

NREN Awareness and Resources Exploration for Nepal's Research and Education Community

Background

National Research and Education Networks (NREN) connect research and education communities to global scientific resources, facilitating for diverse applications and services, research collaboration, and more. While NRENs come in various sizes and shapes, a common issue (especially among emerging NRENs), is the lack of awareness about the potential of NRENs and the limited availability of services to research communities.

In recent years, Nepal Research and Education Network (NepalREN) has increased its visibility, but many local research and education communities are still unaware of its potential. A feasibility study conducted for research and education network expansion across Nepal revealed that over two-thirds of these communities had no knowledge about the benefits an NREN can provide. At the same time, member institutions are actively seeking additional R&E applications and services to optimize research and education network (REN) benefits and to justify resource investments.

Objectives

The project aims to explore NRENs support for research and education communities, develop awareness materials, and conduct NREN awareness workshops in all the universities of Nepal. Additionally, it seeks to identify current research domains/areas in Nepal that can benefit from REN support.

Activities

1. Desk research on activities and services offered by different NRENs across the world [Completed]

This activity focused on mapping of resources, activities and services of regional RENs and selected NRENs. The research team thoroughly reviewed over 45 NRENs, including at least three from each continent, and identified activities, scientific infrastructure and resources supported by NRENs.

2. Explore potential research domains that can be supported through REN in Nepal [Completed]

The study has explored those research areas/domains that can

best benefit from research and education networks. A desk study, questionnaire survey and consultation meeting were conducted to understand the current research trends of science and technology research in Nepal. The consultation meeting was participated by over 40 prominent researchers from more than 20 branches of sciences. An iHPC in Asia Pacific Region session conducted during APAN55 also helped to establish connections with HPC communities.



3. Capacity Building of NepalREN team members for how e-science resources and other services operates or supported by NRENs [Completed]

This activity focused on capacity building of study team members through learning visits to Singapore and Japan. Two project team members visited SingAREN and had fruitful discussions about how they can provide resources and services to emerging NRENs. As an effort of SingAREN, the National Supercomputing Center (NSCC) agreed to provide some computing resources to Nepalese researchers. The Nepal team also visited Nanyang Technological University, and discussed with users on how SingAREN's is supporting the research activity in the university.

Likewise, the Nepal team visited Japan to explore the research ecosystem and the role of various REN's. They had significant discussions with key organizations, including APAN Japan, NII, NICT, MAFFIN, ARENA-PAC, and HPCI leaders during their stay in Japan. In addition to these visits, the team also had sideline discussions with organizations involved in research and education network in China, including CERNET, CSTNET, and CNIC, during a project meeting in Beijing.



4. Develop sensitization materials and make necessary preparation for awareness workshops [Ongoing]

The project team is currently developing awareness materials for sensitization workshops at universities. Insights from visits to China, Singapore, and Japan will enrich the sensitization materials, including large file transfer demonstrations to emphasize the role of RENs.

5. Conduct workshops to demonstrate the use of high-speed research and education networks and other R&E applications to universities [Ongoing]

The study team has successfully conducted two workshops, which have collectively reached around 90 researchers. For upcoming workshops at universities, additional materials will be incorporated, including a demonstration of large file transfers, targeting executive leadership, faculty members, research scholars, and students. Additional workshops in each university are planned for September and October 2023.

Benefits to the TEIN Community and Nepal

The study has compiled resources, activities and services of over 45 NRENs worldwide, which provides valuable insights into how NRENs across different continents are supporting a wide range of research collaborations and also help NRENs, particularly emerging NRENs, as a planning document.

This project continues to strengthen research ecosystem in Nepal. Identification of Nepal's major research areas/domains will be an important step in understanding the potential support of the research and education networks.

Furthermore, some completed project activities are already benefiting Nepal's research and education communities. Notably, the Department of Physics at Tribhuvan University Central Campus, a member institution of NepalREN, is currently leveraging computational resources made available by NSCC in Singapore to advance research in Condensed Matter Physics. This development occurred as a result of the HPC in the Asia Pacific session held during the APAN55 meeting in Kathmandu in March 2023.

Similarly, the sensitization materials developed through this project will help increase NepalREN's current member base, as several universities are yet to connect with research and education networks. Moreover, it is hoped that these materials will increase the awareness of the Nepal government about the value of current initiatives undertaken by NepalREN. Additionally, other NRENs can leverage this material to educate their potential users.

Challenges and Solutions

During the project, we faced challenges in obtaining complete information from some NRENs. We resolved this by contacting them through emails and regular follow-ups. Also, obtaining project approval from local authorities took some time as we needed to educate them about the project's role to strengthen the research ecosystem in Nepal.

Asi@Connect Support

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[For more information](#)

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Disclaimer

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