet access to schools and adjacent community centres
- Includes broadband connectivity, local Wi-Fi, and supporting ICT tools

Why it matters

- Digital access expands learning resources, teacher tools, and community knowledge
- Internet access is foundational for inclusion, future skills, and socio-economic development

What Do We Mean by “Underserved Schools”?

- Schools in remote or rural areas
- Border or geographically isolated regions
- Limited infrastructure or electricity
- Low bandwidth or unstable connections
- High cost or shared connectivity environments
- Focus: Primary, secondary, and high schools.

Case Study: Connecting 100 Schools & Health Sites

APNIC Foundation Initiative

- Connecting up to 100 educational and healthcare sites using satellite broadband
- Local Wi-Fi connectivity, and technical training
- Each site serves ~300 users; reaching ~30,000 people across Pacific communities

Why satellite?

- Overcomes absence of terrestrial broadband in remote/island communities
- Reliable where fibre and mobile networks are weak or costly

Technical + Operational Challenges

1) Geography and Infrastructure

- Remote terrain limits fibre and cellular reach
- Islands and mountains increase deployment costs

2) Connectivity Reliability

- Need alternate power (solar) where electricity is inconsistent
- Satellite or hybrid solutions often serve best in these contexts

3) Local Skill & Support

- Schools need local champions for basic maintenance
- Technical training is crucial for sustainable connectivity

4) Cost & Affordability

- Broadband cost is a barrier and shared community access points help reduce per-user cost

Technical + Operational Challenges

Assumption	Reality
Internet exists	Internet fluctuates
Speed is enough	Stability matters more
Installation solves access	Maintenance defines sustainability
Users adapt	Users abandon unreliable networks

Lessons Learned - San Isidro Internet Connectivity (PH)

A small-scale ISIF Asia grant supported by the APNIC Foundation helped extend Internet access to four villages in San Isidro, Davao del Norte, Mindanao, Philippines by building local P2P wireless hotspots and community-managed services.

Deployment Highlights

- Connectivity was extended from a local ISP into four Barangays (villages).
- Autonomous wireless systems and solar power were used to ensure reliability beyond grid availability.
- Hotspots were operated and managed by People's Organizations (POs) trained in technical and financial management.
- Affordable Internet voucher sales generated revenue that supported sustainability and other income-generating services (e.g., printing, scanning).
- Over **1,000 individuals** used the Internet, including **690 school children** whose primary use included online classes and research support.

Lessons Learned - San Isidro Internet Connectivity (PH)

The project noted specific issues that are highly relevant for measuring school connectivity outcomes:

- **Signal reach limitations -** coverage radius (~300 m) did not serve all residents equally.
  - *Metric:* Coverage footprint, client location distribution
- **Operational errors** (ticket errors, weak signal reports) required ongoing technical support.
  - *Metric:* Trouble ticket frequency/severity
- **Bandwidth adequacy for multiple clients** — peak usage patterns can degrade experience if not continuously measured.
  - *Metric:* Bandwidth per user, latency under load
- These real-world issues complement tools like RIPE Atlas and Pulse measurements, grounding them in operational context.

How This Relates to School Connectivity at Scale

Connectivity + Local Governance = Sustainability

- In parts of Pacific islands or rural Borneo, connectivity must include:
  - Local management mechanisms
  - Policies around use, revenue, and maintenance
  - Technical training embedded in deployment
- Measurable metrics should include organisational performance and not just *network stats*.

Affordable Access in Underserved Areas

- Affordability determines usage patterns, particularly for students reliant on connectivity for education.
- Measurement models should include *cost-per-user* and *usage elasticities*.

Social Impact Beyond Classrooms

- Connectivity projects, whether San Isidro or Yap schools in FSM show that:
  - School connectivity often drives broader community access
  - Over time, connectivity becomes a *community utility*, not a siloed school service.
- Consider metrics like community spillover usage and economic activity linked to Internet access.

Future Considerations

Power Stability Is as Critical as Bandwidth

- Plan for solar or hybrid power where grid reliability is low.
- Measure power uptime vs network uptime — they are not the same.
- Budget for battery replacement cycles.
- Common Failure: Good connectivity hardware with unstable electricity.

Reliability Over Raw Speed

- In schools, consistent 10–20 Mbps is often more valuable than intermittent 100 Mbps.
- Measure:
  - Uptime %
  - Packet loss
  - Latency during peak hours
- Avoid focusing only on headline speed tests.

Future Considerations

Environment & Geography Influence Performance

- Weather impact (rain fade, wind, salt corrosion in islands).
- Seasonal usage spikes (exam periods, holidays).
- Measure performance variation by season, not just daily averages.

Measurement Must Be Continuous, Not One-Time

- Install lightweight monitoring tools from Day 1.
- Combine:
  - Technical metrics (speed, latency)
  - Operational metrics (downtime, maintenance)
  - User metrics (classroom usability)

Conclusion — From Connectivity to Measurable Impact

- Connecting schools is not just about installing Internet access, it is about ensuring reliability, usability, and sustainability.
- Measurement transforms connectivity projects from assumptions into evidence, enabling smarter investments and better outcomes.
- Real-world deployments show that power stability, local capacity, and community usage patterns often matter as much as bandwidth.
- Effective school connectivity requires a balanced approach:
  - Technical performance metrics
  - Operational and maintenance indicators
  - User and classroom usability feedback
- Key Message:
  - Connectivity without measurement leads to invisible failures.
  - Measurement without action leads to missed opportunities.