

Role of ICTs in agriculture development

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COMPUTERS and related Information Communication Technologies (ICTs) have become central to everyday commerce, learning and development in this information age. The rapid emergence of technological innovation has provided greater opportunities for improvements in information and data processing, knowledge management, collaboration, information sharing, and learning. The advances in ICTs allow increased engagements in real-time for informed decision making and development at various levels.

This is true for agriculture development. ICTs are providing a new paradigm for agricultural development with the many user-friendly applications and solutions. ICT application in agriculture has therefore gained global acceptance as an everyday tool to bridge the digital divide.

PNG agriculture has valued ICT opportunities as a paramount catalyst for sectoral development. As agriculture becomes knowledge intensive and when information needs become complex due to emerging challenges, new and improved interventions of ICTs are critical, especially with the decline in the conventional extension system. Such could be realised in terms of processes through which data and information are generated, processed, managed and shared with the intended users.

There are a number of ICT tools and systems which are already utilised in the PNG agriculture process. They relate to infrastructure and network, computers and related devices, databases and knowledge management systems, software, web-based spaces, media production tools, quality control tools, and communication. Examples are in the GIS databases (PNGRIS, MASP, FARMSYS); library and information system (MAIS); online presence (website, social networking), hardware (computers-desk-tops and laptops, cameras and scanners, weather devices, printers and photocopiers), Softwares (licensed and open source packages), communication (emails, telecoms), access to external knowledge management systems, etc.

The Internet of Things provides another landscape with huge opportunities for improved data storage, information sharing and networking. The dynamism in Web 2.0 / open source platforms, supported by hand-held smart devices, with user-friendly capabilities and at cheaper costs - all offer more flexibility, providing greater room for instant communication, unlimited and much regular engagement.

Such developments create avenues for stakeholders to share their experiences and access timely information on market prices, availability of drought tolerant crops during challenging periods, availability of seeds for the coming cropping season, and the next schedule of the transport system.

However, developments in ICT interventions should also accommodate prevailing challenges



A training session on ICT and agriculture in Lae last month, involving Jeremy Kavi of Nari (right) and Amber Gregory of AgImpact, Australia.



such as inadequate infrastructure, poor connectivity, low bandwidth, limited and unreliable electricity supply, finance, ICT skills and policy guidelines. Similar hindrances can also be expected of the clients and target audiences.

Several ICT approaches and solutions have been tested under different arrangements in the recent past. The VSat experiment by Nariin climate change awareness and the SMS-based market information platform by FPDA are examples. There are lessons elsewhere in the region and around the globe; some of which with successes. New collaborations at both regional and global levels provide unique platforms that can facilitate improved research and development locally.

Sectoral players should also make considerable inputs into development in the following:

■ **Policies and strategies:** Organisations require established ICT policies and strategies; not only to guide the use of ICTs by their staff but also to establish guiding principles and protocols when collaborating and engaging with stakeholders. Several organisations have made attempts on this front. The development of a national e-agriculture strategy through the leadership of the Department of Agriculture and Livestock with technical support from the UN's Food and Agriculture Organisation and the International Telecommunication Union is a move in the right direction.

■ **Infrastructure capacity:** While ensuring ongoing investment and maintenance of infra-

structure and network, it is relatively important to ensure the satisfactory use to their fullness. The efficiency of ICT capability will enable increased engagement with stakeholders.

■ **Human talent development:** Up-skilling staff capacity in specific competency areas through identified training opportunities is essential. Investment decisions in infrastructure and human development should consider options that consider sustainability issues.

■ **Collaborations:** Explore and participate in collaborations involving ICT solutions. The evolving technology offers new and existing opportunities for instant and daily engagements which would facilitate rapid management and diffusion of information (eg online platforms- management information systems; Mobile Apps, library database, etc). This also begs greater partnerships with PNG's National Agricultural Research System, sectoral agencies, relevant government authorities, and development partners.

Nari is one organisation that has valued the potentials of ICTs in its endeavour. The essence of ICTs therefore is reflected in its Strategy and Results Framework (2011-20) as well as in specific projects and activities. Other sectoral agencies have also prioritised ICTs.

New thinking in system re-orientation, improved support and willingness would enable the sector to embrace the opportunities in e-agriculture with improved approaches to information sharing with stakeholders. This realisation can potentially empower the knowledge sector with not only appropriate but timely information and knowledge required for agricultural productivity; contributing to sectoral growth and national development outputs. - Nari