AT THE EDGE OF INTERNET :



DIGITAL EXCLUSION, IDNS & MEANINGFUL ACCESS IN HIMALAYAN BORDER COMMUNITIES

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THE HIMALAYAS : CONNECTIVITY IS STILL A BARRIER










GEOGRAPHY

LIMITED REDUNDANCY

RELIABILITY

INFRASTRUCTURE

DIFFICULT DEPLOYMENT

BORDER CONTEXT

AFFORDABILITY

MOUNTAIN TERRAIN

DISPERSED SETTLEMENTS

POWER SHORTAGE

EXTREME WEATHER CONDITIONS

WHEN THE WORLD MOVED ONLINE, WE HAD TO CLIMB 18,000ft FOR A SIGNAL

2020 | COVID-19 | LADAKH

THE HIMALAYAS : WHEN CONNECTIVITY IS SWITCHED OFF



SECURITY MATTERS
SO DOES CONNECTIVITY

BORDER AND CONFLICT-SENSITIVE REGIONS CAN FACE LEGITIMATE SECURITY CONCERNS.
BUT COMMUNITIES DEPEND ON CONNECTIVITY FOR:

- EDUCATION
- HEALTHCARE
- EMERGENCY COMMUNICATION
- GOVERNMENT SERVICES
- LIVELIHOODS
- FAMILY & COMMUNITY CONNECTIONS



The policy question:

How can security objectives and meaningful digital access be balanced proportionately?



THE HIMALAYAS : WHEN CONNECTIVITY IS INTERRUPTED

THE SECOND BARRIER: DISRUPTION

MORE THAN 313 SHUTDOWNS IN 52 COUNTRIES IN 2025

40% OF RECORDED SHUTDOWNS WERE CONFLICT-RELATED.
125 SHUTDOWNS ACROSS 14 COUNTRIES, 18 CROSS-BORDER SHUTDOWNS
AFFECTED PEOPLE IN 7 COUNTRIES / OCCUPIED OR COLONIZED TERRITORIES .
THE ASIA-PACIFIC REGION ACCOUNTED FOR 195 SHUTDOWNS ACROSS 11 COUNTRIES.

Source: https://www.accessnow.org/wp-content/uploads/2026/03/KeepItOn-Internet-Shutdowns-2025-Annual-Report.pdf
https://internetshutdowns.in/

WHY THIS MATTERS

Where connectivity is already difficult, disruption does not create a new divide , it can deepen an existing one

BEYOND THE SIGNAL

BEING ONLINE ≠ BEING MEANINGFULLY INCLUDED

1. CONNECT

2. USE

3. UNDERSTAND

4. TRUST

5. PARTICIPATE

EVEN WHEN THE NETWORK IS AVAILABLE... A user may still face barriers because of:

LANGUAGE
Can I find information in language I understand?

SCRIPT
Can I use my script digitally?

IDENTITY
Can my name/email/domain be accepted?

APPLICATIONS
Will websites and services process it correctly?

TRUST
This digital system works for people like me?

□□□□□□
भारत
ভারতদেশম
རྒྱ་གར་
ભારત
ಭಾರತ
ଭାରତ
இந்தியா
ઇન્ડ્યા
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بِندوستان
ভারত
ਭਾਰਤ
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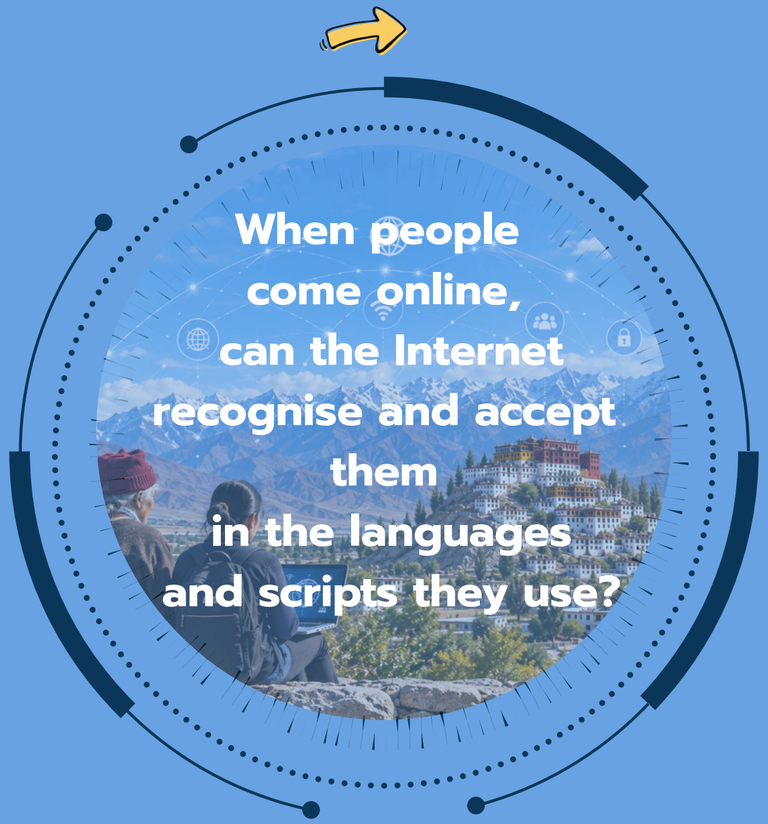
FROM ACCESS TO MEANINGFUL ACCESS
DIGITAL INCLUSION IN THE HIMALAYAN REGION

CONNECTIVITY IS IMPROVING BUT IS ACCESS MEANINGFUL?

STORE
CAN IT BE RETAINED?

VALIDATE
IS IT INTERPRETED CORRECTLY

ACCEPT
DOES THE INPUT PASS?



PROCESS
CAN IT MOVE THROUGH THE SYSTEM?

DISPLAY
DOES IT RETURN CORRECTLY?

ONE BROKEN STEP
VALID IDENTIFIER INTO A FAILED USER EXPERIENCE

Universal Acceptance aims to ensure that domain names and email addresses including internationalized ones are correctly accepted, validated, stored, processed and displayed across applications and services.

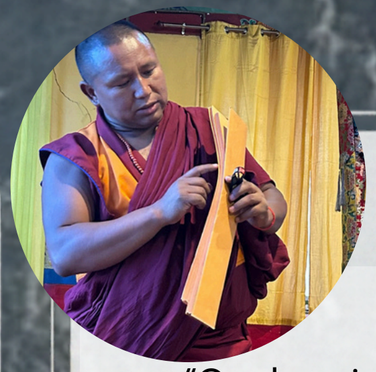
THE HIMALAYAS : COMMUNITY VOICE



MS. YANGCHEN

"CAN I UNDERSTAND IT AND CAN I TRUST IT?"

"If digital services were available in our own language and script, they would be easier for me to understand. But I have also seen cyber fraud, and I do not always know what is safe. I live far from the city and often depend on my grandchildren. If I could use the Internet in a language I understand and trust, perhaps I could use more services independently."



VEN. GESHE SAMDUP

"OUR CULTURE IS ALSO ENTERING THE DIGITAL WORLD."

"Our learning, prayers, texts and traditions are increasingly entering the digital world. We cannot remain disconnected from that change. I would like to create websites where our own language and script are properly represented. Using domain names and email in our own script would be exciting but I need the technical knowledge. Is it possible."



SCHOOL STUDENTS

"WE WANT TO KNOW WHAT IS BEYOND OUR WORLD."

"Tourists come, take videos of our lives, sympathise and return to a connected world.Our parents continue their nomadic way of life, while we stay in hostels to study with limited network in border area schools. We want to explore, we want to use YouTube to learn English and other languages, discover new things. People tell us about ChatGPT and AI. We see others using these technologies"





LIVED EXPERIENCE OF DIGITAL EXCLUSION

Perspective from a community conversation ; edited for clarity

INDIA IS ALREADY ONLINE IN MANY LANGUAGES

- **886M : active Internet users (2024)**
- **488M : rural users (55% of active users)**
- **630M : non-active users (41% of population)**
- **500M : Rural non-active users**

A valid identity can become an invalid experience

THE USER	THE SYSTEM	EXPERIENCE
ལ་དྭགས་ Local-script name Local-script email / domain	• ASCII-only validation • Legacy parser • Incorrect length/script handling • Authentication / display failure	ACCEPTED OR REJECTED







THE INVISIBLE BARRIER: WHEN THE INTERNET DOESN'T RECOGNISE YOU

A USER CAN BE CONNECTED AND STILL BE EXCLUDED

FROM A LANGUAGE PEOPLE USE TO A LANGUAGE THE INTERNET CAN RECOGNISE

IDENTIFIER	APPLICATION	LANGUAGE & SCRIPT	PARTICIPATION
• Domain names • Email addresses • Usernames / login IDs • Names entered into online forms etc	ACCEPT VALIDATE STORE PROCESS DISPLAY	Can the digital systems recognise and process different languages and identifiers correctly?	If the identifier fails at registration, authentication or communication: ACCESS ✓ **Connected** but PARTICIPATION ✗ **Restricted**
"HOW AM I RECOGNISED ONLINE?	**"WILL THE SYSTEM ACCEPT ME?"**	**"DO I HAVE TO LEAVE MY LANGUAGE BEHIND?"**	**"CAN I ACTUALLY USE THE INTERNET?"**



CAN THE COMPLETE DIGITAL ECOSYSTEM RECOGNISE, PROCESS AND DISPLAY IT?

FROM IDNS TO VALID DIGITAL LABELS

THE COMMON CHALLENGE

The user may be connected
but the digital system
may not be ready
to recognise
their language
or script



Internationalized Domain Name

↓

LGR

Label Generation Rules

↓

VALID LABELS + VARIANTS

↓

REGISTRY IMPLEMENTATION

ICANN : CURRENT SECOND-LEVEL REFERENCE LGRS

30 SCRIPTS | 32 LANGUAGES

Indian scripts represented include:

Bangla • Devanagari • Gujarati • Gurmukhi • Kannada • Malayalam • Oriya • Tamil • Telugu

The current ICANN publication also includes Javanese and Unified Canadian Aboriginal Syllabics.

FROM UA CHALLENGES TO INCLUSIVE DIGITAL ACCESS



1. TEST



- Test websites, apps, email and government portals for UA readiness
- Use UA test cases and readiness frameworks
- Identify where a localScript identifier fails

2. FIX

- Replace legacy validation and ensure correct Unicode/IDN/EAI handling
- Support IDNs, new gTLDs and internationalised email
- Test Accept → Validate → Store → Process → Display

3. BUILD CAPACITY

- Train developers, universities, registrars and government IT teams
- Use ICANN/UASG technical resources
- Conduct regional UA workshops

4. INCLUDE COMMUNITIES

- Bring language communities into testing and feedback
- Document real user barriers



FROM INDIA'S UA PROGRESS TO THE HIMALAYAS

INDIA HAS BUILT THE FOUNDATION

- IDN ccTLDs in Indian scripts
- BhashaNet for Universal Acceptance and multilingual Internet
- NIXI + MeitY working on UA awareness and adoption
- ICANN/UASG technical resources and global expertise

HIMALAYAN BORDER REALITY

Difficult terrain, dispersed settlements and uneven connectivity create additional barriers to meaningful digital access, compounded by linguistic and script diversity

IDN ccTLD examples:
.भारत — Devanagari
.ਭਾਰਤ — Gurmukhi / Punjabi
.ભારત — Gujarati
.భారత్ — Telugu
.தமிழ் / .இந்தியா — Tamil
.বাংলা / .ভারত — Bengali
.ಭಾರತ — Kannada
.ഭാരതം — Malayalam
.ଭାରତ — Odia
.بھارت — Urdu/Arabic script



NEXT STEP

- **national-level UA awareness**
- **community-level testing**
- **capacity building**

FROM COMMUNITY EXPERIENCE TO ACTION



Praxis Series
Internet Governance conversation in the Himalayan region
ISOC Mumbai Chapter engagement
Local capacity building



University of Ladakh
Internet Governance, building blocks of Internet and global opportunities



Local capacity building & Cyber crime awareness to other rural communities with volunteering at DigiGaon Foundation



WHAT HAPPENS NEXT?
FROM BEING HEARD → TO HELPING SHAPE THE INTERNET

"The goal is not to speak for communities at the edge. It is to help bring their experiences into the rooms where Internet governance is shaped."



CONNECT. RECOGNISE. INCLUDE.

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THANK YOU

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