ICT Status – Asia Pacific

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There is sparse information on the status of ICT use in agricultural research and development in Asia. There is no widely accepted framework to evaluate this status.

For this note, the following framework with its indicators has been adopted.

1. Scientific and Technical Information System
    - Whether Libraries in the National Agricultural Research System/Organization/Institute have been computerized?
    - Whether an computer, online network of libraries of Institutions of the NARS exists?
2. Research Data Management System
    - Whether computerized databases are being developed for long term/multi-disciplinary/multi-location research?
    - Whether the NARS/NARO uses GIS?
3. Research Management Information System (RMIS)
    - Whether a computerized RMIS has been implemented
4. Extension and Outreach Information System
    - Whether there is a policy for ICT use in ARD?
    - Whether there is public sector organization's use of ICT in extension?
    - Whether there is private sector organization's use of ICT in agricultural information dissemination/extension?
5. Agricultural Education System
    - Whether Open/Distance Learning through use of ICT is offered by NARS Institutions?
6. Organization and Management Information System
    - Whether the NARS/NARO Headquarters are networked (LAN)?
    - Whether a majority of NARS Institutes are networked(LAN)
7. The status of rural infrastructure in terms of:
    - Electricity
    - Rural telecommunication
    - Internet Connectivity
8. Skills, at various levels, which include:
    - User (Scientist, Technician, Officer)
    - ICT Management (System and Website Administration)
    - Information Management (Digital content development and dissemination)

The data collected has been through information provided by NINPs of APARIS, status reports and papers collected at various forums which include APARIS meetings, Asian Productivity Organization events, Asian Federation of Information Technology in Agriculture, ISNAR events, FAO events, Internet searches and personal communications.

Results

Classification of Countries [1]

Based on the overall status of ICT use in agricultural research and development, Asia countries can be placed in four groups:

Group	Countries
A- Advanced Users of ICT in ARD	Australia, Japan, South Korea, Taiwan
B- Less Advanced Users of ICT in ARD	India, China, Malaysia, Pakistan, Philippines, Thailand
C- Rapidly Developing ICT use in ARD	Bangladesh, Fiji, Indonesia, Iran, Nepal, Papua New Guinea, Mongolia, Sri Lanka, Vietnam
D- Slow development in ICT use in ARD	Afghanistan, Cambodia, Laos, Myanmar,

Special note:

- In Group B,C and D except Malaysia, there is no report of a functional library network.
- The ability to use GIS reflects significant capacity to develop local databases at NARS level. However, most GIS use is at project rather than system level.
- Though several countries have indicated use of computerized research management information systems, the impact of computerization of these systems on efficiency of research is not known.
- The most effective use of ICT for agricultural development appears to be from NGOs and the public sector. As seen in India, a strong NGO sector contributes to use of ICT in agricultural development.
- There is very little use of ICT for Open and Distance Learning by NARS Institutes

Reasons for heterogenic ICT use in ARD

This heterogenic ICT use in ARD in Asia emerges from:

- Lack of clear policies: Use of ICT in ARD is dependant not only on agricultural research policies but a wide envelope of policies related to:
  - Rural Telecommunications, especially in rural areas where most ARD Institutes are based
  - Rural Development, including Agricultural development
  - Infrastructure, especially electricity
  - Education
  - Governance
- Lack of Capacity:
  - NARS Leadership

[1] See attached Excel File for country wise tables

    - Funding of ICT in NARS
    - Infrastructure
    - Skills to use and manage ICT and Information
- Lack of Appropriate Technologies and Models to use ICT for ARD

Common Issues in ICT use development in ARD

The common issues that emerge at NARS are:

- How to prioritize ICT use in ARD? In view of financial and skills constraints should the focus be on ICT use in:
    - Scientific and technical information?
    - Research data management?
    - Research Management?
    - Extension and Outreach?
    - Agricultural education?
    - Enabling communication and messaging between Institutions and/or Researchers?
- What should be the strategy?
    - To populate NARS Institutes with Hardware?
    - To focus on generation of Digital Content for NARS Clients?
    - To develop computer use and ICT and ICM management skills?
    - Or appropriately combine all the above?

From experiences of several countries, access to ICT, especially computers and Internet connectivity to scientists, researchers and technicians is essential to keep them connected to rapid developments and scientific literature in their scientific disciplines. So NARS Institutes must have local area networks that are connected to the Internet. Each user must have independent E-mail accounts within the LAN even if they share computers.

Library automation is essential. Library networks at National levels immediately bring efficiency and cost savings to the NARS. They are fundamental to quality research.

Computerization of research management systems is becoming central to effective and efficient research management but there are many organization management and structural barriers to effective use of ICT in management information systems.

ICT use in agricultural extension offers the greatest potential to bulwark ICT use in ARD. There are very few sustainable models evaluated for ICT use in agriculture and rural development. However, the following are essential:

- ICT enabled NARS/NARO/NARI Information platforms such as:
    - Websites
    - Call Centers
    - Help Desks
- Public Information Access Points
    - Information Kiosks
    - Cyber Cafes

        - Tele-centers
- Appropriate policies for ICT use in:
        - Agricultural Research
        - Agricultural Extension and Outreach
        - Agricultural Education
- Identification of Appropriate ICT technologies and their mixes
- Capacity development not only to avail, access and use ICT but also information and to use information to "learn" collectively as a community of stakeholders to agricultural development.

Conclusion

There is sparse information on the status of ICT use in ARD in Asia. There is no formal effort to evaluate this status. There is also no widely accepted framework that can enable an objective assessment and monitoring of ICT use in ARD in Asia. An assessment and continued monitoring is vital as the potential of using ICT in agriculture and rural development is now universally recognized.

There is a need for NARS leaders to advocate and lobby appropriate policies for effective use of ICT in their organizations and for agricultural development. There is a need to develop capacity among NARS leaders for this purpose.

There is an urgent need to share information about strategies for ICT use in ARD. For example, the success of the South Korean model that focuses on content generation by all actors in agriculture and national policies, especially broadband access, for rural telecommunication is yielding great success.

The issue of capacity building for effective ICT use, information and communications management and information use for ARD needs to be examined in greater depth.

APAARI can play a significant role in:

- Sensitization and awareness building for ICT policies for ARD
- Enabling regional collaboration, sharing and exchange of information on ICT strategies and systems
- Capacity development in agricultural content generation, ICT and information management