

Workshop on Moving Beyond Strategy to Improve Information and Knowledge Management for Agricultural Development in the Pacific Islands Countries and Territories

(21-24 November, 2011)
Nadi, Fiji Islands

PROCEEDINGS



Australian Government
Australian Centre for
International Agricultural Research





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Knowledge Management for Agricultural Development
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Venue: Tanoa Hotel, Nadi, Fiji Islands

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Organized by

**Australian Centre for International Agricultural Research (ACIAR)
Asia-Pacific Association of Agricultural Research Institutions (APAARI)
Global Forum on Agricultural Research (GFAR)
Food and Agriculture Organization of the United Nations (FAO)
Secretariat of the Pacific Community (SPC)**

Workshop on Moving Beyond Strategy to Improve Information and Knowledge Management for Agricultural Development in the Pacific Islands Countries and Territories: Proceedings

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Foreword

Agriculture in the Pacific Islands Countries and Territories (PICTs) is facing challenges due to small farm sizes, remote and scattered nature of farms, infrastructural limitations, increased global competitiveness, climate change, and the loss of agricultural biodiversity etc., in addition to limited resources for research and innovation. With limited resources for research and innovation these states need to effectively use all useful and relevant information and related resources available locally and globally for agricultural innovation. The advent of new Information and Communication Technologies (ICTs) and global connectivity offers significant potential for PICTs to use information, knowledge and experience being generated globally for agricultural development locally. These technologies, especially the emerging mobile technologies including those using Internet Wi-Fi and 3G Cellular Telephony, offer potential to overcome some of the limitations agricultural innovation and development faced in these states.

APAARI has been promoting the use of Information and Communication Management (ICM) in AR4D through its program Asia-Pacific Agricultural Research Information System (APARIS) by strengthening National Information Nodal Points (NINPs) of National Agricultural Research Systems (NARS) in the Asia-Pacific region. APARIS functions as a regional platform for sharing agricultural research information and establishes linkages with other regional and global agricultural networks. In order to promote use of ICT/ICM in agricultural research and innovation systems, it undertakes advocacy, capacity development programs and dissemination of success stories in collaboration with regional and international partners.

As part of Bridging Knowledge Gap activities under the GCARD Roadmap implementation, APAARI organized workshops for South Asia, Southeast Asia and the Pacific regions, in close collaboration and support of GFAR and FAO, with an objective to strengthen NARS and improve capacities and skills of personnel to promote greater sharing of knowledge for outscalling of agricultural innovations at the regional level and contributing to CIARD initiative in the region. The Coherence in Information for Agricultural Research for Development (CIARD) is a multi-stakeholder global initiative, lead by GFAR and FAO, working to make agricultural research information publicly available and more accessible.

Realizing the importance of strengthening agricultural information systems in the Pacific Islands Countries and Territories (PICTs), a four-day workshop on “Moving Beyond Strategy to Improve Information and Knowledge Management for Agricultural Development in the Pacific Islands Countries and Territories” was organized jointly by APAARI, FAO, GFAR, ACIAR and Secretariat of the Pacific Community (SPC) at Nadi, Fiji Islands on 21-24 November, 2011. The workshop objectives included promotion of new Information and Knowledge Management (IKM) for making efficient and effective use of information resources by the Pacific Islands Countries and Territories (PICTs); greater involvement and participation of organizations and institutions in CIARD and CIARD RING initiatives; openness in agricultural information and knowledge sharing, use of Web 2.0 and Social Media for agricultural information management in the region.

Thirty six experts in the fields of agricultural research, extension, information and communication technologies which included 16 senior officers from Cooks Islands, Fiji Islands, FSM, Kiribati, Marshall Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, and resource persons from APAARI, ACIAR, GFAR, FAO, SPC and CTA attended the workshop.

Nine country papers were presented on ICT/ICM initiatives for agricultural development by the participants. They were very insightful to understand varied nature of complex issues that each country is facing and different approaches to ICT/ICM use in the Pacific region. Group works have been organized to find approaches to move beyond strategies to improve information and knowledge management in the Pacific region relating to challenges with technological issues; institutional obstacles; and community participation. Hands-on experience was provided on Web 2.0 and Social Media tools such as Wi-Ki, Blogs, Twitter, RSS etc., on how to use them at institutional level for agricultural information sharing. It was emphasized the need for increased and targeted investment in ICT/ICM in agriculture along with steps to be taken for changes in institutional work processes, procedures, rules and regulations, norms etc. It was also felt necessary to involve NGOs and existing networks such as women groups, church groups, youth groups, teachers/schools etc., to harness ICT for agricultural development in the Pacific region.

The proceedings synthesize workshop deliberations, outcome of group works and recommendations for strengthening agricultural information systems in the Pacific Islands Countries and Territories (PICTs) and improving their participation in CIARD initiative for effective sharing of information and knowledge at national, regional and global levels. I am sure that these proceedings would be useful to all ARD stakeholders engaged in promoting ICT/ICM for AR4D in the Asia-Pacific region and elsewhere.



(Dr. Raj Paroda)
Executive Secretary
APAARI

Abbreviations

ACIAR	Australian Centre for International Agricultural Research
AIMS	Agricultural Information Management Standards
APAARI	Asia-Pacific Association of Agricultural Research Institutions
APARIS	Asia-Pacific Agricultural Research Information System
AR4D	Agricultural Research for Development
AVRDC	The World Vegetable Center
CGIAR	Consultative Group on International Agricultural Research
CIARD	Coherence in Information for Agricultural Research for Development
CIARD RING	CIARD Routemap to Information Nodes and Gateways
CTA	Technical Centre for Agricultural and Rural Cooperation
FAO	Food and Agriculture Organization of the United Nations
FAO RAP	Food and Agriculture Organization, Regional Office for Asia and the Pacific
FRIEND	Foundation for Rural Integrated Enterprises & Development
FSM	Federated States of Micronesia
GCARD	Global Consultation on Agricultural Research for Development
GFAR	Global Forum on Agricultural Research
GIS	Geographic Information System
ICM	Information and Communication Management
ICT/ICM	Information and Communication Technology/Information and Communication Management
ICT4D	Information and Communication Technology for Development
IKM	Information and Knowledge Management
MPI	Ministry of Primary Industries
NAIS	National Agricultural Information Systems
NARES	National Agricultural Research and Extension System
NARS	National Agricultural Research Systems
NINPs	National Information Nodal Points
PICTs	Pacific Islands Countries and Territories
PIEN	Pacific Islands Extension Network
RAIS	Regional Agricultural Information Systems
RFID	Radio Frequency Identification

RSS	Really Simple Syndication
SoNAIS	Solomon National Agriculture Information System
SPC	Secretariat of the Pacific Community
VoIP	Voice over Internet Protocol
Wi-Fi	Wireless Fidelity

Workshop on Moving Beyond Strategy to Improve Information and Knowledge Management for Agricultural Development in the Pacific Islands Countries and Territories

Introduction

The small farm sizes, scattered nature of farms, infrastructural limitations, the need to cope with increased global competitiveness in agricultural commodities as also adapting to climate change and loss of agricultural biodiversity add further complexity to managing information and knowledge in the Pacific Islands Countries and Territories (PICTs). The Information and Communication Technologies (ICTs) and global connectivity offer significant potential for PICTs to use information, knowledge and experience being generated globally for agricultural development locally.

The use of current ICT tools Social Media and Web 2.0 technologies offer significant potential in bringing greater openness in sharing, networking all actors across the value chain, exchanging and effectively using information for agricultural innovation in the PICTs. Initiatives such as the Coherence in Information for Agricultural Research for Development (CIARD) from FAO and other international partners are a step in the right direction in making agricultural research information truly available and accessible to all. In order to improve information and knowledge management for AR4D in the Pacific, it was felt necessary to move beyond strategies at institutional, technological and community levels in the Pacific region. The need for a workshop on ICT/ICM in AR4D was envisaged after strong requests from ICT/ICM experts from the Pacific Islands Countries who also participated in the ICT/ICM for National Agricultural Research Information Systems in Asia-Pacific Region held at Bangkok in September 2010.

As a follow-up of this demand, a four-day workshop on *“Moving Beyond Strategy to Improve Information and Knowledge Management for Agricultural Development in the Pacific Islands Countries and Territories”* was organized jointly by APAARI, FAO, GFAR, ACIAR and Secretariat of the Pacific Community (SPC) at Nadi, Fiji Islands on 21-24 November, 2011. The workshop objectives included promotion of: new Information and Knowledge Management (IKM) for making efficient and effective use of information resources by the Pacific Islands Countries and Territories (PICTs); greater involvement and participation of organizations and institutions in CIARD and CIARD RING initiatives; openness in agricultural information and knowledge sharing and use of Web 2.0 and Social Media for sharing agricultural information in the region. See the workshop concept note at Annexure-I.

The workshop was attended by a total 36 experts in the fields of agricultural research, extension, information and communication technologies which included 16 senior officers from Cooks Island, Fiji Islands, Federated States of Micronesia (FSM), Kiribati, Marshall Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu including resource persons from APAARI, ACIAR, GFAR, FAO, SPC and CTA. See the list of participants at Annexure-II.



Participants of the workshop at Nadi, Fiji Islands

Inaugural Session

The workshop was inaugurated by Chief Guest Colonel Mason Smith, Permanent Secretary, Ministry of Primary Industries, Fiji and Vice-Chairman, APAARI Executive Committee in session chaired by Dr. Malcolm Hazelman, Senior Extension, Education and Communications Officer, FAO RAP and Dr. Ajit Maru, Senior Knowledge Manager, GFAR Secretariat as vice-chairman.

In his welcome address, Mr. Inoke Ratukalou, Acting Director, Land Resource Division, SPC remarked that IKM is a critical component of development in the agriculture sector in the Pacific. He said that the Pacific needs to explore new technologies and opportunities to disseminate timely, accurate and up-to-date information on agricultural production, pest management and marketing to farmers and communities, supplementing existing agricultural extension strategies and networks.

Dr. Malcolm Hazelman observed that a combination of both traditional and modern ICTs would be appropriate to address information and knowledge sharing challenges existing among and between countries in the region. Dr. S. Attaluri, APARIS Coordinator remarked that today's agricultural innovations are becoming increasingly market-linked and will require new knowledge and tools.



Inaugural session in progress

Chief Guest Colonel Mason Smith in his inaugural address stated that agriculture in the region is facing challenges due to small farm sizes, remote and scattered nature of farms, infrastructural limitations, increased global competitiveness, climate change, and the loss of agricultural biodiversity etc., in addition to limited resources for research and innovation. He observed that ICTs and global connectivity would offer a number of potential solutions to these challenges. Reiterating the objectives of the workshop, he suggested that participants need to share experiences to foster stronger partnerships in the area of information and communication for agricultural development in the region and really move beyond strategies by implementing the recommendations of the workshop.

Mr. Gerard Sylvester, Knowledge & Information Management Officer, FAO RAP explained the workshop objectives and appealed to delegates to participate actively in the deliberations. Dr. Ajit Maru, Co-chair of the session in his concluding remarks highlighted the role of GFAR in transforming agricultural research for development globally and emphasized need to make public agricultural research information available, accessible, applicable and adaptable to all.

Technical Sessions

The program was organized into six technical sessions with enough room for open discussions, group activities and talk shows etc., which motivated all delegates to participate actively in the deliberations. The resource persons from APAARI, GFAR, FAO, SPC and CTA shared their experiences and provided inputs in the technical session to explain concepts like challenges to ICM, global perspectives, CIARD initiative, CIARD RING, overview of Web 2.0 and Social Media in agriculture. Please see the program at Annexure-III. Participants presented country presentations on ICT/ICM initiatives for agricultural development. Country presentations were very insightful to understand varied nature of complex issues that each country is facing and different approaches to ICT/ICM use in the Pacific region. Abstracts of the presentations were given below:

Session 1: New Dimensions in ICM for Agricultural Development in the Pacific Islands and Territories

Chairman: Dr. Ajit Maru, GFAR

1. Regional Agricultural Information Exchange: Need and Role of APARIS

Dr. S. Attaluri, APAARI

The presentation explained APARIS objectives, thrust areas and its linkage with NARS, NINPS, CG Centers, regional and global information systems. It highlighted the details of capacity building programs, promotion of agricultural innovations through success stories, advocacy and sensitization use and application of ICT/ICM in AR4D in the regions. The presentation also shared outcomes of the ICT status report, communication strategies, information exchange platforms such as APAARI website, APARIS discussion forum, databases, RSS feeds, and social networking tools. It concluded that for improving agricultural flow in the region, we need increased investment in ICT/ICM, openness in sharing agricultural information, partnerships in ICT initiatives and capacity development.

2. The Challenge of Implementing ICM for Agricultural Research and Innovation Systems

Dr. Ajit Maru, GFAR

The presentation propounded that the policies for Information and Knowledge Management for Agricultural Development in Organizations should be developed around information but not around ICTs. Policies should address key components of information such as availability, accessibility, applicability and appropriation and use by user community. The strategy refers to a plan of action designed to achieve a particular goal and 7 Cs of that need to be considered viz., Capital, Content, Capacity, Connectivity, Collaboration, Culture of Organizations and Community Participation. It was suggested to make strategies for ICM to reduce cost, time and making use of information more effective for the user. The presentation described steps in developing ICM in organizations and emphasized need for involving communities in ICM, as *prosumers* through a variety of channels including social media and mixed media.

3. Agricultural Innovation Systems in the Pacific Region

Dr. Malcolm Hazelman, FAO RAP

It defined the features of NARS and AKIS framework in relation to agricultural innovation systems in the context of the Pacific. The key challenge is getting right and timely information to farming communities including using user-friendly language, especially for print materials. It suggested that a mix of “traditional” and “modern” innovations need to be followed to provide information, The presentation mentioned that the Pacific countries lack appropriate policies and weak in institutional capacity in public and private sector in addition to remoteness, low competitiveness in international markets, high costs of transportation and labour and susceptibility to natural disasters and climate change etc., and highlighted the priority actions of the Pacific as identified APAARI Expert Consultation on Agricultural Research in 2009. It remarks that transforming information in to knowledge and into policies that affect the lives of people and reduce poverty what brings value and for this policies, strategies and commitment and support have been vital ingredients for successful ICM.

4. ICM for Agricultural Development - Experience of the SPC

Ms. Anzu Mangal, SPC

The presentation explained the Information and Knowledge Management strategic plan of Land Resources Division of the Secretariat of the Pacific Community. It described the present information services that included up-to-date pest and animal disease lists, Pacific health information system, training paravets, trade statistics database, GIS mapping of animal densities, disease distributions, infrastructure, soil types, forest cover, weed locations, animal/plant gene banks, farmer information, LRD networks/discussions forums (PAPGREN, PAFPNNet, AHP, PHOVAPS, Animal Genetics, FACT) and Pacific Islands Extension Network (PIEN). New dimensions in ICM-KM through partnerships with FAO RAP in improving access of farmers to agriculture information through the use of mobile phones in Tonga; collaboration with CTA in organizing ICM workshops and other collaborative activities with other agencies and ministries. The way forward indicated e-agriculture projects initiated by SPC.

Session 2: Information and Knowledge Management for AR4D in the Pacific Region – Country Experiences

Chairman: Dr. Malcolm Hazelman, FAO RAP

5. Kiribati

Ms. Kinaai Kairo, Director of Agriculture and Livestock, Ministry of Environment, Lands and Agriculture Development

Radio plays a major role in reach agricultural information to almost all remote outer islands in Kiribati. Few islands still use CB Radio technology and agricultural extension can access this communication system through payment. Not all outer islands have access to internet; Malfunctioning of the internet is a common problem. It presented the strengths, weakness and opportunities of radio, newspaper, telephone, video tapes and internet in Kiribati. Against this background, the presentation suggests that traditional communication system such as radio has to be sustained as almost all people in Kiribati can access to it for information. Budget has to be adequate for newspaper, telephones, mobile phones, CB radios for those islands still using this system, and for Internet usage. Appropriate training on the management of information communicated or transferred through newly technologies such as internet etc., is necessary to improve capacities to use ICTs. Similarly, training for agricultural staff to fix, and maintain the satellite dish as well as the Internet is essential.

6. Marshall Islands

Mr. Henry Capelle, Chief of Agriculture, Ministry of Resources and Development, Marshall Islands

The Republic of the Marshall Islands consists of 29 low lying coral atolls 5 islands spread over a sea area of over 750,000 sq miles in the Central Pacific. A Research Center (College of the Marshall Islands Land Grant, a US Funded Project) provides extension service, agriculture awareness programs and undertakes soil research. This small Island Developing State is in the process of developing agriculture policy while the Ministry of Resources and Development follows 5 years strategic plans. Communication system is through radio station, newspaper, HF radio and cell phone technologies.

7. Palau

Mr. Fernando Sengebaw, Director, Ministry of Natural Resources, Environment & Tourism, Bureau of Agriculture, Palau

Information and communication management is carried out through television (3 television station), AM/FM Radio broadcast (5 radio stations), Internet, telephone, extension services (farm visits), and through conventional methods such as workshops and trainings, farmers' associations and decentralizing agricultural development support centers. ICT has not secured a place in the national policy and less emphasis is made on use and application of ICT/ICM in strategic plans. Other constraints for ICT/ICM included expensive charges for cellular telephone services and Internet connectivity.

8. Papua New Guinea

Mr. Soldier Buruka, Public Relations and Media Officer, Department of Agriculture and Livestock, Papua New Guinea

Sound ICT policies, greater collaboration at all levels and support to the Pacific region are needed to improve use and application of ICT/ICM in agricultural development. The presentation explained the use of ICT/ICM at NARI (creation of I&K program, Didinet, PNG NAIS, GIS and website). It highlighted the mobile market information service for fresh produce growers by Fresh Produce Development Agency (FPDA). It concluded that there is a need for investment in ICT, relevant policies, establishment of resource centers, capacity building and human resource development, and strengthen/establish collaboration with local, national, regional and international partners.

9. Samoa

Ms. Emele Meleisea Ainu'u, Principal Crops Advisory Officer, Ministry of Agriculture and Fisheries, Samoa

Limited budget allocation for Information and Communication activities and lack of written policies on ICT/ICM in agriculture, poor coordination between institutions and information systems are some of the barriers for ICT/ICM in Samoa. The presentation mentioned the existing information and communication systems in Samoa that included Community Tele Centers, spread of mobile phones (Digicel and Blue Sky Samoa Tel), Television stations (TV3 and TV1) and Radio Stations etc. Application of ICT/ICM is made in the areas of research data management (record keeping, database), scientific and technical information (publicity, report writing), agricultural extension and outreach services (training and distribution of leaflets, radio programs and TV programs), agriculture market information (via newsletter, radio, television), library, information and documentations services (using Procite 3.4 for library database, Agdex manual for cataloguing), Messaging and Communication (radio talkback, mobile, trainings, farm visits and demonstrations, consultations, newspaper, newsletter. It pointed out that Internet and e-mail use is limited staff for their internal communication. Only a limited number of farmers can afford access to Internet. It suggested the need for revised policies for ICTs in the Ministry of Agriculture & Fisheries; long term strategies for implementation; improving networking system between MAF and other organizations, farmers and relevant stakeholders; capacity building for all stakeholders and end users; a central database for all NARES; and technical and financial support from organizations such as APAARI, FAO, ACIAR, CTA, SPC etc.

10. Solomon Islands

Mr. Peter Trena, Chief Information Officer and Mr. Rex Fila, Senior Research Officer, Research & Development Department, Ministry of Agriculture and Livestock, Solomon Islands

The presentation explained National Coalition for Reform and Advancement (NCRA) Agriculture Policy and National Agriculture and Livestock Sector Policy - which advocate twin track approach to enhance production of staple foods and cash crop development for export markets besides provision of extension, education, regulatory, research and production, food security and standards, and economic recovery and development. The Agricultural Information Unit of the Ministry Provides educational, farming techniques and advisory services for farmers, researchers, students, and other stakeholders in the country through radio, audio-visual, print and other forms of communication. It also provides on-line library service for students, researchers, teachers, and the public and ensures that marketing information is available to farmers, planners, and exporters. It highlights the Pacific Rural Internet Connectivity System (PACRICS) - a multi-ministry model that allows information access to rural and remote areas

and islands, National Radio Broadcasting Program, Solomon National Agriculture Information System (SoNAIS), and Video Documentary through Youtube to address Food and Nutritional Security and Climate Change (CC). The way forward indicated need for improving capacity, use of appropriate media for dissemination of information and providing access to different media.

11. Tonga

Mr. Sione Foliaki, Deputy Director and Ms. Losaline Ma'asi, Deputy Director, Ministry of Agriculture & Food, Forests & Fisheries, Kingdom of Tonga

It explained the ICT/ICM in MAFFF which is aimed to improve the Management of Information from Research to Farmers and vice versa. The presentation identifies that the current information needs baseline information/data for policy makers, translations to client's level; coordinated and centralized information; method of information dissemination such as meetings/contacts/training by extension officers; mass media services (radio/TV, newspaper, leaflets) by Information Unit and Call Centre Project (to be implemented). It emphasized need for capacity building, more coordination and management, establishment of centralized information source and development of website and its updating.

12. Tuvalu

Mr. Itaia Lausaveve, Director of Agriculture, Ministry of Natural Resources & Lands, Tuvalu

Tuvalu consists of 9 Atoll islands scattered over large ocean. Majority engage in subsistence living depending on agriculture and fisheries. It faces challenges that included poor Atoll soils, lack of water (no streams), climate change impacts; droughts, saline water intrusions, remoteness and transportation problems, reliance on food imports and soaring food prices, urban migration besides low priority for agriculture sector in national budget allocation. The Extension & Information Division of the Agricultural Department, with its 8 extension staff, provides technical assistance to farmers. Information is disseminated through weekly radio programs and six monthly newsletters in local language. Extension staff has access to Internet and telephones for reporting etc., but generally the Internet is slow and congested. Department's website is not up-to-date due to lack of personnel to feed website regularly. High costs involved in translation of information and maintenance of IT equipment within department are some of the reasons for poor application of ICT/ICM in agricultural development.

13. Vanuatu

Mr. Lonny Bong Jonah, Senior Livestock Officer, Department of Livestock & Quarantine, Vanuatu

It is always important that community needs are identified and use appropriate ICM to address it in line with their cultures. The Vanuatu Broadcasting and TV Corporation (VBTC), Radio Vanuatu, FM 98, FM 100, Television Blong Vanuatu and Capitol FM 107 are important channels of communication. Newspapers such as Daily Post, The Independent and Vanuatu Times also play a role in disseminating information. In fact in Tanna Island, the *nakamals* (kava bars) with the chiefs play an important role in exchanging information and knowledge, which shows that traditional communication channels are very effective and important in the region. Some of the barriers to ICT/ICM included lack of availability of information, reluctance to share information by farmers, absence of information unit in the Ministry of Agriculture, lack of skills by extension workers and farmers in maintain proper records and information and inadequate access to radio and other communication channels etc. In order to improve access to information, there is a need to involve existing community

networks, cooperatives, farmer leaders and take support from mobile phone providers (Digicel and TVL) and use Wan Smolbag group.

Session 3: Coherence in Information for Agricultural Research for Development (CIARD)

Chairman: Dr. Malcolm Hazelman, FAO RAP

14. CIARD in General

Mr. Gerard Sylvester, FAO RAP

The most important challenges to agricultural development can't be tackled without improved and enhanced sharing of data, information and knowledge globally. Sharing of data and knowledge ushers greater equity in access and use of agricultural knowledge across and among communities and can lead to greater equity in the benefits of development efforts. The presentation briefly explained the Coherence in Information for Agricultural Research for Development (CIARD) initiative, its manifesto, checklist, pathways, and services provided CIARD RING. A video on 'making agricultural knowledge travel' that focuses on moving towards accessibility, availability and applicability of information by ICT/KM of CGIAR was shown to highlight need for CIARD pathways for effective sharing of agricultural knowledge.

15. Building CIARD Global Framework and initiatives in the region

Dr. Ajit Maru, GFAR

The most important challenges to agricultural development such as from climate change, need for sustainable use of natural resources and energy, preventing spread of trans-boundary disease and pests, loss of agro-biodiversity cannot be tackled without improved and enhanced sharing of data, information and knowledge globally. The presentation explained the development of CIARD framework and issues such as type of data/information to be shared, reusability of shared information, interoperability, emerging tools, standards and infrastructure. It proposed Action Areas for a Framework for Data and Information Sharing related to 1) technical aspects (CIARD RING, FAO AIMS, open standards for protocols, ontologies, vocabularies), 2) institutional issues (Policies, Strategies, Rules, Regulations, Norms, reward and accountability and new institutions for governance of information flows), and 3) community participation issues (involvement of all actors and stakeholders, involvement of community to "pull" information such as done by social media, evidence for advocacy and strengthening CIARD community for advocacy and action).

16. CIARD RING, CIARD Pathways, Tools, and Virtual Fair

Dr. S. Attaluri, APAARI

The presentation explained the CIARD RING platform which provides the missing routemap to the existing agricultural research information and services. It demonstrated CIARD RING portal, its services, how users and institutions can benefit, registration process, and shared a few examples of services that included open access agricultural repositories, open access journals, institutional repositories and information systems etc. CIARD Pathways provide many ways to make research outputs more Available, Accessible and Applicable to all stakeholders. Steps in creating pathways viz., Developing Institutional Readiness, Collection and Preservation and Making Content Widely Accessible on the



Session on CIARD framework

Web were explained with examples. Concept and purpose of the Virtual Fair are also explained with details of enablers, services and pathways with examples of agricultural information systems and services.

Session 4: Identifying and Bridging Gaps in Knowledge Management for Agricultural Development in the Pacific

Chairman: Dr. Malcolm Hazelman, FAO RAP

Participants were divided into three groups to brainstorm issues on gaps and activities that have solved or could have solved challenges related to technological challenges, institutional obstacles and community buy-ins in ICT/ICM in AR4D in the Pacific region. The group work was facilitated by three resource persons. All participants took part in the group work very actively and provided important inputs from their experiences to identify issues and prioritize activities to address challenges of ICT/ICM in AR4D in the region. The outcome of the group work has been presented by group facilitators and the issues were discussed in detail in Session-6 to arrive at the workshop recommendations.

A talk show was organized to generate open discussion on improving ICT/ICM for agricultural development in the Pacific region. Mr. Emil Adams, Information & Communications Coordinator, Land Resources Division, SPC has anchored the talk show with selected guests from the participants. The talk show indeed surfaced several facts that hinder implementation of ICT/ICM in agriculture in different countries. The discussions highlighted the weaknesses and gaps in the political and policy environments in different countries in the region. It also brought to the fore the institutional difficulties, lack of capacities, coordination problems and suggested possible solutions which were included in the recommendations.



Group work and presentations



Talk show in progress

Session 5: New Approaches to Agricultural Information Dissemination

Chairman: Dr. S. Attaluri, APAARI

17. Overview of Web 2.0 and Social Media

Mr. Gerard Sylvester, FAO RAP

The presentation provided orientation on use of Web 2.0 and social media tools for agricultural information sharing. It described the evolution of Web 2.0 and social media tools and technologies which included blogs, wiki, RSS, Mashups, podcasting, Wikipedia, Youtube, Facebook, Flickr, LinkedIn and many more which play important role in improving collaboration and revolutionizing knowledge management at individual and institutional levels.

18. Enhancing collaboration through the use of Web 2.0 tools

Mr. Rodger Obubo, CTA

The presentation discussed about Web 2.0 as effective communication tools and information and generation tools such as Voice over Internet Protocol (VoIP) – Skype, Google talk, Nonoh (Mobile VoIP), Icall, Whisper, Tango, Whistle, Viber, Google talk; RSS Feeds, Blogs, Discussion Forums, Mapping tools, Collaborative storage tools etc. It also explained DropBox – a multi-platform Web interface to upload and access files. At the end a video on “Agriculture and New Technologies – Web 2.0 in Africa” was shown which projected BROSDI network that uses different applications ICTs (website, Wiki, audio, mobile phones services etc.) and Wikiforêts by farmers for better sharing and access to information on agricultural technologies, practices, forestry, market information etc., in the rural Africa.



Session on Web 2.0 tools



Role play on the social media and its use in agriculture

19. Innovative approaches to information dissemination

Mr. Gerard Sylvester, FAO RAP

A group of resource persons comprising Mr. Gerard Sylvester (FAO RAP), Ms. Anju Mangal (Land Resources Division, SPC), Mr. Minh Cao (Webmaster, SPC), Mr. Simione Tukidia (Information, Communication & Extension, Land Resources Division, SPC) and Mrs. Jutta May (Pacific Disaster Net, Team Leader, SPC) introduced Web 2.0 and social media tools through role play performance and explained how these tools works and how one can exploit the new ICT tools for effective exchange of information and knowledge. The resource person who enacted the roles of information manager, institutional head, researcher, extension worker and farmers put forth interesting doubts and difficulties

in using ICT tools, especially Web 2.0 and social media, for providing or accessing agricultural information. Indeed, the role play motivated participants to understand how Web 2.0 and social media tools work and how these can be applied at the institutional and individual levels in succinct way. As part of role play, the resource persons also demonstrated important social media tools such as Wiki, Facebook, Flickr, Youtube, Twitter, LinkedIn etc., and showed how these tools increase collaboration in creating and sharing information through live examples.

Session 6: Improving ICM for Agricultural Development in the Pacific Region – the Way Forward

Chair: Dr. Ajit Maru, GFAR

Co-Chair: Dr. Malcolm Hazelman, FAO RAP

As part of group work, the members were asked to identify areas to move beyond strategies to improve information and knowledge management in the Pacific Islands Countries around 7 Cs of effective communication viz., capital, content, connectivity, collaboration, capacity, community participation and culture of organization. Later the groups shared the outcomes to all in the plenary session and a thorough discussion made on the points.

Session 7: Plenary Session

As part of hands-on practice on last day, an on-line interactive session was organized on Twitter channel to share and discuss issues related to ICT/ICM in agriculture in the Pacific region. This provided opportunity for participants to use social media on their own to interact with professionals from different organization including FAO headquarters. Messages on issues related to Availability, Accessibility and Applicability of agricultural information, ICT/ICM tools, especially the technologies that are appropriate for the Pacific situation, and need for documenting best practices and success stories were exchanged.

20. Recommendations of the workshop

Dr. S. Attaluri presented the recommendations of the workshop synthesized from the group works and discussions around 7 Cs of effective communication of agricultural information and knowledge as follows:

Capital

- Advocacy for investment - increased, improved and targeted; success stories etc., Public-private-community partnerships
- Innovative business models, cost sharing, partnerships, consortium
- Linking with micro-finance and Self-Help Groups

Content

- Use of low cost camera; smart phones; participatory GIS, community information repositories

- Development of communication strategy and its implementation at the institutional level
- Integrating traditional knowledge and IPR issues, localized contents in local language

Connectivity

- Off-line approaches - CD/DVDs/flash drives, mobile, community e-centers, multi-modal delivery
- Investment in infrastructure
- Off-line delivery medium, community centers, mixed media

Collaboration

- Use of emerging media - Web 2.0/Social Media to facilitate collaboration; use of collaborative tools - participatory video, community centers, community GIS
- Networking with internal and external initiatives
- Involving NGOs and existing networks - women groups, church groups, youth groups, teachers/schools etc.

Capacity

- Capacity building at different levels - sensitization, awareness, training/workshops etc.
- Distance learning: e-learning, motivation, involving priests/teachers/students/chiefs/extension officers/model farmer
- Awareness building - through training, field visits, cultural events and documentation

Community Participation

- Involving all stakeholders - NGOs and existing networks - women groups, church groups, youth groups, teachers/schools etc.
- Advocacy to increase awareness on benefits and use of ICT/IKM; localization of content

Culture of Organization

- Creating reward system, accountability
- Change in work processes, procedures, rules and regulations, norms
- Awareness on the role and importance of community in ICT/IKM initiatives.

21. Valedictory Program

The workshop ended with a valedictory session in which all participants shared their feedback on the workshop organization and emphasized need to organize such capacity development programs on IKM at national level especially for PICTS and sought financial and technical support to implement ICT projects. Finally, Dr. Malcolm Hazelman, FAO RAP, Dr. Ajit Maru, GFAR, Mr. Emil Adams, SPC and Dr. S. Attaluri, APAARI made their concluding remarks and thanked all the participants and cooperation from partners organizations.



Valedictory session



Group photo after the valedictory session

22. Field Visit

A field visit to Foundation for Rural Integrated Enterprises & Development (FRIEND), an NGO located at Lautoka, was organized to expose the participants on the practical use communication and information initiatives in poverty alleviation through social and economic empowerment programs.



Field visit

Annexure-I

Concept Note

Information and knowledge management i.e. generation, processing, dissemination and effective use of information and knowledge for innovation to meet current and emerging challenges in agricultural development, is a challenge in itself for the Pacific Islands Countries and Territories (PICTs). The small farm sizes, scattered nature of farms, infrastructural limitations, the need to cope with increased global competitiveness in agricultural commodities as also adapting to climate change and loss of agricultural biodiversity add further complexity to managing information and knowledge in PICTs. With limited resources for research and innovation and for information management to meet these complex needs, these states need to effectively use all useful and relevant information and related resources available locally and globally for agricultural innovation.

The advent of new Information and Communication Technologies (ICTs) and global connectivity offers significant potential for PICTs to use information, knowledge and experience being generated globally for agricultural development locally. These technologies, especially the emerging mobile technologies including those using Internet Wi-Fi and 3G Cellular telephony, offer potential to overcome some of the limitations agricultural innovation and development faced in these states. The core barrier is information content that supports the specific needs of individual small holder farmers who are remote. New approaches to agricultural extension in PICTs now have specialized individuals in each commodity offering technical support. These intermediaries in innovation also need new information that is customized not only to meet their needs but also the needs of their clients.

The Workshop on “*Moving Beyond Strategy to Improve Information and Knowledge Management for Agricultural Development in the Pacific Islands Countries*” was envisaged after strong requests from ICT/ICM experts from the Pacific Islands countries who also participated in the ICT/ICM for National Agricultural Research Information Systems in Asia-Pacific Region held at Bangkok in September 2010. FAO together with APAARI and other partners have been working on promoting good practices and sharing experiences among countries in the Asia-Pacific region on good practices in agriculture supported by innovative ICT interventions.

It is understood that many innovative initiatives using mobile phone technologies and other emerging tools are being explored in many Pacific Islands Countries and this workshop aims to share experiences and foster stronger partnership with the Pacific islands Countries in the area of Information and Communication Technology for Development (ICT4D).

There is a growing movement of the “Coherence in Information for Agricultural Research for Development (CIARD) (<http://www.ciard.net>) initiative helps advocate the importance of making agricultural research information more available, accessible, and applicable and be effectively used and appropriated by agricultural communities across the world.

Organizations and individuals can benefit from CIARD as follows:

- increased national and international visibility and use of their research output and content services
- increased exchange of information content between their system(s) and others

- increased awareness of other research outputs through information content and services
- increased access to specialized expertise and knowledge and the proven solutions of the other partners

The CIARD movement has developed a checklist for enabling its partners to assess their readiness in making their information publicly accessible, pathways to guide more rapid action in improving information management in their institutions, a CIARD Fair which offers tools, applications and support for using the pathways and the CIARD RING which offers a signpost to agricultural information services available globally. CIARD is now working with the global ICM community to develop a framework for sharing and exchanging data and information globally.

This workshop would be organized by APAARI, FAO, GFAR and SPC from 21 to 24 November, 2011 in Nadi, Fiji Islands aims to discuss and offer recommendations for action by actors in agricultural innovation in how Pacific Islands Countries can improve their information and knowledge management i.e. its generation, processing, dissemination and effective use for innovation, to meet current and emerging challenges to agricultural development by partnering locally, within the Pacific Islands Countries and with the global community.

The four days workshop will target senior policy makers, research and innovation managers, ICM experts and those involved in extension (all actors in the agricultural innovation chain) in discussing how their organizations and institutions can implement recommended strategies for the Pacific Islands Countries using experiences, tools, applications etc., as generated by the global community through CIARD and how they can contribute to improving information access locally, within PICTs, regionally and globally through active collaboration and partnership. The experts will discuss the implications of mobile technologies, Web 2.0 and the emerging “Semantic” and “Symbiotic” Web in providing information to users in agricultural innovation and market chains and via a technical hands-on session on Web 2.0 tools and technologies.

The Objectives of the workshop are:

1. To consider new dimensions in Information and Knowledge Management (IKM) for contributing to rapid agricultural innovation to meet the complex needs of agriculture in the Pacific Islands Countries and Territories.
2. To promote greater involvement and participation of Organizations and Institutions with CIARD and contribute within the States, regionally and globally through various activities, pathways, tools, applications and CIARD RING in the perspective of the needs of the Pacific Islands Countries and how they can be used locally in Pacific States Organizations and Institutions.
3. To promote use and application of Web 2.0 and Social Media in providing information to users in agricultural innovation and market chains especially through participatory and “open” Information and Communication Management (ICM) models.

Annexure-II

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Annexure-III

Program

Day 1 (21 November, 2011)

08:30-09:00	Registration	
	Inaugural Session	
	Chairperson: Dr. Malcolm Hazelman, FAO RAP	
	Co-Chair: Dr. Ajit Maru, GFAR	
09:00-09:15	Workshop Opening Garlanding of official party & guests Opening Prayer	
09:30-09:45	Welcome Remarks	Mr. Inoke Ratukalou, Acting Director, Land Resource Division, SPC
09:45-09:50	Welcome Remarks	Dr. Malcolm Hazelman, FAO RAP
09:50-09:55	Welcome Remarks	Dr. Richard Markham, ACIAR
09:55-10:00	Welcome Remarks	Dr. S. Attaluri, APAARI
10:00-10:15	Inaugural Address	Chief Guest - Colonel Mason Smith, Permanent Secretary for Agriculture, Department of Agriculture, Ministry of Primary Industries, Fiji & APAARI Vice-Chairman.
10:15-10:20	Workshop Objectives & Outputs	Mr. Gerard Sylvester, FAO RAP
10:20-10:30	Concluding Remarks	Dr. Ajit Maru, GFAR
10:30-11:00	Coffee break and Group Photo	

	Session 1: New Dimensions in ICM for Agricultural Development in the Pacific Islands and Territories	
	Chair: Dr. Ajit Maru	
11:00-11:20	Regional Agricultural Information Exchange: Need and Role of APARIS	Dr. S. Attaluri, APAARI
11:20-11:40	The Challenge of Implementing ICM for Agricultural Research and Innovation Systems	Dr. Ajit Maru, GFAR

11:40-12:00	Agricultural Innovation Systems in the Pacific Region	Dr. Malcolm Hazelman, FAO RAP
12:00-12:20	ICM for Agricultural Development - Experience of the SPC	Ms. Anzu Mangal, SPC
12:20-13:00	Open discussion	
13:00-14:00	Lunch	

	Session 2: Information and Knowledge Management for AR4D in the Pacific Region - Country Experiences	
	Chair: Dr. Malcolm Hazelman, FAO RAP	
14:00-15:00	Presentations of Country Experiences in how ICM has contributed to 'Agricultural Development' in their countries with emphasis on what were the Technological, Institutional and Community Participation issues and how these issues/gaps were filled in contributing to innovation. Countries: Fiji Islands, Kiribati, Marshall Islands, Palau	About 10 min. presentation by each country followed by discussion on each presentation.
15:00-15:20	Coffee break	
15:20-16:20	Countries: PNG, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu	About 10 min. presentation by each country followed by discussion on each presentation.
16:20-17:00	Open Discussion on the Country Experiences	
19:00	Welcome Dinner	

Day 2 (22 November, 2011)

	Session 3: Coherence in Information for Agricultural Research for Development (CIARD)	
	Chair: Dr. Malcolm Hazelman, FAO RAP	
09:00-10:00	CIARD in General - What and Why, Manifesto, Guidelines and Checklist - CIARD activities for data and information sharing in the region	Mr. Gerard Sylvester, FAO RAP
10:00-10:45	Building CIARD Global Framework and initiatives in the region.	Dr. Ajit Maru, GFAR

10:45-11:15	Coffee break	
11:15-12:30	CIARD Pathways, Tools, Virtual Fair, CIARD RING: What is the RING; Why the RING and What you can do with the RING; Registration Process	Dr. S. Attaluri, APAARI
12:30-13:30	Lunch	

	Session 4: Identifying and Bridging Gaps in Knowledge Management for Agricultural Development in the Pacific	
	Chair: Dr. Malcolm Hazelman, FAO RAP	
13:30-15:00	Thematic discussion on the Issues/gaps, prioritization of issues/gaps, how they were solved/can be solved. Group (a) Challenges with technology Group (b) Institutional obstacles Group (c) Community buy-ins	Thematic facilitators: Dr. S. Attaluri, APAARI Mr. Gerard Sylvester, FAO RAP Mr. Emil Adams, SPC
15:00-15:30	Coffee break	
15:30-16:30	Thematic presentations	Thematic facilitators
16:30-17:00	Open Discussion on the Improving ICT/ICM for Agricultural Development in the Pacific Region - Talk Show	Talk show

Day 3 (23 November, 2011)

	Session 5: New Approaches to Agricultural Information Dissemination	
	Chair: Dr. S. Attaluri, APAARI	
09:00-10:00	Overview of Web 2.0 and Social Media	Mr. Gerard Sylvester, FAO RAP
10:00-10:30	Enhancing collaboration through the use of Web 2.0 tools	Mr. Rodger Obubo, CTA
10:30-11:00	Innovative approaches to information dissemination: wiki, facebook, twitter, blogs etc.	CTA, FAO, SPC
11:00-11:30	Coffee break	
11:30-12:30	Role play on the social media and its use in agriculture.	Mr. Gerard Sylvester, FAO RAP
12:30-14:00	Lunch	

	Session 6: Improving ICM for Agricultural Development in the Pacific Region – the Way Forward	
	Chair: Dr. Ajit Maru, GFAR	
	Co-Chair: Dr. Malcolm Hazelman, FAO RAP	
14:00-15:30	Group work on ICM strategies for Agricultural Development in the Pacific Region to identify key issues around 7 Cs of effective ICT/ICM.	
15:30-15:45	Coffee break	
15:45-17:15	Sharing group work. Open discussion on group work	

Day 4 (24 November, 2011)

	Session 7: Plenary Session	
	Chair: Dr. Malcolm Hazelman, FAO RAP	
	Co-Chair: Dr. Ajit Maru, GFAR	
09:00-10:00	Hands-on: Online discussion using Web 2.0 tools; Twitter discussion on ICT/ICM in AR4D in the Pacific region	Mr. Gerard Sylvester, FAO RAP
10:00-10:20	Workshop recommendations	Dr. S. Attaluri, APAARI
10:20-11:00	Valedictory	Dr. Malcolm Hazelman, FAO RAP Dr. Ajit Maru, GFAR Mr. Emil Adams, SPC Dr. S. Attaluri, APAARI
11:00-11:15	Coffee break	
11:15-16:30	Field Visit to Foundation for Rural Integrated Enterprises & Development (FRIEND) Tuvu, Kings Road, Lautoka	

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