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## Looking to the future by digging up the past – capturing and disseminating tacit knowledge

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### Abstract

*In the past, it was customary for the findings of agricultural research to be packaged into extension materials, and extended to farmers via the extension workers. In the Pacific, the degrading of government-led extension and advisory has happened at the same time as a decline in print publications. In recent years, there has been an increase in the number of social media initiatives all intended to better communicate with the public, among which are the farmers. There is anecdotal evidence to suggest that this is not helping the farmers. There is similarly a lack of evidence that this is equipping extension workers with a good knowledge base, and there is also the loss of knowledge and experience as researchers and extension officers age retire. No attempt has been made to capture what is called ‘tacit knowledge’: information and knowledge known to an individual by virtue of their experience, lessons learned and knowledge gained, the loss of which is guaranteed to ensure that lessons learned are lost, and the wheel is reinvented.*

*To address these issues, the author has been involved in two activities in Solomon Islands. In the first activity, a procedure was proposed to try and use the collective wisdom of a group of researchers and technical extension people, in the form of a writeshop to put together extension fact sheets. The focus was on capturing content, irrespective of its eventual packaging. The second activity was the preparation of a manual to address severe problems in the country with cocoa contamination. In undertaking this activity, it became clear that the published information was contradictory and, in many respects, lacking in critical detail and this despite decades of research and development. The only way to address this was by engaging in an activity to capture tacit knowledge. At the end of that period, there was much improved content, based on lived experience over many years. The search is now on to find a way beyond a print-based resource to manage the content that has been acquired. In the meantime, lessons have been learned about what can help this process along, the principal lesson being the need to better manage and share content, and to do so strategically.*

**Keywords:** agricultural extension, content management, knowledge management, knowledge sharing.

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## Introduction

Under the topic “Recent developments in providing open access to agricultural extension bulletins in the country/region” I have chosen to reflect on developments in the Pacific island region, and specifically at the Ministry of Agriculture and Livestock in Solomon Islands, with whom I have collaborated for a number of years. These are my own opinions and observations and do not necessarily reflect the Ministry’s view. I should also add that I am not referring to putting print publications online, in an open access repository; what I have to share is much more wide-ranging.

Printed agricultural extension materials have long been the mainstay of agricultural extension activities in the Pacific, even if the information they contain has been delivered orally by word-of-mouth and through group activities. In today’s world, novel information and communication technologies have offered innovative and often interesting ways of communicating agricultural information, which is not solely, or indeed rarely, print-based. So what does this mean for farmers, and in particular farmers in the region? Have they benefited? Do they have greater access to agricultural information than in times past? And if farmers do not, why is this? What are the main issues? Open access to agricultural information is a laudable goal. If it is not being met – as I believe – then we need to have a discussion to find out why. This paper is intended to contribute to that discussion.

## ISSUES

In the 1970s and 80s, the ‘knowledge sharing process’ – not that it was ever referred to in that way – was that researchers carried out their research, and prepared reports and/or papers on their research findings. In this way, the findings were presented at annual in-country research and extension conferences, distilled into broadcast items, newsletter articles or as the basis for show-and-tell activities, or published in (usually) overseas journals. In some instances, researchers either worked on their own or collaborated with extension officers and agricultural trainers to prepare extension materials; or an information or publication officer would prepare the extension materials, referring to the research findings or the researcher for any necessary inputs.

The strengths of such a process were that:

- The role each actor played was marked out clearly, and the whole process could be documented (and included in annual work plans, job descriptions, etc.)
- In so far as it was possible, it played to the strength of each actor. For example, not all researchers have the skills and understanding of what comprises good communication; and not all information/publication officers appreciated the value of the findings, without being shown.

On the other hand, the weaknesses were that:

- It was a linear process – at any point in the linear chain, the process could break down, e.g. because of staff shortages, lack of skills, incompetence or slackness
- It failed to capitalise on the body of people that, collectively, ought to have driven and managed the knowledge sharing process. In other words, everyone more or less operated as separate entities.

Despite the strengths and weaknesses identified, generally speaking things got done. A much appreciated radio show was broadcast regularly; a newsletter was published and circulated not just within the department of agriculture; and a wide range of agricultural extension pamphlets and booklets were published. They are still being used today, over 30 years later.

In the late 1980s and beyond, new information technology (computers and micro printers mainly) made it possible for staff to do all their own typing, filing etc. It ought to have been a golden era: staff could write up their own reports, in their own time, and share with others. It is ironic to note that there was much better management of research findings and knowledge resources up until that point than there is today, where there has been a plethora of new technology that would make the task much easier. Trial and research reports were shared less often, and did not often make their way into the libraries and archives that future researchers would rely on. There was also an over-reliance on technology; technology that was/is often prone to failure, such that whole folders or disk drives of valuable files (knowledge resources) can be lost in an instant. Communication and traditional methods of knowledge sharing broke down; this is evidenced in the dearth of extension-type materials from the 1990s onwards.

In more recent times, in the Pacific region at least, the degrading of government-led extension and advisory services – for a variety of reasons, some fiscal, some organisational – has happened at the same time as an overall decline in the regularity and quality of print publications. Much of this has to do with the cost of printing – especially colour printing – quality agricultural extension materials, so that what is eventually printed has been reliant on donor support. And this tends to skew priorities. In terms of distribution, I myself have visited offices in various countries in the Pacific region and found, behind a door or in a cupboard, boxes of top quality extension materials. They are there because the cost of distribution is too high, overwhelmingly so, and for little other reason. All of which makes one wonder why distribution was not part of the original activity plan.

The above description might seem to imply that print materials are *the* essential component of information dissemination. But that of course is not the case, and never was; but the information they contain has always been an essential component. Having printed information is equivalent to putting down a marker that says, ‘this is what we know, at this point in time’, and is a useful exercise in and of itself. So recent developments in communication technology have been a significant challenge to the old notion. Gone is the tatty, old and very tangible extension bulletin; here, fleetingly, is the shiny new web page, blog, e-newsletter, Facebook page, web portal and, more rarely, SMS service all intended to better communicate with the public, among whom are the farmers. However, there is anecdotal evidence to suggest that this is not helping the farmers, because too few of them, at least in many islands in the Pacific, have the requisite technology, technological skills, and access to affordable and fast Internet. There is similarly a lack of evidence that these new information products, in their present form, are equipping extension workers with a good knowledge base. Meanwhile, the old but comprehensive extension handbook – the extensionist’s bible – has been abandoned, and junior staff no longer have anything to refer to other than their college notes.

It is not just print materials that have become scarce. The greatest loss of all is of knowledge and experience as researchers and extension officers age, move on to other jobs and roles, retire and, eventually, pass away. In an agriculture department the author is most familiar with, just in the last two years, there has been a plethora of retirements; senior officers with upwards of 30 years experience and knowledge. No attempt has been made to capture what is called ‘tacit knowledge’: information and knowledge known to an individual by virtue of their

experience, lessons learned and knowledge gained, the loss of which is guaranteed to ensure that lessons learned are lost, and the wheel is reinvented.

Quite how it is that we have ended up in the situation described, where information and communication technology have vastly increased opportunities for effective and efficient communication, and yet there is at best a disregard for content, and at worst little useful content. It seems to this writer that the tail is wagging the dog.

So what to do?

### **Activities**

In considering better solutions, one thing stood out: the need to collaborate. An early attempt in the Ministry was to harness wiki technology, to take care of the mechanics of collaboration. A wiki site was established, existing content was added in a structured way, and individuals with an interest in or knowledge of the topic were invited to contribute and comment. The technology worked fine, but the limited enthusiasm of the players involved dissipated quickly. The reasons why this happened could be because of poor or limited internet connectivity, lack of time, the feeling that despite being part of a group, one was working on one's own, lack of confidence with the technology, or simply laziness. After about six months this attempt was abandoned.

#### Activity 1 – the writeshop on flood recovery fact sheets

Nevertheless, discussions with staff in the extension service, in particular, emphasised that there was still a need for a better knowledge sharing process. The opportunity came about in mid-2014 to assemble some fact sheets to guide extension officers and members of the public in how to respond to a recent severe flood. The method chosen to undertake this activity is known as a writeshop.

Much has been written about writeshops (Gonsalves & Armonia 2010; Ballantyne 2014), but essentially it is an intensive process bringing together all the potential actors, from researcher to graphic artist, extension officers and farmer representatives to produce a publication rapidly. In choosing to organise and run a writeshop, the author was fortunate to be given considerable support from Paul Mundy, a development communication specialist in Germany, and Julian Gonsalves, who initiated the writeshop process in the Philippines.

The practice of working together was something the 12 participants were familiar with; what was different was writing together. It was proposed to try and use the collective knowledge of a group of researchers and technical extension people to assemble the information for the fact sheets. Even though the term 'fact sheets' was adopted, with all its connotations of 'print' and 'paper', the focus was on capturing content, irrespective of how it would be packaged.

Having a clear plan for how the content would be managed and presented was essential, but the time available for planning was very short. So even simple things could hold up the process for hours, such as lack of a clear and agreed understanding about the various crop varieties, for despite decades of research on sweet potatoes, much of it written about at one time or another, there existed no single database of any kind of sweet potato varieties and their characteristics. This was and is a serious lack.

Whilst it was a long, drawn-out process to review each draft fact sheet separately, in plenum, i.e. with the whole group, it generally went better where, 1) all the facts had been included, especially crop varieties, and pests and diseases; and 2) where the fact sheet had been prepared by a group of two or three people working together rather than an individual working solo.

The other complication was how and in what way the content could be managed so that it would be available for use in future situations or in other ways; for example, as part of a training package, or as a school lesson plan. That after all is one of the key things: that there is a source of data, information and knowledge that can be tapped into and used in innovative ways, not just as a printed fact sheet, but for example as part of an SMS text messaging service or a script for a video. This issue came to the fore during the second activity the author was involved with: preparation of a cocoa processing manual.

#### Activity 2 – preparation of a cocoa processing manual

The intent of the manual was to address severe problems with cocoa contamination, namely ‘smokiness’, something that can occur during processing and before cocoa is exported. In undertaking this activity, it became clear that the published information was contradictory and, in many respects, lacking in critical detail and this despite decades of research and development.

The only way to address this – and an example of extracting tacit knowledge – was that the author sat down for three days with the cocoa processing expert, a well respected individual with decades of experience in the industry. By going through the collated material, line by line, adding or changing content as needed, the content was much improved based on real experience. What was especially interesting was the opportunity afforded to question everything. What follows is a typical exchange with the cocoa expert:

*Me: Why do you say we need four pieces of pipe for the chimney, when the drawings and narrative only show and ask for three?*

*Expert: Well, with four pieces you get the height needed to lift the smoke away from the ridgeline.*

*Me: So why do you recommend ‘three pieces of pipe’, in the old manual?*

*Expert: Well, we say that, but it’s not right. It should be four. That’s what I always tell the farmers.*

Both the personal experience and knowledge shine through in this example. During such discussions, we also determined the need for illustrative material, to enhance the text, such as photographs, videos and drawings. Whereas there will be a printed cocoa processing manual, it was hoped that all the text and illustrative material, even audio clips, could be extracted for use in training materials, extracts for radio shows, items in the local newspaper, or adapted for use on social media. The search is now on to find a way beyond a print-based resource to manage the content.

#### **Discussion**

So what lessons have been learned? Like the problem outlined at the beginning of this paper, the lessons learned fall into two, interrelated categories: content acquisition and management, and content sharing.

Looking firstly at content acquisition and management, unless the issue of acquiring content is addressed, there will be no content to manage. The writeshop approach showed that with the right group of people and a clear focus, content could be acquired relatively quickly. The benefit of having multiple perspectives in the same room at the same time can be that gaps in knowledge, lack of clarity and stakeholder concerns can all be addressed quickly. However, and this is something that both Paul Mundy and Julian Gonsalves have impressed upon me, and my own experience shows: time must be allowed and effort expended on preparations for the writeshop. This includes ensuring that the writeshop objective is clearly defined, that all existing information resources are made available to the participants in advance, and that there is a clear frame upon which to hang the data and information. This includes ensuring that as much as possible, findings from past research, e.g. performance of specific crop varieties, livestock yields under varying management systems be made available (in databases, tables, etc.). In this context, it is important to view content acquisition both as a practical activity to find and document data, information and knowledge resources as well as an intellectual activity to do with synthesising the resources found, to enable content to be shared. Thus therefore, there must be a robust procedure and infrastructure for documenting and storing information resources, to assist in their retrieval for knowledge sharing purposes.

The manner in which the cocoa expert's tacit knowledge was captured was instructive. It was an intensive, time-consuming process, but one that yielded much hitherto undocumented knowledge. Much depends, of course, on the interplay between the interrogator (for want of a better word) and the person with the knowledge, but it must be possible to train people to undertake this activity. Indeed, the Food and Agriculture Organization of the United Nations and its partners have developed an IMARK – Information Management Resource Kit – on Knowledge Sharing for Development that may be useful in this respect (FAO 2011).

Having acquired content, it must be managed. In other words, there has to be a method to store the 'knowledge nuggets', in a structured way, to facilitate their retrieval, use and reuse. Personally, in the context of Solomon Islands, I have looked at two technologies. Firstly, revisiting wiki technology. Whilst a wiki facilitates collaboration, it is not as effective when it comes to alternative packaging. If the end product is not to be a web page, then content is hard to manipulate. The second technology is a database publishing application, Fact Sheet Fusion, which makes it simple to capture and store content, and to publish the resultant fact sheets on a web site or as a mobile phone app. But it does encourage collaboration in the same way that a wiki does, and it too makes it difficult to publish by alternative means. The search continues for an effective application.

Considering now content sharing, I have already mentioned ideas for sharing content, but note that before content can be shared, it must be acquired and managed, so all of the above is relevant. It seems to me that this is the critical first step that is often omitted in the rush to embrace social media. Which brings me to a second critical point: the focus (of content shared) must be the needs of the target audience ... what do they need to know or would benefit from knowing or being able to do? Everything else – the shape and format in which the content is shared – is secondary. That doesn't mean to say that format and medium are not relevant, they are, but only in the context of the target audience and the message being shared. For example, an SMS messaging service with current crop prices for farmers in the rural areas is not going to be so beneficial where mobile phone coverage for the target audience is patchy. In another context, it might work brilliantly.

Too often, the stakeholder who is ignored or overlooked, or brought in at the last minute to ‘validate’ a particular activity is the farmer, the intended beneficiary. It should go without saying that in a knowledge-sharing context, farmers should be part of the planning and development process from the outset. Not to do so risks failure.

Which brings me to my final point: content management and content sharing are strategic issues, and objectives and activities ought to be managed in a strategic way. In the Ministry of Agriculture, we have been working for a while on a Knowledge Management and Communication Strategy to document our intent and show what is to be achieved and how. And also to show how the work will be evaluated and impact assessed. A documented strategy is a road map for all parties, and the associated strategic work plan clearly identifies tasks and who will carry them out, when and with what resources. A strategic plan also offers the opportunity to identify skills gaps, and show how they are going to be addressed.

The age of running around like headless chickens ought to be over. Our farmers deserve something better.

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