

Agricultural Information Worldwide

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— Agricultural Information Worldwide —

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Instructions for Authors

Agricultural Information Worldwide: An International Journal for Information Specialists in Agriculture, Natural Resources, and the Environment (AIW) is the official journal of the International Association of Agricultural Information Specialists (IAALD). *AIW* provides an international forum for high quality articles on information, knowledge and communication activities related to the applied life sciences, including agriculture, food from production to marketing, natural resources, fish and wildlife, environment, and agricultural extension and education. Priority will be given to practical and applied topics, such as but not limited to best practices. Research articles with practical applications will also be considered for publication.

Articles submitted will go through a blind review process with an independent reviewer and will be returned to the author for corrections and modifications if necessary. Research should be statistically valid and replicable with the results of broad applicability. English, French, and Spanish language articles will be considered for publication. Generally, full articles should not exceed 5000 words, but longer articles will be considered on a case-by-case basis.

All *AIW* articles are published with a specific tabular style and follow bibliographic conventions as listed in the *Chicago Manual of Style* 15th edition. References should be complete and tables should comply with the editorial style represented in *AIW*. Notes and references should be presented at the end of an article, not as footnotes. An English language abstract of 150 words or less is required at the time of submission. Additional abstracts in French and Spanish are welcome. Articles submitted should be accompanied with the institutional affiliation and address of each author as well as a brief biography.

In addition to full articles, *AIW* also publishes short reports and updates on projects, tools, and organizations in its *AgInfo Dispatches* section. Dispatches will be less formal in nature and will be reviewed for acceptance by the Editor. Dispatch submissions do not require abstracts and should not exceed 1500 words.

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From the Editor's Desk

This long overdue issue of *Agricultural Information Worldwide* discusses what we as a profession work toward everyday and that is providing access to information. We begin the issue with a discussion of researchers' perceptions on how to make the results of their research available and the importance of initiatives such as CIARD. We then move to network building to provide access to both traditionally published as well as open access information. We hear about bringing together organizations with a shared objective in the Solomon Islands with the purpose to create an information sharing network in the region. We see something similar but on a larger scale in Latin America with SIDALC, an information alliance that represents the effort of 23 countries and 158 specialized institutions in Latin America and the Caribbean interested in providing information services and knowledge sharing. Finally we see how young farmers in Nigeria utilize agricultural information.

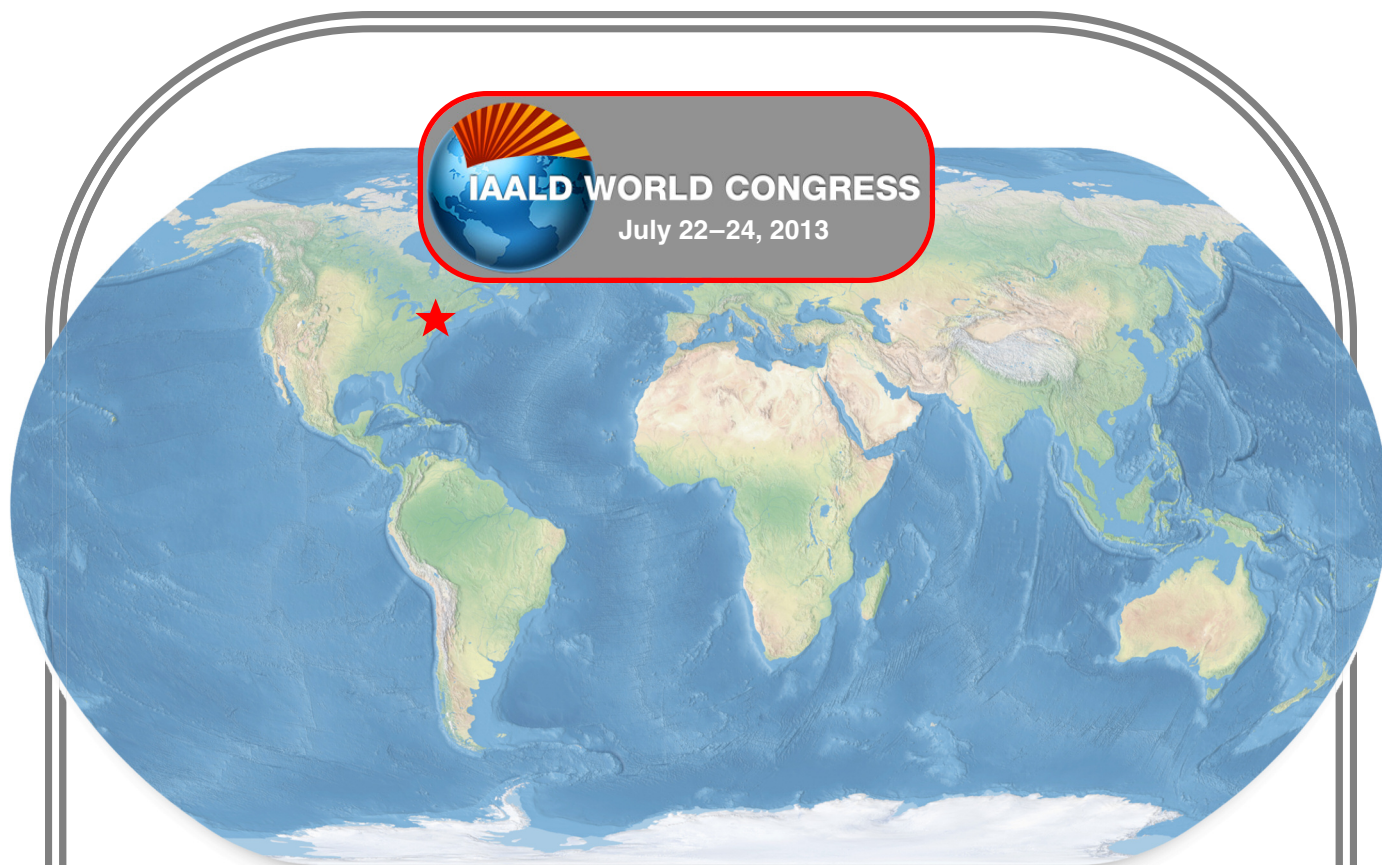
The news section of the issue contains a full description of IAALD's efforts for the past two years to create a new face and to overhaul its web presence. You will see all of what IAALD has to offer you. There is also a brief

account about the IAALD Africa Conference and the 14th World Congress which will be held at Cornell.

I just returned from Africa where I participated in the Third IAALD Africa Conference and there are some exciting things happening in Africa with access to information. I was surprised at the advancements that they have made in this area since the first IAALD Africa Conference in 2006 through mobile technology. It is an exciting time and we will be capturing some of these initiatives in future issues of *Agricultural Information Worldwide*.

IAALD continues to be the place where people come together to exchange ideas and to renew old acquaintances and to make new ones. I had the pleasure of seeing many old friends in Johannesburg but I also came away with many new ones as well. Our next opportunity will be in the summer of 2013 when IAALD hosts its 14th World Congress in beautiful upstate New York at Cornell University in the United States. The dates are July 22–24 and I look forward to seeing many of our readers there.

Toni Greider
Guest Editor



XIVth IAALD World Congress

***The XIVth IAALD World Congress
will be held at Cornell University
July 22-24, 2013 in beautiful Ithaca, New York USA.***

Plans are progressing for the conference and we expect registration information to be available by the end of the summer.

You can follow the development of the conference
at the website (<http://iaald.library.cornell.edu>)

and you can email your questions to iaald@cornell.edu.

You can see an interview with Jaron Porciello, conference chair on our website:
<http://www.iaald.org/news/preparing-xiv-iaald-world-congress-2013-cornell-university>

We hope to see you at Cornell.

Researcher Attitudes and Behaviour Towards the 'Openness' of Research Outputs in Agriculture and Related Fields

Philip Edge, Franz Martin, Stephen Rudgard (FAO), and Nadia Manning Thomas (CGIAR)

ABSTRACT: An online worldwide survey of researchers in agriculture and related fields was carried out in March 2011 by the CGIAR, FAO and GFAR on behalf of the CIARD (Coherence in Information for Agricultural Research for Development) initiative. The aim of the survey was to gain greater understanding of researcher behaviours and attitudes in relation to communicating research outputs and making such outputs open and accessible. There were almost 1500 responses to the survey, with 50% of respondents identifying that they worked in Latin America and 33% in Africa. The survey analysis shows that, although researchers are driven in their work by many different and interacting motivations, institutional/organizational factors are very important and have much influence over individuals' behaviour. Often, making a research output freely and openly available can be in the hands of the individual, and some will act in this way. However, for many others there are perceived barriers to this, such as the lack of required resources and of institutional policies to drive these activities. Further, current behaviours in choosing routes to communicate research results are still strongly biased toward the traditional routes of publishing in journals and books and appearing at conferences, though the availability and increasing use of digital formats is starting to broaden the spread of communication pathways used. The paper ends with reference to the relevance and importance to the CIARD initiative of the results of the survey.

RESUME: Une enquête en ligne mondiale sur des chercheurs en agriculture et domaines relatifs a été exécutée au mois de mars 2011 par le CGIAR, la FAO et le GFAR pour l'initiative de la CIARD (la Cohérence de l'information sur la recherche agricole pour le développement). L'objectif de l'enquête était de mieux comprendre le comportement des chercheurs et leurs attitudes pour communiquer les résultats de la recherche et les rendre ouverts et accessibles. Presque 1500 avaient répondu à l'enquête, avec 50% de répondants ayant travaillé en Amérique latine et 33% en Afrique. L'analyse de l'enquête montre que, même si les chercheurs sont stimulés dans leur travail par beaucoup de motivations différentes et réciproques, les facteurs institutionnels/organisationnels sont très importants et ont beaucoup d'influence sur le comportement des individus. Souvent, la décision de rendre un résultat de recherche disponible, d'une manière libre

et ouverte peut être entre les mains de l'individu, et quelques-uns agiront de cette façon. Toutefois, beaucoup d'autres perçoivent beaucoup de barrières à ceci, comme le manque de ressources exigées et de politiques institutionnelles pour conduire ces activités. En plus, les comportements actuels pour choisir de communiquer les résultats de recherche sont toujours fortement biaisés vers les voies traditionnelles qui sont: publier dans des journaux et livres, et participer aux conférences, mais la disponibilité et l'usage croissant de formats numériques commencent à élargir la palette de voies de communication utilisées. L'article finit avec une référence à la pertinence et l'importance des résultats de l'enquête pour l'initiative de la CIARD.

RESUMEN: En marzo del 2011, el CGIAR, la FAO y el GFAR llevaron a cabo una encuesta mundial en línea de investigadores en las ciencias agrícolas y campos relacionados, en nombre de la iniciativa CIARD (Coherencia en la Información para la Investigación Agraria para el Desarrollo). La encuesta buscaba entender mejor los comportamientos y las actitudes de los investigadores en relación con la comunicación de los resultados de investigación y hacer que dichos resultados fueran abiertos y accesibles. Hubo casi 1500 respuestas a la encuesta. De los entrevistados, el 50% indicó que trabajaba en América Latina y el 33% en África. El análisis de las encuestas demuestra que, aunque en su trabajo los investigadores son motivados por muchos factores diferentes e interactivos, los factores institucionales e organizacionales son muy importantes e influyen mucha en el comportamiento de los individuos. A menudo, puede estar en las manos de un individuo la decisión de colocar un producto de investigación a libre disposición del público en general, y algunos investigadores lo harían. Sin embargo, muchos otros perciben barreras a este tipo de acción, como la falta de los recursos necesarios y de políticas institucionales para promover estas actividades. Además, los comportamientos actuales al escoger las formas de comunicar los resultados de investigación aún están altamente sesgados hacia formas tradicionales como publicar en revistas y libros y hacer presentaciones en conferencias, aunque la disponibilidad de formatos digitales y su creciente uso están empezando a ampliar la difusión de las formas de comunicación utilizadas. El trabajo termina haciendo referencia a la pertinencia e importancia de los resultados de la encuesta para la iniciativa

Introduction and Objectives

The Coherence in Information for Agricultural Research for Development (CIARD) initiative (<http://www.ciard.net/>) is working to make agricultural research information publicly available and accessible to all. This means working with organisations and individuals that hold information or that create new knowledge—to guide them to disseminate it more effectively and make

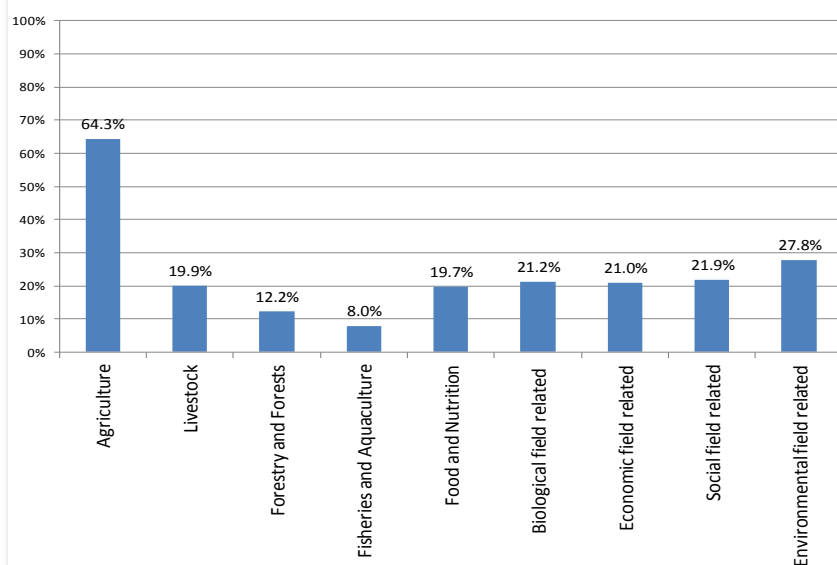
it easier to access. This means enhancing the 'openness' of knowledge for all.

The scope of CIARD's focus on research outputs is broader than that of the Open Access movement, which so far has tended to focus on the peer reviewed journal literature. It is worth noting however that large surveys have been carried out in the context of the Open Access movement which give valuable insights into researcher

attitudes: for example the survey of about 54,000 researchers worldwide as part of the SOAP (Study of Open Access Publishing) EU-funded project in 2010.¹

CIARD aims to stimulate the openness of all types of research output, including theses, images, data, grey material, and so on. Further, CIARD aims to stimulate innovative pathways for the sharing of outputs. In March 2011 the CGIAR, FAO, and GFAR (all Founding Partners of CIARD) prepared a global survey on ‘Communicating Research Outputs’ in order to understand better the motivations, attitudes and constraints of researchers in agriculture and related fields.

FIGURE 1 – Field(s) of work of respondents



Methods

For the CIARD survey a questionnaire was made available online in three languages (English, French and Spanish)², using SurveyMonkey, and researchers alerted to its presence with the kind support of national and international partners/networks available to and familiar to the CGIAR, FAO and GFAR. The target audience covered the fields of agriculture, livestock, forestry, fisheries, food and nutrition and related biological, environmental, economic and social fields. By mid-September 2011, 1447 responses had been received, distributed across the three languages as follows: English – 538, French – 154, Spanish – 755.

The results are split into two sections. Part 1 reports on questions which relate to geographical location, fields of research, organization type, sources of funding, and other ‘organizational’ matters. Part 2 reports on questions which relate to researcher behaviour, attitudes and motivations. The results for all three languages have been aggregated into one data set which is the main focus for this report. Where relevant, the analysis of the separate language data sets is referred to.

The analysis of questions considered in Part 2 used a technique called ‘rating average’ to measure the strength of the respondent group’s scoring of a particular factor. In these questions, respondents rated a number of factors as being of ‘High’, ‘Medium’, ‘Low’ (or ‘Not at all’) importance in the context of the question. The rating average for each factor was derived from a relative weighting, whereby High, Medium, etc are allocated a score which is multiplied by the number of scores for that weighting, and expressed in relation to the total number of scores for that factor. This is the rating average. In some cases the differences between rating averages within one question were not large enough to derive significant conclusions. Where they are large they are displayed. In most questions the

bar chart presented shows the relationships between the high, medium and low responses to the question.

Results: Part 1 – ‘Organizational’ Information

Respondents’ Fields of Work – Most respondents identified agriculture as their field of activity (64.3%), though there was a broad spread across the other categories (Figure 1). Within the different language groups some significant variations are apparent. The English language group responded similarly to the overall data, with 64.8% scoring agriculture. The Spanish language group showed less emphasis on agriculture (52.4%) but otherwise the responses fitted well with the aggregated data. The French language group showed a much stronger emphasis on agriculture (77.9%) but also related biological fields and related environmental fields (both at 35.1%) scored more highly than in the aggregated data. It is possible that these variations are related to the organization of research and teaching in the countries/regions of the respondents.

Region where respondents were active – Respondents could select more than one region. The region in which respondents were most active was Latin America (53.5%). Africa (32.6%) and Asia (23.7) were well represented, and Europe and Northern America³ were cited by few respondents (Figure 2).

The data of the separate language groups indicate that the English language respondents were active in all regions, with strongest representations in East Africa (19.4%), South Asia (18.6%) and South East Asia (15.0%). Spanish language respondents were focused mainly on Latin America (90.8%) and the Caribbean (8.9%). French language respondents were widely spread with the strongest presence in West Africa (47.1%), Central

Africa (22.9%) and Latin America (19.3%).

Respondents' gender – The aggregated data shows a strong predominance of males (73.9%) vs. females (26.1%), and these proportions were consistent across all language groups.

Respondents' organizational affiliations – National research institutions (NRIs) (37.5%) and universities/educational establishments (32.4%) were the main locations for respondents (Figure 3). Extension/advisory agencies represented a very small proportion (4.5%). However, there were some significant differences between the language groups. The scope of English language respondents is very similar to that seen in the aggregated data. The Spanish language data indicated a stronger representation of universities/educational establishments (42.9%), weaker representation of NRIs (29.2%), with extension/advisory agencies as a slightly stronger group at (7.4%). The French language data showed a strong bias toward NRIs (59.4%) with international/regional (non-CGIAR) research centres next at 17.2%. Universities were much less frequent (10.9%) and extension/advisory agencies were not represented at all in the French results.

Funding sources for activities – A significant proportion of respondents considered that funding from private or public sources is not very significant in developing/driving their research — 72.4% indicated that private/commercial sources are of low extent or not applicable, while the equivalent for public/not for profit funds was 45.7% (Figure 4). This result was perhaps surprising and it may indicate some lack of understanding concerning the various ways in which their research is funded. However, from the opposite perspective, the results showed that public/non-profit funds (54.3% for high and medium extent) are more important in driving research activities than the equivalent seen for private/commercial sources (27.6%).

Analysis of the separate language groups indicates that for the English and French groups the picture is

FIGURE 2 – Region(s) where most respondents' work is carried out

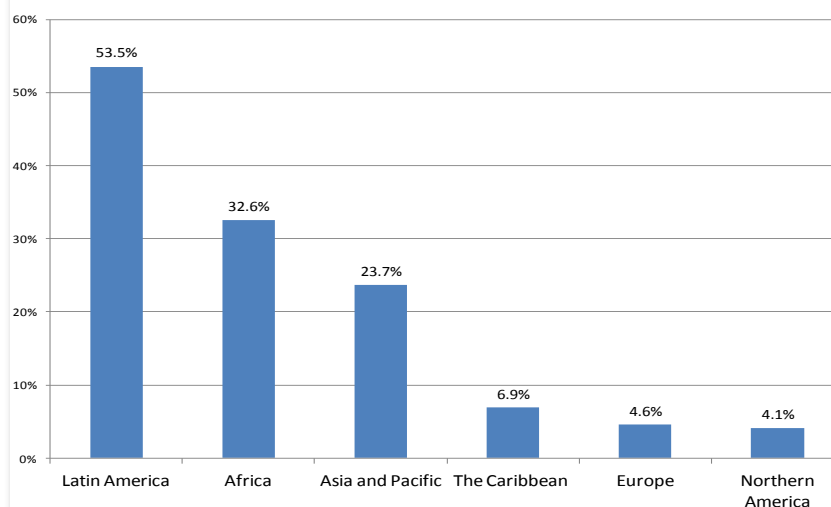


FIGURE 3 – Frequencies of organization type

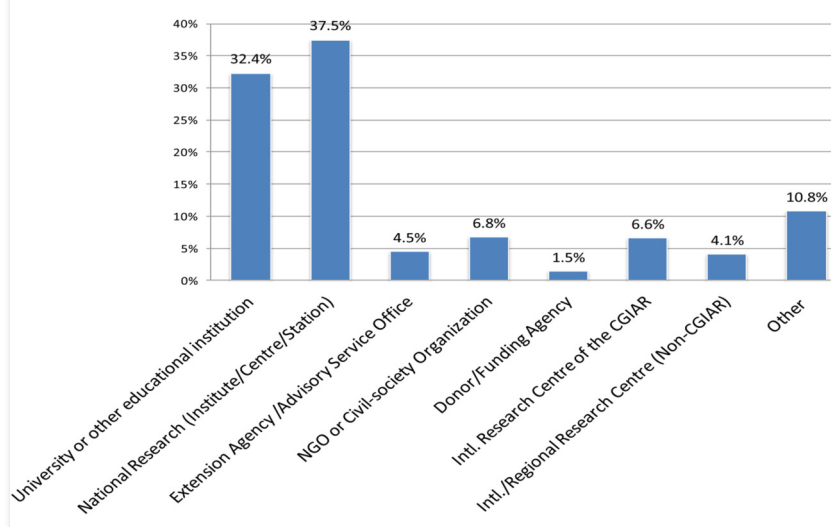


FIGURE 4 – Relative importance of funding sourcing for respondents' research



similar to that shown above, though the rating average scores tend to give an even stronger emphasis to public funding. However the Spanish group shows less differentiation between the public and commercial scorings. This may indicate an overall greater significance for private funding in the Spanish group than in the other two.

Primary area/s of respondents' activity/ies – A large proportion of respondents indicated their involvement in research (79.7%), with education and training also popular (54.8%). Extension and advisory activities were also significant here at 31.6% (Figure 5).

The separate language groups showed some variations between them. The English group show a strong emphasis on research (82.3%) but also with levels of scoring in several other categories that are higher than the overall group. This result implies perhaps that these researchers are working across categories in the implementation of their work (e.g. research + extension), or see their role in this way. The Spanish group shows a pattern very similar to the aggregate, but with greater emphasis on education (63.7%) and extension (38.8%). The French group is most focused on research (92.5%) with a lesser emphasis on the other categories.

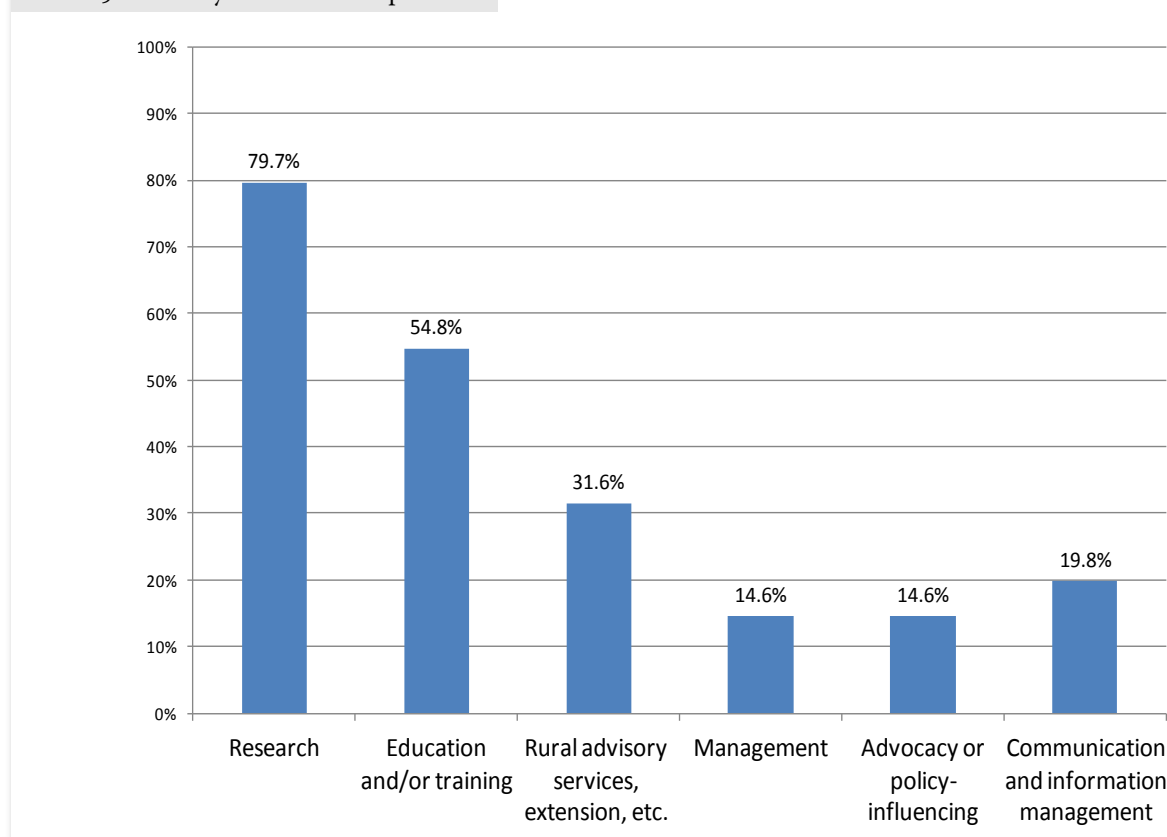
Results: Part 2 – Researcher behaviour, attitudes and motivations

Importance of different target audiences/groups – Almost all the target categories had a predominantly

'high' rating, with 'medium' also heavily scored (Figure 6). Within this picture there are one or two issues to note. The target group 'NGOs and civil society groups' has a lower 'high' rating than the others, at only 40%, but its 'medium' rating is 39% which is higher than the others. The highest 'high' rating is national researchers (71%), followed by farmers and producers (63%) and academic groups and international researchers (both at 58%). Noteworthy results from the separate language groups are that 'farmers and producers' are rated higher than all others in the 'high' category by the Spanish language group. Also, in the French group 'international researchers' and 'national researchers' are scored far higher in the 'high' category than by the other target groups.

Factors that encourage effective communication of research outputs – Respondents identified the most important factors which encouraged them to communicate their research outputs effectively were related to 'opportunities for career enhancement', 'institutional demands to report or communicate outputs', and institutional capabilities ('access to adequate IT infrastructure'), while they gave the lowest priority to direct monetary reward in relation to royalties and opportunities for personal development. The chart shows that most of the scoring was in 'high' and 'medium' categories, and low scores in 'not important', implying that these issues are important in the current thinking of the respondents (Figure 7). Rating averages did not show large variations between

FIGURE 5 – Primary activities of respondents



factors, except for 'Payment of a portion of royalties....' which had significantly lower 'High' and 'Medium' scores than other factors. The overall picture presented by the

aggregated data is that issues relating to institutional capabilities (particularly in IT), institutional demands, and opportunities for career development, take precedence

FIGURE 6 – Relative importance of target groups for communicating research outputs

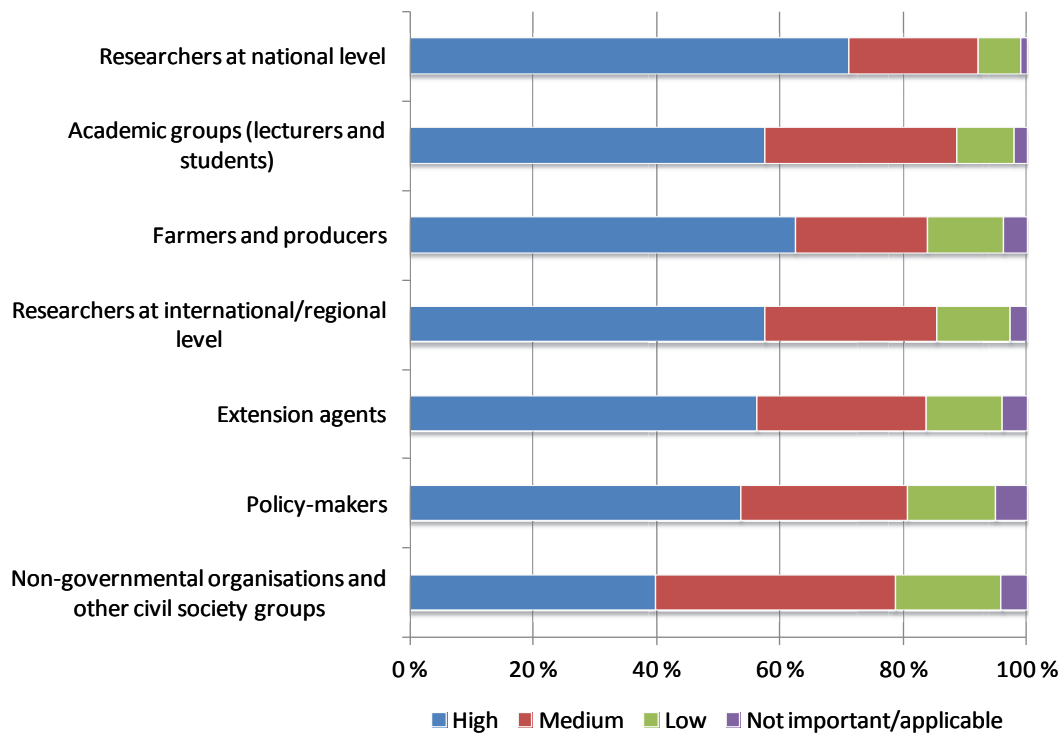
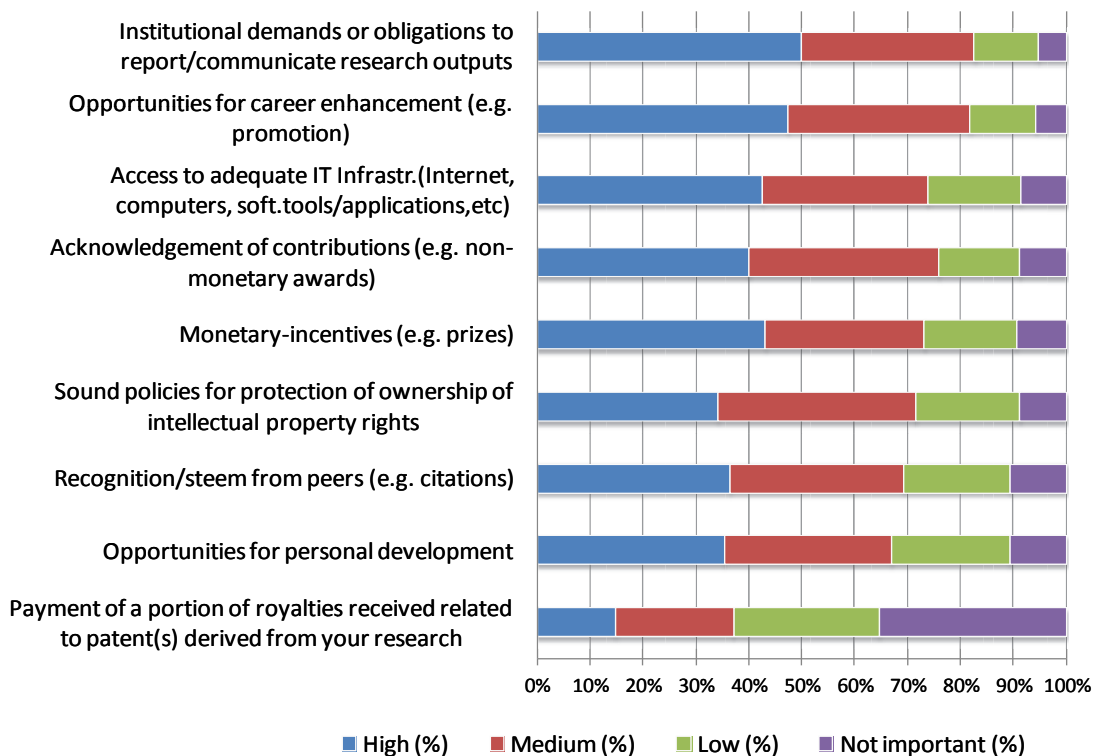


FIGURE 7 – Relative importance of factors encouraging the effective communication of research outputs



over direct monetary/reward issues and the protection of intellectual property.

Benefits of communication of research outputs – Respondents identified the most important benefits gained by communicating research outputs as being ‘contributing to science’, ‘reaching the target audience’ and ‘contributing to alleviating hunger and poverty’ (Figure 8).

The lowest importance was given to ‘increased personal recognition within organization’, ‘promotion/salary increase’, and ‘opportunities for professional/personal development’. The chart below shows the emphasis on ‘high’ and ‘medium’ scoring, with very low numbers for ‘not important’. These responses indicate that the driving forces for the respondents tend to be more related to

FIGURE 8 – Relative importance of the benefits gained by communicating research outputs

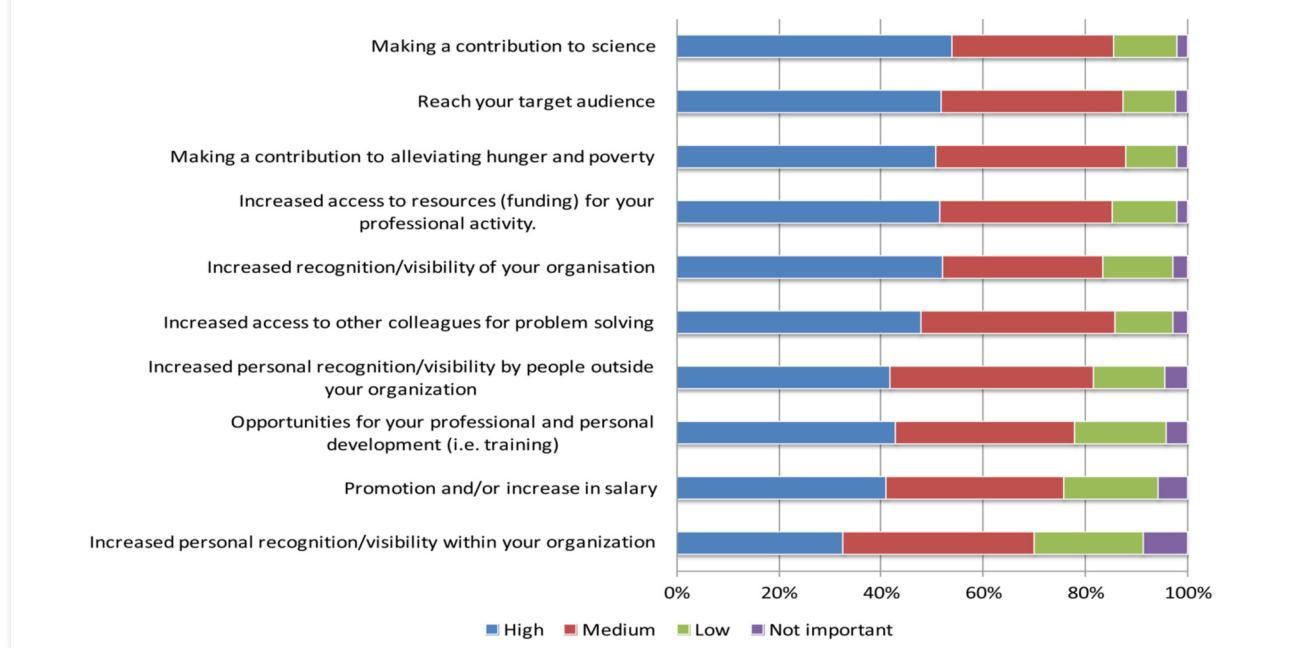
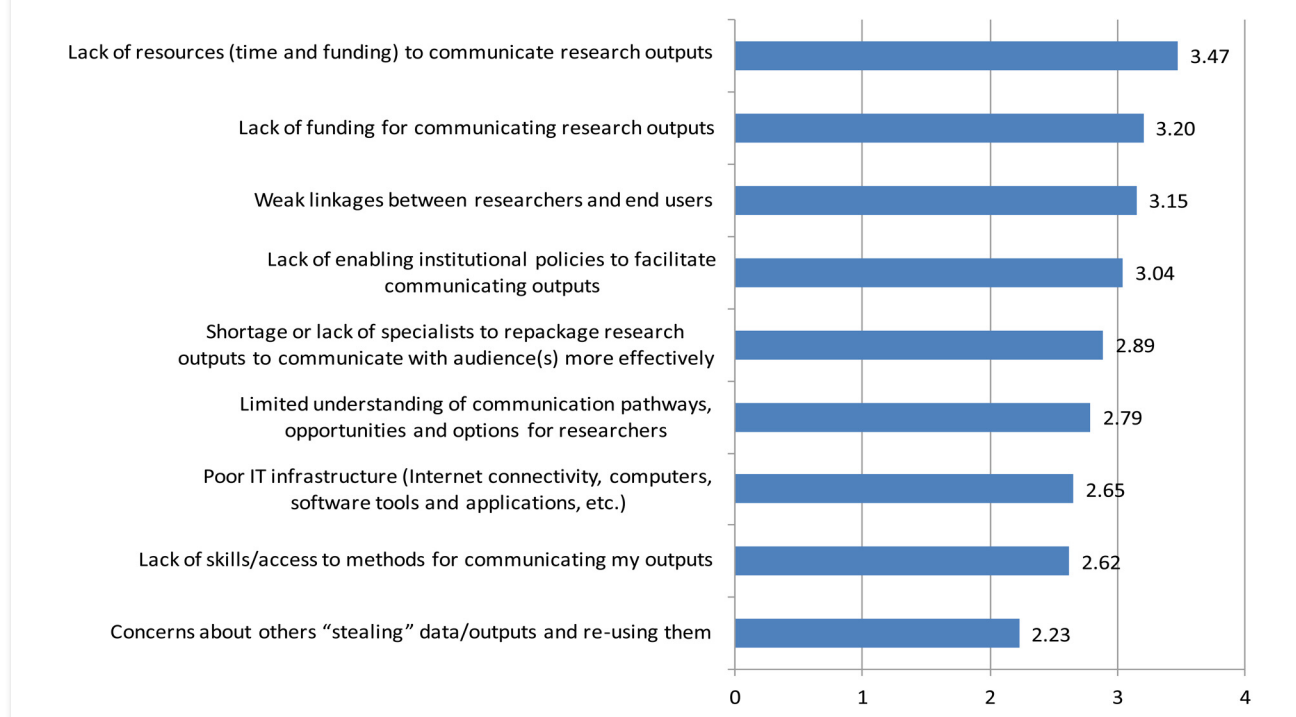


FIGURE 9 – Relative importance of barriers faced by researchers/scientists communicating research outputs (Rating average).



altruistic issues of furthering science and making an impact rather than toward personal gain, whether in financial or personal status.

Barriers to communication of research outputs – The most significant barriers that prevent researchers/scientists from communicating research outputs were identified by respondents as ‘lack of resources/time’, ‘lack of funding’, and ‘weak linkages between researcher and end user’. The least important barriers were found to be ‘concerns about stealing and re-use of outputs etc’, ‘lack of skills/access’, and ‘poor IT infrastructure’. There was no significant difference in responses between the language groups (Figures 9 and 10).

This suggests that the real situation for researchers is often a complex one without simple solutions. The implication also is that, although significant, these negative factors do not wholly undermine the efforts of researchers

to communicate their outputs. Communication of research to target audiences is perceived as being of high importance and thus it appears that researchers will tend to focus on this no matter how high the barriers are.

Importance of support mechanisms for effective communication – All types of training support scored predominantly high and medium, showing a clear demand. ‘Training for web-based social media’ and ‘training for participatory research methods’ come highest with ‘writing and authoring skills’ lowest. However, some differences are seen in the separate language groups—the most prominent one being that the French-speaking group rate training for writing and authoring skills the highest (Figure 11).

Principal channels for communication of research outputs – The responses showed a strong emphasis on communication using ‘scholarly publishing’ (75.5%) and

FIGURE 10 – Relative importance of barriers preventing researchers/scientists communicating research outputs (Relative weighting of scores)

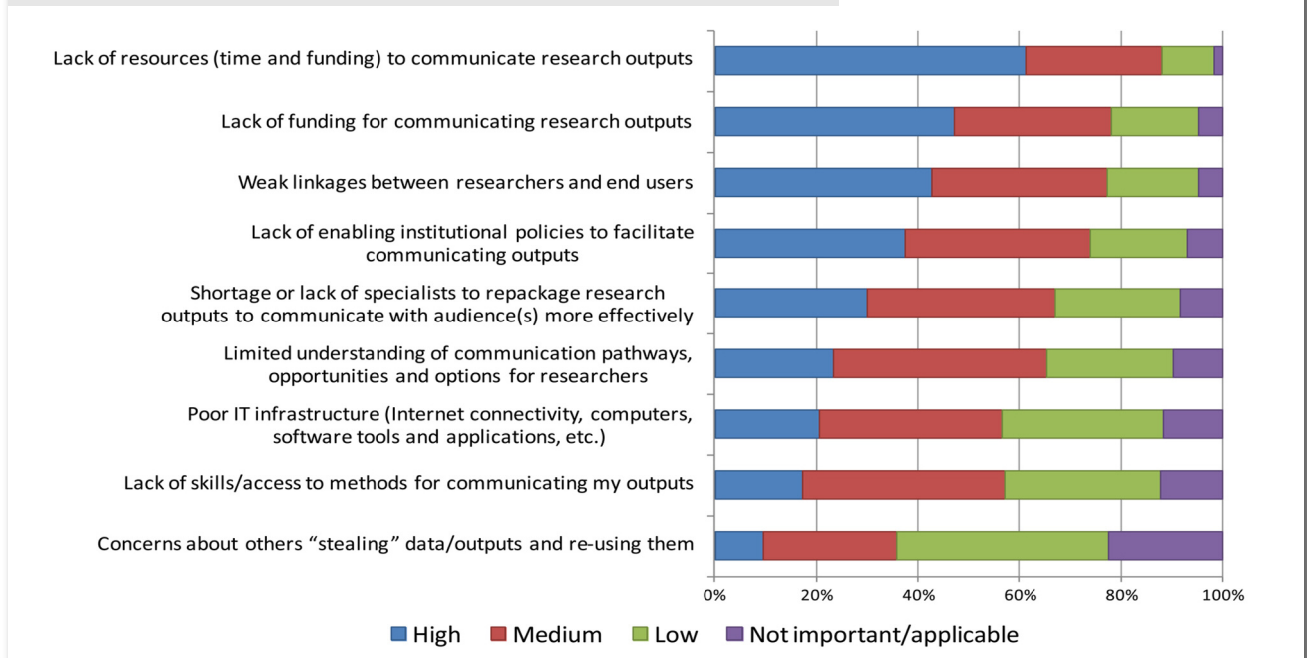
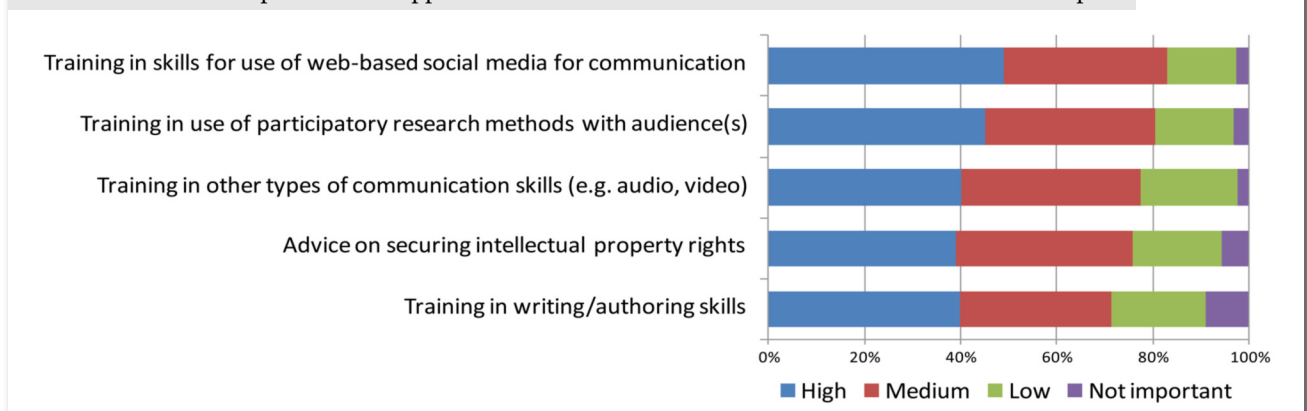


FIGURE 11 – Relative importance of support mechanisms for effective communication of research outputs



at ‘conferences and seminars’ (74.0%), with ‘training materials’ also high (46.7%). Newer communication techniques have a much weaker presence, such as ‘web-based social media’ (18.3%), ‘e-newsletters’ (16.8%) and ‘repository/websites’ (28.9%). This indicates that the new methods of communicating research, which the Internet is enabling, still take a lower priority with practising researchers (Figure 12).

Interestingly, there were some significant differences between the results of the different language groups, which may point to some variation in national or regional approaches. Although the profile for the English group was somewhat similar to the overall analysis, both use of ‘web-based social media’ (25.5%) and of ‘repository/websites’ (34.3%) were higher than in the overall group. Also, the French-speaking group was very focused on traditional communication through ‘scholarly publishing’ (93.1%) and ‘conferences and seminars’ (86.3%) while the newer approaches were rated much lower.

Types of research communication outputs produced – In total there were 1031 responses to this question. The analysis divides into three areas.

1. *Print/analogue vs. Digital outputs* – As shown in the Figure 13, print/analogue formats were identified more often by respondents as being used for the more traditional types of research output – journal articles, books, theses, informal articles etc. A variety of digital formats also were identified. So for the traditional research com-

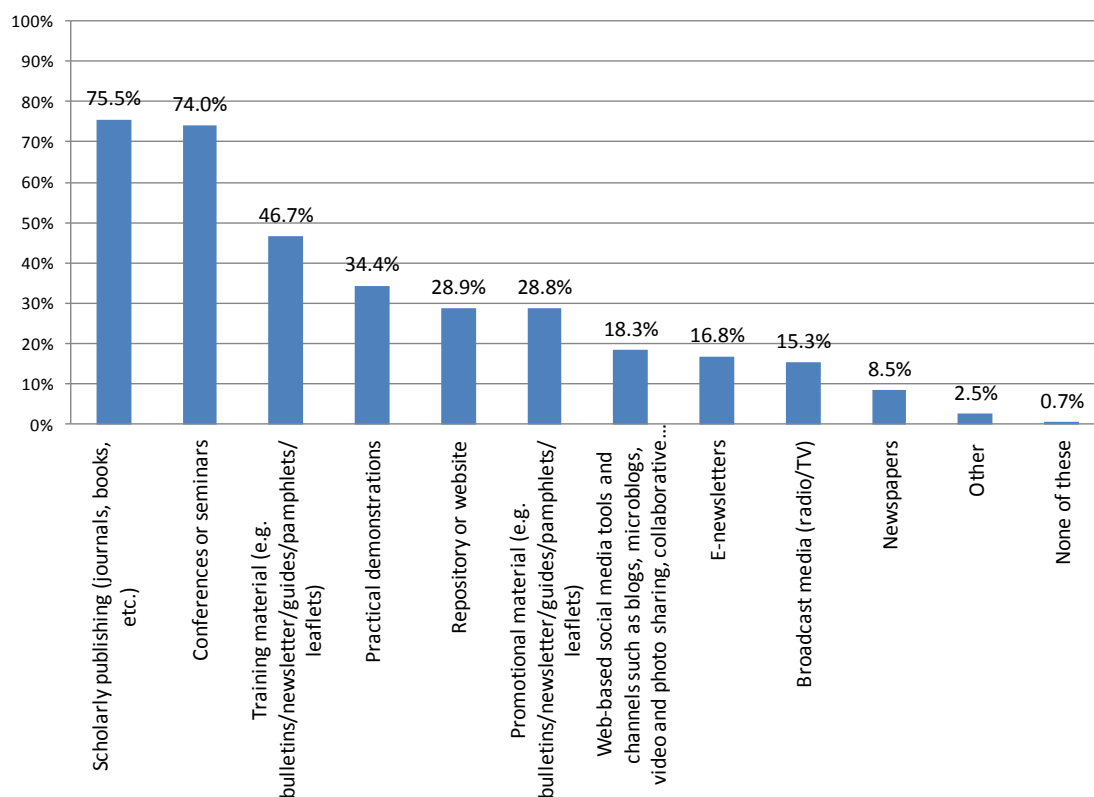
munication routes the traditional print formats still predominate. However, it was noticeable that even where print formats were still dominant there was also a significant scoring for digital outputs (20% to 35% and more), the implication being that digital formats are now penetrating substantially into all types of activity.

2. *Free vs. Priced Access to Research Information* – Respondents showed a clear preference for ‘Free’ access to the outputs of their research, except for patents. However, the ‘Priced’ option was favoured more in the more popular formats of output such as book and journal publication, and also software (Figure 14).

3. *Open vs. restricted access* – As in 2. above, respondents indicated their preference for open as opposed to restricted access, even for the traditional publication routes of books and journals (Figure 15).

Analysis of the separate language groups showed that there were no significant differences between them for any of the above three parameters. It may be that for the responses to both 2. and 3. above the respondents were consciously communicating their research outputs in products and services and systems that make content freely available, or they may have reflected their confusion about who pays for what to be made available. Often a price is being paid somewhere in the communication chain which may not be clear to the researcher who has authored the content. There are also complexities concerning what we mean by cost/no cost and open/restricted.

FIGURE 12 – Relative importance of channels for communication of research outputs



However, it is clear that large bodies of research outputs are being made openly accessible at no cost by these respondents.

Discussion and Conclusions

The researcher base that was surveyed was spread

FIGURE 13 – Relative importance of types of research outputs (printed vs. digital)

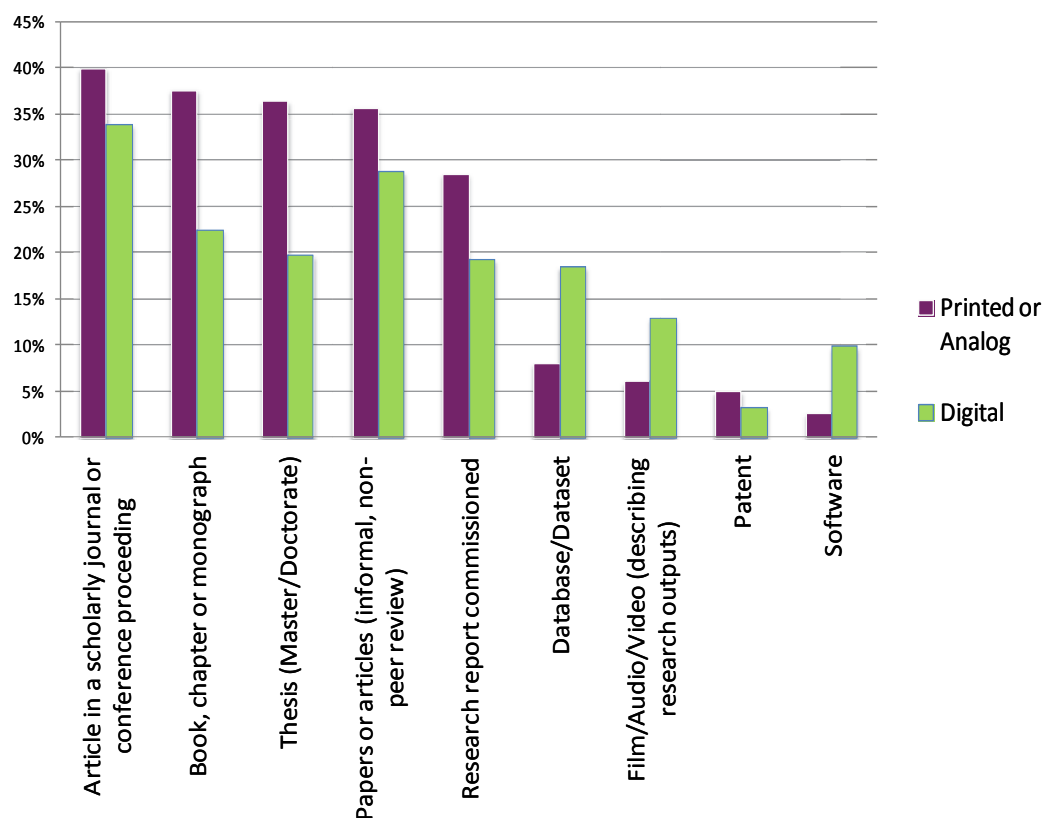


FIGURE 14 – Relative importance of cost of research outputs (free vs. priced)

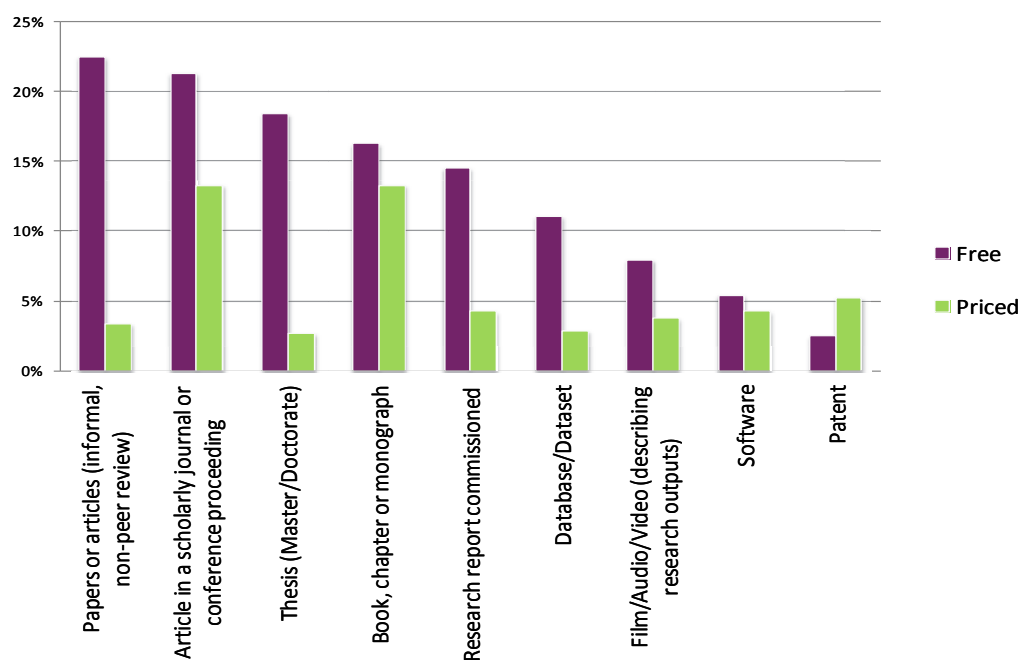
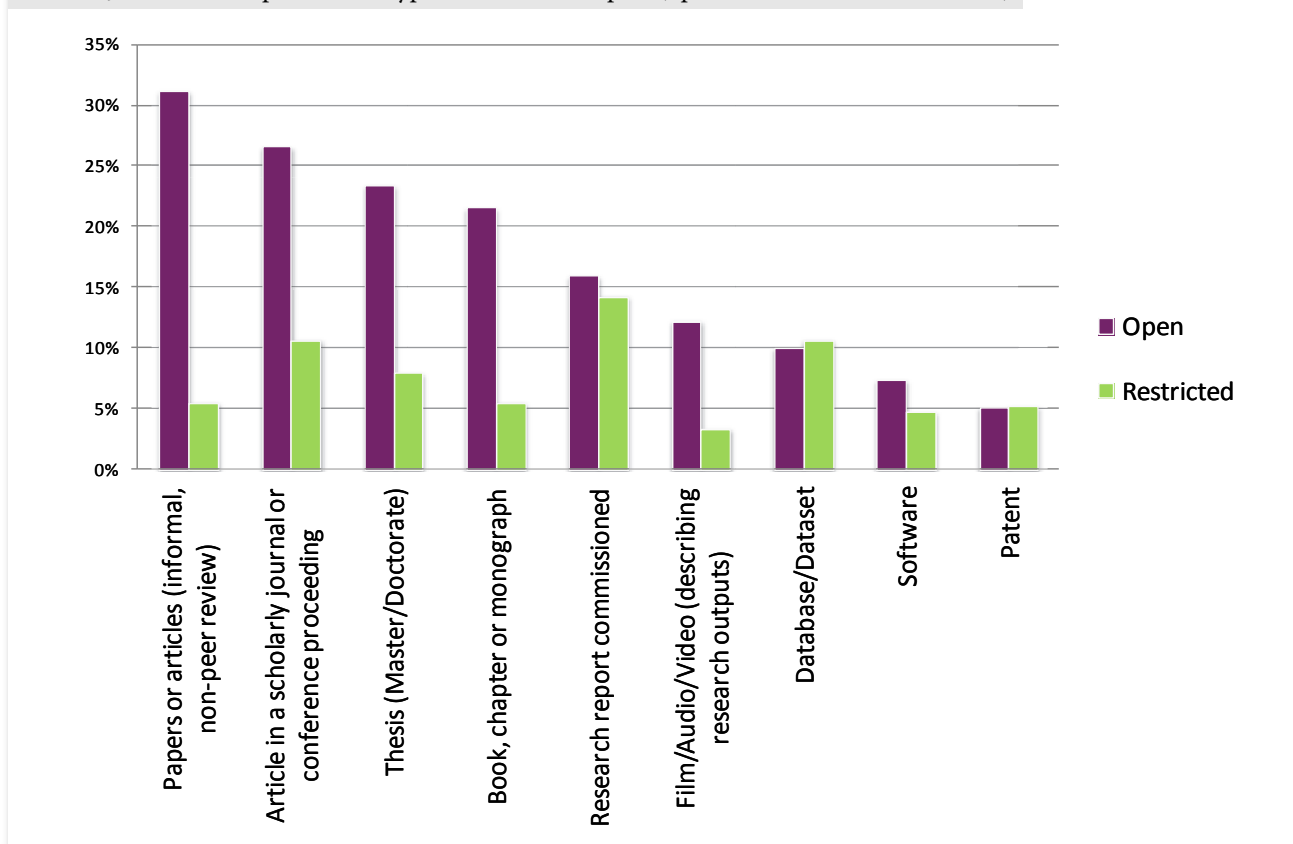


FIGURE 15 – Relative importance of types of research outputs (open access vs. restricted access)



globally, though with a significant concentration in Latin America. It was predominantly male, was working in agriculture and closely related fields, and the majority were based either in NRIs or university/educational institutions. A significant proportion of the group was also working with extension and advisory services.

A significant body of respondents considered that funding from private or public sources is not very significant in developing/driving their research. Generally, public/non-profit funding is more significant for the research activities of the researchers and institutions than private/commercial funding.

Effective communication of research outputs was rated highly, with the most important targets being peers at NRIs, farmers and producers, and academic groups such as students and lecturers. The drivers for research communication are complex, though the most highly rated are institutional demands and commitments, and opportunities for career enhancement.

The most important benefits of communication gained by scientists tended to be altruistic, e.g. contributing to science and reaching important target audiences, rather than focused on personal gain. Many factors were perceived to be acting as barriers to communication, in particular the lack of resource/support, the lack of funding, and poor access to farmer groups as recipients. The researchers rated highly the need for support and training to increase effectiveness

in communication, with the most highly scored being training in Web2.0 activities and in participatory research methods.

The respondents saw journals and conferences as the preeminent ways to communicate their research outputs, with activities in the Web 2.0 genre rating much lower. As authors, they are still using predominantly print-based formats for communication through traditional routes, such as books and journals, but digital formats have now penetrated into all types of activity to varying degrees. The results suggest that the respondents are communicating most of their outputs through openly accessible, no-cost routes.

The summary is based on the aggregated data from what is in overall terms only a modest sample size, taken predominantly from the Southern hemisphere. One principal axis of possible variation between the language of response showed no significant variation on almost all aspects, so it can be assumed that the weight of Spanish language responses is not biasing the overall results significantly. A more detailed analysis of responses using different parameters to distinguish within the sample, such as area of employment, would require a larger sample.

The Way Forward

The survey results bring many valuable insights into current perceptions of researchers into the communication

of their outputs particularly in Latin America, Africa and Asia. These findings can be considered by senior managers in agricultural research systems as they review their organizational policies.

The analysis above shows that, although researchers are driven in their work by many different and interacting motivations, institutional/organizational factors are very important and have much influence over individuals' behaviour. Often, making a research output freely and openly available can be in the hands of the individual, and some will act in this way. However, for many others there are perceived barriers to this, such as the lack of required resources and of institutional policies to drive these activities. Institutional/organizational behaviour can be changed by the development of relevant strategic and policy frameworks. In many cases individual behaviour will not be changed unless there are policy requirements which influence the individual.

The CIARD initiative can learn from the survey and adjust its approach. CIARD aims to influence and provide support at both the level of the organization and of the individual. The initiative is a collective commitment to promote and sustain the openness of agricultural knowledge for all. CIARD aims to provide guidance and support to, and through this to change the behaviour of, both individuals and institutions. Through institutional change will come also enhanced individual change and, in the case of the CIARD initiative, increased and perva-

sive openness of research outputs. There is already much 'best practice' in institutions/organizations around the world, but a great deal more needs to be catalysed before the overall aims of CIARD are achieved.

Notes

1. <http://project-soap.eu/>
2. Questionnaire available online. English: <http://svy.mk/raLoHl>. French: <http://svy.mk/nlqubr>. Spanish: <http://svy.mk/nBlTwM>.
3. United States of America, Canada, Greenland, Bermuda, Saint Pierre and Miquelon.

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Beyond Agricultural Information Access— Shared Learning Experiences in Solomon Islands

Peter Walton

ABSTRACT: A national agricultural information network has been established in the Solomon Islands which brings together a diverse range of organisations with a shared objective, that of improving access to and use of agricultural information. At the core of the information network is an information system comprising a range of bibliographic and other information databases. This builds on the success of a similar venture in neighboring Papua New Guinea. However, the Solomons' initiative seeks both to disseminate information more widely and effectively, as well as incorporating a social knowledge networking dimension which renders it unique in the Pacific region. The network is underpinned by an appreciation that there are many and varied ways in which information can be transformed into knowledge. This includes innovative information and communication technologies such as community radio, distance learning centres and farmer information networks. At the heart of social knowledge networking is not just sharing of experiences and knowledge, but learning.

RESUMÉ: Salomon qui réunit une diverse gamme d'organisations partageant le même objectif, celui d'améliorer l'accès à l'information agricole et son usage. Au noyau du réseau d'informations se trouve un système d'information qui comprend une gamme de bases de données d'informations bibliographiques et autres. Ce système s'inspire du succès d'une entreprise similaire dans la Papouasie-Nouvelle-Guinée avoisinante. Toutefois, l'initiative de Salomon cherche aussi bien à disséminer des informations plus largement et efficacement, qu'à incorporer une dimension de réseau de connaissance sociale qui la rend unique dans

la région du Pacifique. Le réseau est étayé par une reconnaissance qu'il y a beaucoup de façons variées possibles de transformer les informations en connaissance. Ceci inclut des informations novatrices et des technologies de communication comme la radio de communauté, les centres de formation à distance et les réseaux d'informations d'agriculteurs. Au cœur de la gestion d'un réseau social de connaissance, il n'y a pas seulement le partage d'expériences et des connaissances, mais l'érudition.

RESUMEN: En las Islas Salomón se ha establecido una red nacional de información agrícola que reúne a una serie de organizaciones diferentes con un objetivo compartido: mejorar el acceso a la información agrícola y el uso de la misma. En el centro de la red de información se encuentra un sistema de información que comprende una variedad de bases de datos bibliográfica e informática. La red aprovecha el éxito de una empresa similar en el país vecino de Papúa Nueva Guinea. Sin embargo, la iniciativa de las Islas Salomón busca no solo difundir información de una manera más amplia y eficaz, sino también incorporar una dimensión de formación de redes de conocimiento social, lo que la hace única en la región del Pacífico. La red se apoya en una valorización de que son muchas y variadas las maneras en que se puede transformar la información en conocimiento. Esto incluye tecnologías innovadoras de información y comunicación como la radio comunitaria, los centros de educación a distancia y las redes de información de agricultores. En el centro de la formación de redes de conocimiento social no solo está el intercambio de experiencias y conocimientos, sino también el aprendizaje.

Solomon Islands is an archipelago comprising nine main islands located in the western Pacific, part of the region known as Melanesia. It is the second largest country in the Pacific in terms of land area (27,986 m², just slightly smaller than Belgium), with a population estimated in 2009 to be 595,613. It has a population growth rate of 2.39% (2009 est.), one of the highest in the world. Of the total land area, 97.3% is estimated to be forested; just 2.7% is farmed commercially or subsistence (2005). In common with its Melanesian neighbours, Papua New Guinea and Vanuatu, there is a high-level of subsistence farming (87%), low levels of economic diversity such as manufacturing, and with similar constraints to economic activity such as a limited road network, poor inter-island shipping, limited power generation and supply, and a poor though improving telecommunication network. All of these factors constrain economic development in the country, such that GDP was estimated in 2009 to be USD 668 m, with a GDP growth rate estimated to be zero. Imports (food, plant and equipment, manufactured

goods, fuels, chemicals) outstrip exports (timber, fish, copra, palm oil, cocoa) by a small margin (CIA, 2010).

Compounding similar problems faced by other Melanesian countries, ethnic tensions arose in the Solomons in the late 1990s to the extent that a civil war broke out in all but name. From 1999 to 2003, civil unrest had a crippling effect on security and economic activity, and accelerated a decline in social conditions. In 2003, at the invitation of the Solomon Islands Government, the Australian-led Regional Assistance Mission to Solomon Islands (RAM-SI) was deployed. Recovery from the troubles has been halting, with a significant flare-up in 2006. All of which has contributed to the country needing to completely rebuild the organs of state and provision of services to its people. One such initiative is the World Bank-funded Rural Development Programme (RDP).

RDP is a five-year programme that comprises three components targeting four provinces: Choiseul, Malaita, Temotu and Western. The purpose of Component 2 is to assist the Ministry of Agriculture and Livestock (MAL)

improve agricultural support services to smallholders. These services have been run down because of insufficient resources for research and development, staff development, operating costs and logistical support at the provincial level. The result has been disappointing for both agricultural service staff and rural communities who mostly have nowhere else to turn for help. The aim of this component will be to reverse this and create a situation where smallholders have access to up-to-date technical and market information services, provincial staff have satisfactory careers, and the Ministry can fulfil its obligations to Government and the people, in partnership with churches, NGOs, the private sector and overseas partners. Component 2 complements the other elements of the Programme which bring improvements in living conditions (Component 1) and stimulate rural businesses (Component 3). All three components are directed at improving household welfare. An essential feature of Component 2 is that it provides for technical support and assistance in the area of agricultural information and communication management (ICM). The writer is the RDP adviser tasked with this responsibility.

Information and communication management

In order to appreciate the extent of the current intervention, some history and background to agricultural information management in the Solomons is required. This will be followed by a summary of earlier interventions before a presentation of the results of a recent information needs assessment, and the strategies which were formulated to meet the current needs.

Agricultural information management prior to 1999—Solomon Islands achieved independence from the UK in 1978. At that point, there was a ministry of agriculture which included the standard research and extension divisions, and some information and communication activities in support of them. In 1985, an enlightened chief research officer saw the need, from a researcher's perspective, to have access to the documentation relating to past research in the country. He decided that the answer was an annotated bibliography, and an improved library collection to house the documents found. The resultant *Solomon Islands Bibliography of Agriculture and Forestry* (Reilly, 1985) comprised 1,500 annotated records and was one of the first attempts in the Pacific region to comprehensively document the years of research and development that had taken place. At the same time as the publication of the *Bibliography* (SIBAF), a VSO (Voluntary Services Overseas – UK) Volunteer (the writer) was recruited to help set up and manage a National Agriculture Library, based at the main research station on the island of Guadalcanal (actually on Red Beach, for war buffs). Subsequently, the printed bibliography was transferred to computer, and documents were collected from here, there and everywhere; by the end of 1988, the number of records included in the database numbered

around 2,000. It was a unique and, it was thought, an irreplaceable collection representing 70 years of agricultural research in the country. The Volunteer's experience with this task led, subsequently, to similar initiatives throughout the Pacific region, but particularly in neighbouring Papua New Guinea. The importance of this will be referred to later in this paper.

Agricultural information management between 2000 and 2008—Shortly after the Townsville Agreement was signed in October 2000, ending the fighting, the research station together with its fabulous insect collection and library were burnt to the ground. The intention of the arsonist was to eradicate the station, its buildings and its capacity from the collective memory. In 2003, the Secretariat for the Pacific Community (SPC), a regional development assistance agency, sought to help the Ministry resurrect the library. It was agreed that the physical collection would not be replaced, but that relevant documents in SPC's own library collection in Fiji would be the basis of an electronic library. The software used was Greenstone and significant development work, infrastructure and training were provided to the Ministry to implement this strategy. Problems with power supply, absconding personnel and the general malaise which was prevalent during this period led to hardware failure, loss of the software (although not the digitised documents; they were merely 'misplaced') and loss of trained personnel. SPC provided some additional training in mid-2008, this time focusing on the use of ProCite, a bibliographic database application that had been widely used in the region since 1988. The junior information assistants in the Ministry began to use ProCite to document what remained of a library collection in the Ministry's headquarters. No attempt was made to link any record with digital copies of the documents, and the old SIBAF database was to all intents and purposes lost.

During this period, the Technical Centre for Agricultural and Rural Cooperation (CTA) conducted a series of information needs assessments in eight Pacific countries, including the Solomons. The country report (Hoöta et al., 2005) for the Solomons discussed the establishment of the Solomon Islands National Agricultural Information Centre (within MAL), and the constraints that were being faced, mainly: limited access to information by both MAL staff and farmers; inadequately trained staff; and poor facilities. It was intended that in 2006 as a follow-up to the CTA study, an additional exercise would be carried out to identify and prioritise the strategic options available to Solomon Islands to improve the situation. For various reasons this did not take place, but the Ministry did go ahead and create the Information Centre, which is why SPC came in with some training in 2008.

Agricultural information management from 2009—The commencement of the World Bank project in 2008 provided the opportunity to assist Solomon Islands in its struggle to better manage and disseminate information.

In April and May 2009, a follow-up information needs assessment was carried out leading to the development of strategies to meet the desire for access to information at all levels and by all stakeholders, to identify and collect available documentation, and to set about establishing a partnership among stakeholder organisations to better manage and utilise information. The strategy called for the development of an information network, which is something that ties in with recommendations from the earlier Ho'ota et al. (2005) report.

Solomons National Agricultural Information System

The impetus for development of the Solomons National Agricultural Information System (SoNAIS) was to design a vehicle that would facilitate the process of identifying and gathering all available information resources in the country. There was an urgency to this in that building up the capacity of provincial agriculture offices was critical to helping farmers in the rural areas. Not only this, but with the near collapse of central government services in the early 2000s, and particularly following the tsunami in 2007, NGOs and other non-state actors jumped in to fill the void. Whether they were Save the Children Fund or more specifically agriculture-related NGOs such as Kastom Gaden Association (KGA), all had livelihoods programmes which undertook activities related to agriculture. This led to conflicting advice being disseminated, partly because of limited access to past research results and extension-type materials, and partly because of limited expertise. It was impressed upon the Ministry that any information network or system must be accessible to all actors, and preferably be a partnership of different organisations, each of which would have something to contribute. As an example of this mutual dependency, the Ministry was seen by all stakeholders as holding or being able to generate information (thus the need to identify and manage this resources effectively); but the NGOs and other community-based organisations had superior access to communities, and greater numbers of people on the ground, to better effect information dissemination. Developing a national network was seen as a way of playing to the strengths of organisations involved, while mitigating their weaknesses; with the common purpose being to improve access to and use of agricultural information.

If the network is about organisations partnering one another, then at the core of the network is an information system. The system comprises (currently) a range of bibliographic and other information databases, and builds on the success of a similar venture in neighbouring Papua New Guinea (Walton, 2009). Given the need to move fast with implementing the system, the bare bones of the successful PNG National Agricultural Information System (PNGNAIS) were extracted and populated with bibliographic data scavenged from various

existing databases including those from SPC, PNGNAIS, the ProCite database from the Ministry and, in a stroke of luck, the last known copy of the SIBAF database was found on an old computer in PNG. There is some duplication and redundancy among the data, but with around 2,700 records, SoNAIS is a good start to identifying and organising available information resources, particularly as digitised documents increasingly are linked to bibliographic records. A lesson learned is that it is hard if not impossible to 'burn down' a distributed digital resource.

Based on earlier meetings and interviews with Ministry staff and others as to what information was needed, the first documents to be made available through SoNAIS are those requested most often. It has been a tremendous help that the software application used to manage SoNAIS (and PNGNAIS) is Inmagic DB/TextWorks, and that this comes with a free run-time version that is easy to install on any computer, meaning that in provincial agriculture offices they can now have similar access to information as that enjoyed by staff in the Ministry's headquarters in the capital, Honiara. Within a couple of months, around 40 installations of SoNAIS have taken place. There has been an eagerness among the non-government sector to have access to SoNAIS, and so a number of installations have taken place in offices of NGOs etc, as well as at centres of teaching and learning (schools, tertiary institutions). By being able to install SoNAIS on any computer, the opportunity has been taken to talk with government and non-government organisations to improve their own internal management of information—libraries, information resources, etc.—with one NGO, Kastom Gaden Association (KGA) already coming on board as a contributing partner in the network, and indications that several others are keen to join in. The impetus to join SoNAIS comes from the need to access and better manage available information resources. Sharing of information resources is an initiative all parties are keen to support. Activities are continuing to improve the system, make more information available, digitise more documents, and provide training and support to operators.

Social knowledge networking

As far as it goes, being able to adopt an already successful model for the information system (and there are well-advanced plans for a more formal linking with PNGNAIS) has meant that progress has been rapid. The ability to deploy the system across the country because of the run-time functionality has helped generate awareness and begun to meet some of anticipated information needs. But there is more: there is the intention to incorporate aspects of social knowledge networking into SoNAIS so that it is much more than 'just a library system' or a technical solution (even though a first for the Pacific). And this gets back to the core issue, that infor-

mation plus people equals knowledge. Accordingly, the system must be dynamic, with a two-way flow of information, or it is nothing. There are many and varied ways in which information can be transformed into knowledge, and plans are being made to explore opportunities to enable this to happen.

At its simplest, a social network can be a family or a group of friends. More complex social networks can include associations or business partnerships, where there is an intent to achieve common social, economic and even political goals. Thus the network of organisations which contribute to SoNAIS, or use the information resources contained therein, is as much a social network as an information network. Given the willingness of partners to share information and work collaboratively, this network is also underpinned by a fair degree of trust which is essential if all members of the group are to benefit.

The standard research and extension services have had set information and communication needs. The researchers have required access to past research, and access to comparable information. The results of research are then compiled into reports; some of the more adventurous researchers have written journal articles or presented papers at conferences or symposia. Extension staff have needed access to technical information to enable them to carry out their work, and they have disseminated this information to farmers in the form of leaflets, extension materials, demonstration plots, training and advice. There has not been a great deal of overlap between the two categories of agriculturalists, and disseminating information has traditionally been in one direction only, *to* farmers. The practices of researchers and extensionists has changed markedly in the last 20 years or so, and so too has the level of technology available to them. Yet, still, far too many strategies rely on the traditional methods as a safer bet. An attempt is being made in the Solomons to break this mould, and technology can help.

Building the resource – Firstly, there is the building of the knowledge resource itself. Two examples will help to illustrate the potential of different approaches. The first concerns a comprehensive collection of photographs (all digital), taken over many years by a plant pathologist. Her question is, what can she do with them that will be useful and make a difference? Currently, the SoNAIS bibliographic database includes a recently-completed set of extension leaflets on pests and diseases in the Solomons, each with two or three photographs. In a meta-tagged database of this kind, there is no impediment to recording informational materials in other formats, so she could create records for each of the plant diseases for which she has photographs, and link them. But she could do more, she could provide commentary to help the viewer understand what he or she is looking at, perhaps make suggestions as to other informational materials that can be consulted, and who might be contacted if necessary. She is able to do all of this with the system in its current form, and as it is currently deployed.

The second example came about during a search in the Solomons for documents available in digital format; the person helping in this context, a well-experienced adviser verbally commented on the merits of each individual document: why it was important; in what way it could be used. This is invaluable input based on vast experience for someone seeking information faced with a plethora of materials and in a quandary about which one is most suitable. Commentary can easily be added by the contributor to a bibliographic record, as a sort of user-created enhancement. However, what would be even better would be if others were able also to add their views/comments much in the same way that hotel guests add a commentary on their experience in TripAdvisor.

Engagement of users – Considering in more detail the engagement by ‘users’ as opposed to ‘operators’—the social knowledge networking dimension—existing and planned infrastructure and initiatives can be harnessed. Access to the Internet in the Solomons is not widespread, fast, reliable or very affordable. However, the Solomons is not bereft of innovative solutions. The Pipol Fastaem Network (People First Network, or PFnet) is a rural networking initiative “that promotes rural development and peace building by enabling affordable and sustainable rural connectivity and facilitating information exchange between stakeholders and communities across the Solomon Islands” (PFnet, 2010). By offering basic e-mail services (mostly using HF radio) at over 30 sites throughout the country, connectivity is improved whilst at the same time costs are kept low; thus the system is affordable even for those people with low incomes. Using PFnet, rural people can keep in contact with family and others throughout the islands, or anywhere in the world. And the network can be used as an informational and educational support mechanism, the latter being particularly facilitated with the establishment of Distance Learning Centres (DLC) at strategic sites throughout the islands. Most of the DLC sites are equipped with satellite broadband Internet access, and of course connect with the other PFnet sites via email. In other words, there is a ready-made network in place, with trained operators (pers. comm. D. Leeming, 2009). The two following examples give some idea of the scope and potential of the infrastructure in partnership with stakeholders.

A recent initiative (2009) on the island of Isabel using community radio points to opportunities for improved information access in the rural areas. The project, initiated by the Commonwealth of Learning (COL) in partnership with multiple stakeholders including Isabel Province, has established a Health Communities Programme which features participatory content development and utilises a network of eight community FM stations co-located with PFnet e-mail sites (COL, 2010). Each radio station has been given equipment such as a laptop computer, digital audio recorder, CD burner (and CDs) plus a headset to enable simple digital editing, and

allow each site to record and share programmes. Over 80 people have been trained to utilise these facilities and they form the core of the community radio network on Isabel. Whereas the focus is health promotion, there is little that discourages use of the network for other rural communication initiatives; for example, farming. It is possible to envisage collaboration between multiple stakeholders to deliver/receive information on crop and animal production, constraints and opportunities. As a start, two of the new SoNAIS sites happen to be a PFnet station and a local school (although on another island). Content and resources such as SoNAIS can be made available in the rural areas very easily. As much as agricultural staff and others are keen to disseminate information, they are also keen to have feedback from the people. Putting those mechanisms in place ought to be a priority.

Thus the second initiative, the establishment of farmers' information networks on the island of Malaita (pers. comm. G.V.H. Jackson, 2009). Again, the initiative derives its impetus from PFnet. In 2003, an e-mail station was opened in the north of the island. A two-year project, Linking Farmers to Plant Protection Networks, provided the opportunity for local farmers to utilise modern ICTs to "access information on plant pests and diseases in a timely manner" Critically, the project also linked local farmers with the members of PestNet, an online plant protection group with nearly 600 members worldwide. The project uncovered widespread lack of knowledge and awareness about pests and diseases, and about the remedies available to combat them. The outcome of the project was that farmers, but especially the local extension staff, saw e-mail as a way of overcoming their geographic isolation to agricultural information resources, of any kind. Following this project, there was a proposal to establish Farmer Information Networks Solomon Islands (FINSI). Disappointingly, the new project has not attracted funding; however, the ideas the proposal contains are more easily realisable now, given that information resources are being better managed and access to them better deployed across the country. Secondly, recognising the need for training and support in the management of farmer-centred, farmer-focused information networks, the RDP can in the future provide assistance, in partnership with stakeholders such as PFnet, the Ministry of Agriculture, NGOs and farmer groups.

Conclusion

The opportunities for maximising access to quality agricultural information in Solomon Islands has been enhanced both by better management of information resources, and deployment of the resources throughout the country. Proposals to take this further, by providing the opportunity for stakeholders at all levels to interact with, contribute to and share information is the next challenge. The successful outcome of this will be a social knowledge network that is one of a kind in the Pacific region.

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Addendum

This paper was initially prepared in February 2010 and presented at the IAALD Congress in April that year. Inevitably, technologies have advanced and so too have the responses to those advances. For example, PNGNAIS and SoNAIS have been merged and expanded (and mounted online), and mobile telephony has really taken off in the Solomons as in other countries, and new ideas are being explored for their use. Accordingly, whilst the basis of the paper remains correct, there is much more to tell. An update will be provided in AIW later in 2012.

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Why and How To Build an International Information Alliance Like SIDALC?

The road travelled by Latin America and the Caribbean

Federico Sancho

ABSTRACT: The SIDALC alliance represents the effort of 23 countries and 158 specialized institutions in Latin America and the Caribbean interested in providing information services and knowledge sharing bases and provides increasing access to library catalogs and full-text repositories (freely available at www.sidalc.net). Inside its main metadata base AGRIZ000, SIDALC gathers 2.1 million references and more than 100,000 full-text original documents, all from 256 databases of participating ministries of agriculture, research institutes, universities and colleges, and international centers, among others. As one of the largest ag-information networks in the world, SIDALC has taken advantage of the greatest resource available in the region: librarians and information specialists and their expertise in organizing explicit knowledge. They maintain a permanent dialogue via Listservs, Web 2.0 technologies and face-to-face meetings, which enable them to interact and jointly develop collaborative projects for their own countries and beneficiaries. National agricultural networks have maintained and strengthened their own identity while providing records to SIDALC, as well as having their own development of national information catalogs, digital libraries, and training and information policies. Alliances like PROCINORTE, SICTA, NAL-USDA and CAL-AAFC have been supportive of the integration of services. A recent alliance with Google has increased the visibility of SIDALC more than 4000% and has opened the opportunity to launch a major initiative to scan archives with ag-information available in the Americas via SIDALC. The alliance was made possible because of the technical support provided by the Inter-American Institute for Cooperation on Agriculture (IICA) and the seed money investment of \$1 million from a grant by Kellogg Foundation.

RESUMÉ: L'alliance de SIDALC représente l'effort de 23 pays et 158 institutions spécialisées en Amérique latine et aux Antilles, qui sont intéressés à fournir des services d'information et des bases de partage des connaissances, et qui fournissent un accès croissant aux catalogues de bibliothèque et aux dépôts de documents plein-texte (librement disponible sur www.sidalc.net). Dans sa base des méta-données principales AGRIZ000, le SIDALC rassemble 2,1 millions de références et plus que 100.000 documents originaux plein-texte, tous tirés de 256 bases de données des membres participants, des ministères d'agriculture, des instituts de recherche, des universités et collèges, et des centres internationaux, parmi d'autres. Comme un des plus grands réseaux d'information agricole dans le monde, le SIDALC a profité de la plus grande ressource disponible dans la région: les bibliothécaires et les spécialistes d'informations, et leur expertise dans l'organisation des connaissances explicites. Ils maintiennent un dialogue permanent via des Listserv, les technologies Web 2.0 et les rencontres face-à-face, qui les rendent capable de réagir réciproquement et de développer conjointement des projets en collaboration pour leurs propres

pays et leurs propres bénéficiaires. Les réseaux agricoles nationaux ont maintenu et fortifié leur propre identité tout en fournissant des références au SIDALC, ainsi que développé leurs propres catalogues nationaux d'information, bibliothèques numériques, et politiques d'information et de formation. Les alliances comme le PROCINORTE, le SICTA, la NAL-USDA et le CAL-AAFC, ont soutenu l'intégration de services. Une alliance récente avec Google a augmenté la visibilité du SIDALC de plus que 4000% et a donné l'occasion de lancer une grande initiative pour scanner des archives avec les informations agricoles disponibles dans les Amériques via le SIDALC. Cette alliance a été possible grâce au soutien technique fourni par l'Institut interaméricain de coopération pour l'agriculture (IICA) et l'investissement financier de démarrage de \$1 million d'une allocation par la Fondation Kellogg.

RESUMEN: La alianza de Servicios de Información y Documentación Agropecuaria de las Américas (SIDALC) representa el esfuerzo de 23 países y 158 instituciones especializadas en América Latina y el Caribe interesados en el suministro de servicios de información y bases de intercambio de conocimientos y facilita un acceso cada vez mayor a los catálogos de las bibliotecas y los repositorios de texto completo (libremente disponibles en www.sidalc.net). Dentro de su principal base de metadatos AGRIZ000, SIDALC recopila 2,1 millones de referencias y más de 100.000 documentos originales de texto completo, todos provenientes de las 256 bases de datos de ministerios de agricultura, institutos de investigación, universidades y facultades, y centros internacionales, entre otros, que participan en el sistema. Como una de las principales redes de información agrícola del mundo, SIDALC ha aprovechado el recurso más importante que está disponible en la región: los bibliotecarios y los especialistas en información y su experiencia en organizar conocimientos explícitos. Estos mantienen un diálogo permanente mediante los Servidores de Listas, las tecnologías Web 2.0 y las reuniones presenciales, que les permiten interactuar y desarrollar conjuntamente proyectos colaborativos para sus propios países y beneficiarios. Las redes agrícolas nacionales han mantenido y fortalecido su propia identidad al proporcionar registros a SIDALC, así como al desarrollar ellos mismos catálogos nacionales de información, bibliotecas digitales y políticas de capacitación y de información. Alianzas como PROCINORTE, SICTA, NAL-USDA y CAL-AAFC han apoyado la integración de servicios. Una alianza reciente con Google ha aumentado la visibilidad de SIDALC en más de 4000%, y ha abierto la oportunidad para lanzar una iniciativa importante para escanear archivos con información agrícola disponible en las Américas por medio de SIDALC. La alianza fue posible por el apoyo técnico prestado por el Instituto Interamericano de Cooperación para la Agricultura (IICA) y la inversión de capital semilla de \$1 millón proveniente de una donación de la Fundación Kellogg.

While networking has existed for many decades, today the possibilities offered by technology has re-

duced past limitations related with power control, efficient responses, fluent flows of information, centralized

decision making, stronger professionals linkages and effective communications among stakeholders. Networks in the new era are understood as a double flow interconnected system for individuals and their ideas without the need of a central point but capable through different nodes to manage information and to support the creation of knowledge inside societies and organizations.

Indeed we must recognize that in the last three decades and under the task of building a “knowledge society” there has been important changes related to: analog work of information; the scarcity of information as a resource; the restraints of means to communicate and the one direction channels between people. Today, we live in a world where mostly everything that is man made is born digital or has an important digital component within and information proliferation is happening at high speeds and under a common ground called the Internet. Web 2.0 and emerging technologies like mobile apps are bringing to the plate new forms of organization and multidirectional communications that means a whole new revolution in sharing and generating knowledge.

Some countries are taking the lead in the technological and informational revolution under the strong belief that accelerated knowledge transfer will become their main competitive advantage in fast learning contemporary societies. The ideas of information, communication and technologies—(not information and communication technologies (ICT) as we know them but three separate functions that are interrelated for development and should be part of the international agenda and dialogue for sustainable integrated solutions.

In terms of *content*, the Internet increases in size twice every year, it feeds on at least 7 million documents and 183 billion emails daily (Nelson, 2009), plus all the commercial databases that information providers offer to respond to the demand of specific sectors. Additionally more than 1000 new books are published daily according to Elsevier. The size of the Internet is over 7.93 billion pages demonstrating the abundance and difficulty to control such an infinite universe. Based on an important publishing house there is enough new written material in a day to keep a researcher busy for 460 years.

In terms of *technology* the *Information and Communication for Development Report 2009* analyzes the impact of high speed Internet access; takes a look at mobile technologies; provides policy options for rolling out broadband networks; presents a framework for e-government application and shows ICT sector indicators in 150 countries. The potential of broadband connections as a positive factor for rural incomes in developing countries is unquestionable, but unfortunately ICT country indicators show important differences between high-income countries with access to telephones lines (ATL), mobile cellular subscriptions (MBS), personal computers (PC), and Internet users (IU). [Table 1]

Policy makers at governments and international organizations need to respond faster to those facts and

TABLE 1 – Access to telephones lines (ATL), mobile cellular subscriptions (MBS), personal computers (PC), and Internet users (IU) by income level (World Bank, 2009)

Country Group	ATL	MBS	PC	IU
	----- % -----			
High Income	50	100	67.7	65.7
Upper-middle Income	22.6	84.1	12.4	26.6
Low Income	4	21.5	1.5	5.2

promote better access and use of the information, communication and technology in developing countries as a tool for development. Efforts have been made and a large number of institutions have improved their communication and information services for agriculture at the national, regional or international level. One such example has been the Agricultural Information and Documentation Service of the Americas (SIDALC) that takes advantage of all the library collections and professionals in the hemisphere of 23 countries who have joined under one vision: To become the largest alliance of information and knowledge sharing in Latin America and the Caribbean (LAC). Thirteen years have passed since the day we started, lessons learned and a long road has been travelled. The goal of this paper is to present the work done by LAC, try to understand its mission and present some future routes that can promote similar actions around the Globe.

Reasons to Have an International Information Service

Information management (IM) as the ability to identify, organize, store and disseminate relevant information has been a key aspect in education, research, intelligence and development in general. Prior to the Internet, libraries played a unique role towards democratizing information and acting as facilitator for the creation of knowledge, as well providing the best means possible to exchange literature between organizations.

An old way of sharing specialized information was through the publishing of selected bibliography or a national production report, both sent to regional organizations so they could be shared to other specialized centers. In those days the greater challenge was in obtaining materials through interlibrary loan.

As technologies and human creativity allowed many libraries to move from manual catalogs organized in drawers to local automatic databases (mostly in UNESCO-ISIS) allowing users to search under specific terminology. Later, as search engines improved, better databases were put in place according to the expertise of information specialists. Local databases were now public thanks to the Internet which had no boundaries between the available resources and the needs of information. Library

catalogs now are part of the vast world of the web and are highlighted on universities and research institutes websites. New options are now being offered with repositories, digital content, services platform and web semantic tools to link services with end-users. Five are the main drivers of an alliance like SIDALC:

Communicate a *stronger message of advocacy* on the importance of information management for agriculture and the role played by libraries. Many libraries and documentation centers are being closed under the “reason” of “everything is on the Internet”. An alliance like SIDALC allows a current and permanent dialogue for the construction of better solutions for agriculture and development using IM. It is urgent to envision the future library so a community like SIDALC can be the common neutral area to have such discussions.

The *need to improve library services* in LAC. A large group of professionals and non—professionals from the region have participated in training within the SIDALC network of specialized libraries. Beginning in 1942, the Orton Memorial Library from Inter—American Institute for Cooperation on Agriculture (IICA) and technical coordinator of SIDALC has promoted an improvement cycle of IM in agriculture through the automation and of catalogs and the availability of those catalogs in the Web, digital libraries and Web 2.0. There is still much work to do in LAC’s due to the data technologies and the information environment. The uncertainty of the new developments for ISIS will become an important issue as the large number of institutions depend on the program.

The *infinite amounts of information and cost increases*. Thinking that one library or documentation center is capable of managing all of the resources needed to supply the demand of their researchers is a bit naive and financially impossible. The rise in subscription prices of agricultural commercial journals between the years 2004 and 2008 was close to 34 per cent (Van Orsdel and Born, 2008), while the between the years 2005 and 2009 was 32 per cent (Van Orsdel and Born, 2009). Almost 25 000 journals are available on the market. A network like SIDALC has promoted a fair use of grey literature and publications. In countries like Mexico a Consortium of Universities has been built to provide a national network.

Building institutional memories and repositories. Institutions such as ministries, universities, non-governmental organizations (NGOs), and research centers, among others continue to lose an important amount of their explicit knowledge. The lack of information strategies or policies, inefficient flows of publishing and silos of power remained as characteristics of old management theories that destroy the institutional memory and its later use. A large amount of indigenous knowledge has never been collected, so there is a need to continue the dialogue between information providers, researchers, extension staff and farmers in order to collect as much as possible. Nicaragua, Paraguay, Mexico, Argentina and Costa Rica own their national agricultural catalog of in-

formation. The challenge is to continue to grow full text relevant content in such repositories.

The need for national agendas of collaboration. SIDALC has focused its work on building or strengthening national networks according to their urgent issues, including policies formulation, training, strategic planning and partnership and product development. Based on their interest and goals, SIDALC is a common ground for networks to bond and define joint working plans for short and long term actions.

The SIDALC Experience

In general and based on the data presented, agricultural and forestry organizations in Latin America and the Caribbean (LAC) had greater difficulties to stand up to the call for a “knowledge society”, mainly because of regular constraints in investment or budget, lack of policies and specialized human resources, fragmented public organizations or silos and not having a long term vision related to information services and strategies.

The public sector requires among other things interdisciplinary actions related with IM, either with internally or externally based resources as part of a current “hot topic” or a major work model like the knowledge creation process or building learning organizations.

The task of information management will not be completed if components such as strategies, policies, workflows, resources and tools related to expanding access to information with technologies and the development of sustainable information services for productive sectors like agriculture are not defined. Stronger and clear strategies for IM and its subsequent use by target groups, either through websites, libraries, documentation centers or any other information systems is part of the “to do list” of managers and decision makers interested in efficiency, quality, innovation, competitiveness or excellence in their organizations and in the ag-sector in general.

The experience of over 166 institutions in LAC, along with the technical cooperation from the Inter-American Institute for Cooperation on Agriculture (IICA) has proven the way forward. We have managed to maintain in operation an international information and documentation service for agriculture and related areas in the hemisphere for more than 13 years.

SIDALC (Servicio de Información y Documentación Agropecuario de las Américas) is a network of institutions from 23 countries of Americans and their information professionals that provide services via their references desk and immediate full text access inside their repositories through the website www.sidalc.net. Created in 1999 with funding from the Kellogg Foundation, is a window to the most important organized knowledge of LAC. Its current content has increased to 2.3 million references and over 100,000 documents in full text from 300 national databases of key agricultural institutions.

The Service provides access to information that is organized in libraries and documentation centers that share interests in food, agriculture, livestock, environment and forestry.

SIDALC is for public use; it is considered an international public good since no subscription is required and can be used without limitations by the end-users through the search engine Agrizooo, which in return leads to its federated catalog of references and full text. Furthermore, SIDALC has included other agricultural information systems from several American countries, which enable stakeholders to have important information and knowledge in a single access point.

The success of SIDALC is based upon the advantage taken with the enormous intellectual capital in the region, its institutions and national agricultural information network that, by acting as IM proactive intermediaries respond, expand and modernize its services to meet with the new paradigms of the knowledge society. SIDALC is called upon to provide permanent processes oriented to strengthen the libraries and specializing information units, as well as to increase the competencies of the professionals involved with these services.

SIDALC is the result of the evolution of various initiatives aimed at IM and promoted by IICA. They are the Orton Memorial Library founded in 1943, the Scientific Communication Service established in 1958, the Inter-American Association of Librarians and Agricultural Information Specialists (AIBDA) established in 1965, and the American Agricultural Information System (AGRINTER) founded in 1972.

Characteristics of SIDALC

The operation of SIDALC was made possible by a grant from the Kellogg Foundation in 1999, the technical leadership of IICA and the significant participation of national, regional and international organizations interested in promoting the selflessly idea of “sharing information is power”.

SIDALC can be conceived as a multifunctional platform. First because it operates as a community of information specialists in agriculture, forestry and related areas from various institutions interested in serving openly and without boundaries. A virtuous cycle is kept where “each shares a little to have much from all”. Librarians are called upon to develop the information architecture of their countries and their networks, since its role as managers makes them key players in SIDALC. The service is composed of at least 300 professionals in agricultural and related information with high capacity to meet knowledge needs in the shortest time possible.

In addition SIDALC is flexible and extremely respectful of the recognition of its members, maintaining their identity and adherence to policy delivery of services that each institution has created. The tool is not a “strait-jacket” or exclusive type of superstructure; on the con-

trary it has been characterized in a liquid manner able to adopt a wide variety of standards, methodologies and databases. Most library catalogs in LAC are still managed by MICROISIS databases (name of the version most used CDS/ISIS software for personal computers) under various formats such as MARC, ECLAC, among others. That is precisely the greatest competitive advantage of SIDALC, as an open system for the hemispheric level that allows the linkage of more than 20 national networks, facilitates the exchange of data and interoperability between them, allows access to expertise through the metadata search engine AGRIZOOO and share these search results worldwide via the Web and reference desks. A new SIDALC website is currently under development using the Drupal content management system.

Finally one of its main strengths has to do with the content available. The possibility of integrating specialized library collections in agriculture means better access and results obtained by researchers. If we also consider the possibility that such data bases store the institutions’ intellectual production, it ensures highly relevant content and complements the urgency of many organizations to build their “institutional memory”.

Benefits of SIDALC

The benefits that SIDALC has to offer to date include:

- Involvement in the largest hemispheric information service for agriculture and rural life in the Americas.
- Linkage to international information systems, a fundamental requirement in the quality accreditation processes of institutional services such as those of the universities and the careers of their faculty.
- Adding original content in an organized manner inside the same library catalog and collecting “indigenous” knowledge to our own countries. Gray literature such as theses, reports, projects, and others give higher value to such collection and knowing they are not that easy to retrieve from regular websites.
- Access to scientific material available in prestigious collections of special libraries in the hemisphere.
- Increased demand for reference services and a positive impact on the use of library collection
- Free access to proven tools and methodologies for information management.
- Exchange experiences among peers and institutions, which helps identify opportunities and find solutions to common problems.
- Global visibility of institutional collections through SIDALC.NET and Google.com without losing identity.

Some Lessons Learned

- The cooperation at the national level with unique institutions is important; however the yields are better with

the creation or strengthening of an inter-institutional network of institutions at the country-level with their own agenda.

- The capabilities librarians have developed through common methodologies related to document exchange and the delivery services makes it easier to integrate national networks and information products. This is not as simple with groups leading with statistical or geographical information. A larger picture is important in terms of achieving milestones, rather than just “doing” small things related with information management.
- Working with networks brings unity and generates healthy competition to the country’s internal and external relation of power, and also serves as a stage to generate processes that result in better products.
- Faced with a scenario of abundance of information, librarians play the role of “brokers” or intermediaries ensuring access to relevant content. They must lead IM processes in agriculture.
- International services or inter-institutional systems require formulas to ensure open participation, without a rigid outline, format or structure. Few institutions have the staff or are willing to feed more than one database with the same information. Any supra initiative must have the ability to harvest the resources from different countries. This ensures sustainability.
- The use of metadata and controlled vocabularies are key tools in ensuring quality and coherence.
- Any system or information service requires a commitment from the highest authorities, not only based on the good intentions but in concrete action in terms of investments, training and infrastructure.
- The current online library catalogs, many of them in WebAgris, can link original full-text which in the short term is the basis of the digital libraries. Repositories like Agridrupal or DSpace can play an important role in the management and sharing of information.
- Search engines like Google, far from destructive competition, becomes a partner that enhances the efforts of one institution or country to provide current information.
- Information management (where they have room for these initiatives) is a less complex process related with knowledge management, since the latter involves putting into action all the resources provided.
- New trends such as knowledge management have generated fresh and innovative spaces to reset or upgrade existing information services in the Americas, mainly their libraries. We have to understand that provision of information to individuals is not the same as solving their problems. (Heatley, 2007)
- The definition of end users, their needs and means to reach them with relevant information become crucial aspects to the design solutions. Here lies one of the

biggest concerns of IM, thinking that the needs are always highly volatile and nobody demands anything until we know that something is available.

Final Remarks

- Any endeavor inside IM requires clear goals and sustainability strategies according to the needs of a country. Otherwise it is just a toy to play with for a while.
- The etymology of librarians as “guardians of books” has been largely overcome. Their new role has more to do with its ability to provide quality and precise information services, capitalizing on the diversity of digital media they manage and regardless of the formats they are.
- In contrast to having a wealth of information, libraries need to resort to specialization, taking advantage of networks, its services and collections.
- Libraries should be leading the recovery processes associated with institutional memory and improve the skills of its researchers. Better search engines will play a major role in the future of IM.
- Having a vision of customers only as consumers of information, limits the chances for complete information management cycle, especially by identifying relevant content produced locally by them.
- The technology connectivity is still limited in the region, so further efforts are needed to increase the effective participation of all stakeholders in the digital world. This must include the use of improved technological platforms to provide services other than simple OPAC or integrated library management systems.
- The access level that shows the mobile phone and apps means an opportunity to better engage users in the future. The use of tablets is becoming a strong ally and a whole new terrain to the sharing and connection of information.
- Digitization is one of the greatest opportunities to be considered. How to face the task will be part of the urgent decision that organizations need to take in the short term. Web 2.0 and Web semantic are the new ways to bring over more info consumers and producers and built strong linkages with them.
- Property rights and the role of publishing houses related to the improvement of access of relevant content will be equally balance as open access movements and content.

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Nigerian Rural Youths' Utilisation of Agricultural Information on Selected Arable Crops: An Empirical Evidence

Olumuyiwa Akin Olaniyi and Jacob Gbemiga Adewale

ABSTRACT: The study assessed the utilisation of agricultural information on selected arable crops among rural youth in Nigeria. A sample of 455 young arable crop farmers was selected for the study, using multistage sampling technique. Data collection was made through the use of interview schedule. Frequency counts, percentages, mean, standard deviation and Tobit regression were employed in analysing the data. The result showed that most (84.2%) of the respondents are either low or average users of information. Also, the study found that various categories of agricultural information (technical, economic and legal) were utilised by the respondents on the selected arable crops. Tobit regression analysis revealed that age, marital status, farm size and perception of utilisation of information were significant predictors of level of utilisation of agricultural information on selected arable crops. The study recommended that dissemination of agricultural information on economic and legal information should be promoted by extension institutions in order to enhance a high level of utilisation of information, and those factors that have positive associations with utilisation of information should be considered in planning rural youth extension programmes in the study area.

RESUMÉ: L'étude évalue l'utilisation d'information agricole destinée aux exploitations agricoles chez les jeunes ruraux du Nigeria. Un échantillon de 455 jeunes agriculteurs a été choisi pour cette étude, en utilisant la technique d'échantillonnage en plusieurs étapes. La collecte de données a été faite à l'aide d'un calendrier d'entretiens. Les comptes de fréquence, les pourcentages, les moyennes, les écarts type et le modèle Tobit ont été utilisés pour l'analyse des données. Le résultat montre que la plupart des personnes interrogées (84.2%) sont soit dans la catégorie basse soit dans la moyenne des utilisateurs d'informations. En outre, l'étude a constaté que les diverses catégories d'informations agricoles

(techniques, économiques et juridiques) ont été utilisées par les exploitants agricoles interrogés. L'étude recommande que la diffusion d'information agricole, économique et juridique soit encouragée par les établissements de développement afin de renforcer un niveau élevé d'utilisation de l'information; les facteurs qui ont des associations positives avec l'utilisation d'information devraient être en compte dans la préparation des programmes ruraux de développement destinés aux jeunes ruraux, pendant leurs études.

RESUMEN: El estudio evaluó el uso de información agrícola sobre cultivos de labranza selectos entre jóvenes en zonas rurales de Nigeria. Para el estudio se seleccionó una muestra de 455 agricultores jóvenes que sembraban cultivos de labranza, utilizando una técnica de muestreo de múltiples etapas. Los datos se recopilaron mediante el uso de formularios de entrevista. En el análisis de datos se emplearon recuentos de frecuencia, porcentajes, medios, desviación estándar y regresión Tobit. El resultado indicó que la mayoría de los entrevistados (84.2%) son usuarios de información de nivel bajo o intermedio. El estudio encontró, además, que los entrevistados utilizaron diversas categorías de información agrícola (técnica, económica y legal) sobre los cultivos de labranza selectos. El análisis de regresión Tobit reveló que la edad, el estado civil, el tamaño de la finca y la percepción sobre el uso de información fueron factores predictivos importantes respecto al nivel de uso de la información agrícola sobre cultivos de labranza selectos. El estudio recomendó que la difusión de la información agrícola sobre información económica y legal debe ser promovida por las instituciones de extensión para fomentar un nivel alto de uso de la información. Igualmente, deben considerarse aquellos factores que tengan asociaciones positivas con el uso de la información en la planificación de programas de extensión para jóvenes en zonas rurales en el área de estudio.

It is estimated that there are over 470 million young people living in rural areas, with the majority from developing countries (Diouf, 1999). In many developing countries, up to 70 percent of young people live in rural areas with most of them being primarily involved in agricultural activities (Divyakirti, 2002). Nigerian agriculture is largely rural based, with over 80 percent of Nigerians residing in rural areas with children and youth constituting a large segment of the total rural population. It has been observed all over the world that the farming population is now ageing and the young, able bodied ones who are to take up the farming profession are not being adequately empowered through access to resources such as education, credit, landed property as well as information (Olawoye, 2002). According

to FAO (1998), it has been proven that with proper support and access to resources, young people can become innovative, creative and highly productive thus helping to reach national food security goals. The underdevelopment of many rural areas has created problems for young people. Rural areas are noted to have been suffering from a general information and communication deficit hence they have been bedeviled by endemic information famine (Azogwu, 2004). This information gap has contributed to many problems now militating against Nigerian agriculture and food security in the nation.

Moreover, agricultural information research as a component of agricultural development in Nigeria has often focused its attention on adults, and it has failed to effectively address the utilisation of available information that

are relevant to rural youth who desire to engage themselves in agricultural production. Without adequate information, agricultural productivity will remain low as well as other areas such as: employment opportunities, political awareness and participation in development processes. Adequate information is therefore essential to empower young people to make a difference. Invariably, the dissemination of agricultural information is crucial to agricultural productivity of the farming population because it is only through this means that they can learn about those things they are not aware of, and when the knowledge acquired through such information disseminated is utilised effectively, the result has always been an improved quality of life and fulfillment for rural population in particular and the nation at large. As noted by Omokhaye (2000) that the main problem is not the lack of technologies and research findings needed for economic growth and social change but delayed and inappropriate channels of communication used to pass down such information to the end users for adequate utilisation. This has created a gap between agricultural information stakeholders and the producers, that only effective communication can bridge.

With the Extension service in Nigeria that is experiencing inadequate workforce, more emphasis is being placed on the use of mass media such as radio and television for agricultural information dissemination (Olaniyi, 2010). Although, the use of mass media method of information transfer has a great potential to greatly increase the efficiency of individual farmer. At the same time, Extension service can serve as information source and information exchange facilitator (Tadesse, 2008). In many developing countries, Nigeria inclusive Extension service is a service of information, knowledge, and skill development to enhance adoption of improved agricultural technologies and facilitation of linkages with other institutional support services (input supply, output marketing, and credit). Therefore, the role of Extension service has been changed from technology transferring service to information and knowledge brokering (Berhanu et al, 2006).

Rural youth are an important segment of rural population and are often among the poorest, neglected and marginalised group and as such their needs and problems are not perceived and this has led to loss of a productive work force in agriculture due to rural-urban migration (Chamber, 1981). Hence, there is need to repackaging information specifically to meet the information need of this neglected poor rural youth population, since they have distinct characteristics and potentials which could be tapped for agricultural and rural development.

Using information is a key issue in this present information age. Information use and information utilisation can be interchangeably used. The real challenge of our time is not producing information, but getting people to use information (Pezeshki-Rad and Zamani, 2005). Information use is dependent on the individual's evaluation of cognitive and emotional relevance of the infor-

mation received. It also depends on the appropriateness of such information in solving a certain problematic situation (Miranda and Tarapanoff, 2007). This study therefore assessed the utilization of agricultural information on selected arable crops among rural youth in Oyo and Osun states, Nigeria. Specifically, the study ascertained the level of utilization of agricultural information on selected arable crops, categorized rural youth based on level of utilization of information on selected arable crops and finally, determined those factors that influenced the likelihood of utilization of agricultural information on selected arable crops.

Research Methodology

The study was carried out in Oyo and Osun states, Nigeria. These states were chosen because they are high producers of the selected arable crops (maize and cassava). Multistage sampling procedure was used in the collection of primary data in the states. The first stage involved random selection of fifteen percent of the total local government areas in each state was randomly selected, making five local government areas from each state and ten local government areas altogether. The second stage involved a random selection of five percent of the total villages in the selected local government areas from the two states (Table 1). For the last stage, there was no list of rural youth in the selected two states to constitute a sampling frame from which an individual could be selected. Therefore, at the village level the researcher and six other trained enumerators developed sample frame by forming a list of those who are called rural youth according to age criteria 18–35 years in the two selected states (NYP, 2001). This involved determining the total number of rural youth in each village and from this developed sample frame, random selection of fifty percent of the total respondents was made. The selected rural youth constituted the sample for the study, a total sample of two hundred and forty and two hundred and fifteen rural youth were selected from both Oyo and Osun states respectively making a total of four hundred and fifty five respondents as sample size for this study. A structured validated interview schedule was used to elicit relevant information from the respondents. The selection of the items into the schedule came from the preliminary survey and literature reviewed. Data collected were analysed using descriptive statistics such as frequency counts, percentages, means, standard deviation and Tobit regression model as inferential statistic.

Measurement of Variables

The dependent variable of the study was the level of utilisation of agricultural information on selected arable crops. Respondents were presented with 54 items of agricultural information on selected arable crops. They were asked to indicate number of times they utilised

TABLE 1 – Distribution of Sampling Procedure of respondents from selected states and respective Local Government Areas (LGAs)

State	No. of LGAs	Selected LGAs (15%)	Selected LGAs	No. of villages in the selected LGAs	No. of villages selected (5%)	No. of rural youth selected (50%)
OYO	33	5	IREPO	241	12	53
			SURULERE	294	15	63
			IBARAPA EAST	248	12	32
			IBARAPA CENTRAL	321	16	43
			OGO-OLUWA	163	8	49
OSUN	30	5	BOLUWADURO	206	10	45
			OLAOLUWA	121	6	30
			ATAKUNMOSA WEST	213	11	41
			OROLU	225	11	58
			IREWOLE	281	14	41
TOTAL	63	10		2313	115	455

Source: Oyo and Osun Village Listing Survey, 1999 and 2001 respectively.

those information in the past 5 planting seasons. The responses were recorded for each item of agricultural information. The aggregate rural youth's score was his/her level of utilisation of agricultural information on selected arable crops. The minimum score was 0 and maximum score was 270 points. This study assumes that rural youths' utilisation scores are normally distributed. The rural youths' raw scores on the level of use of agricultural information on selected arable crops were thus transformed into standard t scores. The t score is to reflect the actual relative differences in their value and eliminate biases in the score. The raw scores were transformed into a scale with a mean of 50 and standard deviation of 10. A mean was obtained by summing up all the data values or scores and dividing by the total number of data value or scores (N). This was computed by using the following formula:

$$\text{Mean } (\bar{X}) = \frac{\sum fX}{N}$$

where $\sum X$ = sum of all the data value, N = Number of data values. Standard deviation of ungrouped data values or single scores was calculated using the formula

$$S = \sqrt{\frac{\sum X^2}{N-1}}$$

S = the sample standard deviation, $\sum X^2$ = Sum of squares of deviation of the scores from the mean, $N-1$ = Degree of freedom (df). The t standard score was obtained as follows:

$$t = \left(\frac{X - \bar{X}}{S} \right) 10 + 50$$

where X = raw scores, \bar{X} = the mean of the raw scores, S = Standard deviation of the raw scores.

Tobit Regression Model

The considered Tobit regression, a hybrid of the discrete and continuous dependent variables, was used to determine the factors that influenced the likelihood of utilisation of agricultural information on selected arable crops among rural youth. The model is expressed below following Salimonu and Falusi (2009), Ayoade (2008) and Fernandez-Cornejo et al., (2001).

$$\Psi_i^* = Bx_i + \epsilon_i \quad (1)$$

$$\Psi_i^* = 0, \text{ if } 0 < \Psi_i < 1 \quad (2)$$

$$\Psi_i^* = \Psi_i, \text{ if } 0 < \Psi_i < i \quad (3)$$

$$\Psi_i^* = 1, \text{ if } \Psi_i \geq 1 \quad (4)$$

where Ψ_i^* is the limited dependent variable, which represents the level of utilisation of agricultural information in selected arable crops indices. Ψ_i is the observed dependent (censored) variable, X_i is the vector of independent variables, B is the vector of unknown parameters, ϵ_i is a disturbance term assumed to be independently and normally distributed in zero mean and constant variance ($N(0, \sigma^2)$) and $i = 1, 2, \dots, n$ (n is the number of observations = 455).

The independent variable specified as determinants of levels of utilisation of agricultural information on selected arable crops were defined as follows:

Age (X_1) —

Age of rural youth (Actual age in years)

Marital Status (X_2) —

Dummy $D = 1$ for married, otherwise $D = 0$

Years of formal Education (X_3) —

Actual Number of Years Spent in Schooling

Farming Experience (X_4) — Actual year

Household size (X_5) —
Number of people eating in the same pot (Actual)

Farm size (X_6) — Actual in hectares

Sex (X_7) — Gender of farmers (Dummy $D = 1$, if Male, otherwise $D = 0$)

Membership of social organization (X_8) —
Dummy ($D = 1$ for members, otherwise $D = 0$)

Extension contact (X_9) — Dummy ($D = 1$ for having contact, otherwise $D = 0$)

Frequency of use of information sources: (X_{10}) —
Actual frequency score

Perception of utilisation of agricultural information (X_{11}) — Actual perception score

Socio economic Status Score (X_{12}) — Actual SES score

Availability of information (X_{13}) — Dummy ($D = 1$ for available information, otherwise $D = 0$)

Accessibility to information: (X_{14}) —
Actual accessibility score

If Ψ_i^* is assumed to be normally distributed, then consistent estimates can be obtained by performing a Tobit estimation using an interactive maximum likelihood algorithm. The use of maximum likelihood estimation guarantees that the parameters estimates will be asymptotically efficient and the appropriate statistical test can be performed.

TABLE 2 – Distribution of respondents according to utilisation of agricultural information on cassava production

Agricultural information on cassava	WMS	S.D	Rank
<i>Technical Information Category</i>			
Improved cassava varieties	2.85	1.83	1 st
Method of fertilizer application e.g. folia, ring, broadcasting and type of fertilizer	2.63	1.63	2 nd
Stem cutting for cassava	2.54	1.86	3 rd
Selection and rate of chemical application for weed control	2.41	1.92	4 th
Use of tractor for ploughing	2.39	1.64	5 th
Labour availability for cassava production	2.36	1.82	6 th
Improved planting distance for cassava	2.36	1.74	6 th
Improved method of preventing pest and disease of cassava	2.22	1.80	7 th
Use of tractor for ridging	2.22	1.73	7 th
Soil management practice	1.93	1.74	8 th
Use of tractor for harrowing	1.92	1.81	9 th
Use of tractor for land clearing	1.50	1.97	12 th
Weather forecast information on cassava planting	1.40	1.38	13 th
Mechanized method of harvesting cassava tuber	0.99	1.45	24 th
Improved method of storage and preserving fresh cassava tubers	1.36	1.57	14 th
Control of pest and disease of cassava	1.32	1.91	15 th
Soil fertility test	1.24	1.54	16 th
Modern method of cassava processing	0.98	1.46	25 th
<i>Economic/Marketing Information Category</i>			
Loan acquisition /credit facilities	1.90	1.71	10 th
Market outlet for harvested cassava	1.40	1.69	13 th
Information on loan interest rate	1.18	1.80	18 th
Better record keeping on sales of cassava produced	1.11	1.51	20 th
Availability of input on cassava at subsidized rate	1.10	1.84	21 st
Marketing of cassava produce through cooperatives	1.02	1.33	23 rd
Prevailing cassava crop prices in the market	1.57	1.84	11 th
Export procedure in marketing cassava	0.96	1.26	26 th
<i>Legal Information Category</i>			
Payment of compensation for crop grown on government acquired land	1.19	1.28	17 th
Environmental protection on land	1.14	1.35	19 th
Government policies on land acquisition	1.04	1.22	22 nd

Source: Field survey, 2009 **WMS** = Weighted Mean Score, **SD** = Standard Deviation

Main Results

Agricultural information utilisation pattern among rural youth on selected arable crops:

Utilisation of agricultural information on cassava crop – Table 2 shows that young farmers often use information on improved cassava varieties method of fertilizer application (fertilizer type, stem cutting for cassava). These were ranked first, second and third respectively. Among the least ranked agricultural information utilised by the respondents are mechanized methods of harvesting cassava tubers modern method of cassava processing and export procedure on marketing cassava. The pattern of agricultural information utilisation observed in this study shows that the often used agricultural in-

formation on cassava production is technical information category. This is closely connected with extension agents as a source of information whose activities include dissemination of technical information on crops. This finding tallies with the finding of Banmeke and Ajayi (2006) that the most often used agricultural information among women farmers are technical information on crops.

Utilisation of agricultural information on maize crop – The result of the analysis reported in Table 3 revealed that the sampled rural youth often use agricultural information on improved maize varieties; selection and rate of chemical application for weed control and method of fertilizer application type. These were ranked first, second and third respectively. The findings of this

TABLE 3 – Distribution of respondents according to utilisation of agricultural information on maize crop

Agricultural information on maize	WMS	S.D	Rank
<i>Technical Information Category</i>			
Improved maize varieties	3.42	1.82	1 st
Selection and rate of chemical application for weed control	3.30	1.97	2 nd
Method of fertilizer application e.g. folia, ring, broadcasting and type of fertilizer	3.25	1.96	3 rd
Treated maize seeds for planting	3.24	1.98	4 th
Improved method of preventing pests and diseases of maize	3.05	2.06	5 th
Improved method Controlling of pests and diseases of maize	3.04	2.10	6 th
Use of tractor for harrowing	3.00	1.99	7 th
Use of tractor for ploughing	2.99	2.06	8 th
Use of tractor for ridging	2.98	2.02	9 th
Use of tractor for land clearing	2.91	2.19	10 th
Availability of input on maize at subsidized rate	2.84	2.15	11 th
Improved planting distance for maize	2.80	2.09	12 th
Mechanized method of shelling of maize grains/cobs	2.56	2.23	14 th
Storage of maize in modern cribs / silo	2.56	2.24	14 th
Soil management practices	2.53	2.25	15 th
Mechanized method of harvesting maize	2.52	2.10	16 th
Soil fertility test	2.24	1.90	19 th
Weather forecast information on maize planting	2.02	1.17	20 th
<i>Economic/Marketing Information Category</i>			
Loan acquisition / credit facilities	2.57	2.72	13 th
Market outlet for harvested cassava	2.45	2.23	17 th
Prevailing maize crop prices in the market	2.44	2.16	18 th
Information on loan interest rate	1.97	1.78	21 st
Better record keeping on sales of maize produced	1.78	1.66	22 nd
Marketing of maize produce through cooperatives	1.51	1.51	24 th
<i>Legal Information Category</i>			
Payment of compensation for crop grown on government acquired land	1.65	1.52	23 rd
Environmental protection on land	1.51	1.44	24 th
Government policies on land acquisition	1.36	1.35	25 th

Source: Field survey, 2009 WMS = Weighted Mean Score, SD = Standard Deviation

TABLE 4 – Tobit Estimates of determining factors influencing level of utilisation of agricultural information on selected arable crops among rural youth in the study area

Variable	Coefficient	Standard Error	t value	P value
Constant	25.435	5.148	4.940	0.0000
Age	0.347	0.973	3.573**	0.0004
Marital Status	2.386	1.045	2.283**	0.0224
Years of formal education	-0.17E - 01	0.965E - 01	-0.179	0.8579
Farming Experience	-0.126	0.973E - 01	-1.295	0.1950
Household size	-0.402	0.242	1.662*	0.0965
Farm size	-0.861	0.205	-4.194**	0.0000
Sex	0.448	1.048	0.427	0.669
Membership of social Organization	1.986	0.793	2.506**	0.0122
Extension Contact	-0.204	0.911	-0.223	0.8232
Frequency of use of information sources	-0.791E - 02	0.317E - 01	-0.249	0.8032
Perception of utilisation of agricultural information	0.375	0.561E - 01	6.685**	0.0000
Socio economic status	0.197E - 03	0.181E - 01	0.011	0.9913
Availability of Information	0.247E - 02	0.439E - 01	0.056	0.9532
Access of information sources	-0.628E - 01	0.558E - 01	-1.127	0.2597

Sigma = 8.646; *Significant at P < 0.05; **Significant at p < 0.01

study follow the same trend reported in Table 2. The agricultural information least used by the respondents are mainly of legal information on maize production. Generally, the findings of this study revealed that technical information on how to accomplish a task were rated higher and often used by the young farmers on selected arable crops (cassava and maize) than government policies and information on marketing. This could probably due to the availability and accessibility of technical information category through the activities extension agents in the study area.

The determining factors influencing utilisation of agricultural information on selected arable crops in the study area – The estimates of the Tobit analysis are presented in Table 4. In all, six out of the fourteen variables considered in the model had significant coefficients at different levels of significance. The Sigma (σ) value of 8.646, with a 't' value 30.166 was significant at $P < 0.01$. This depicts the fitness of model.

Specifically, the following variables: age, marital status, membership of social organization, household size and perception of utilisation of information significantly increase the likelihood of utilisation of agricultural information on selected arable crops among rural youth due to positive signs on their coefficients. Conversely, farm size has significant and negative coefficient with level of utilisation of agriculture information. It should be recalled that a negative sign on the coefficient implies that as the particular variable increases, the level of utilisation on selected arable crops decreases. Similarly, a positive sign indicates that with an increase in a particular variable there is also an increase in the level of utilisation of agricultural information on selected arable

crops among rural youth. From Table 4, it was revealed that marital status is the highest determinants of level of utilisation of agricultural information with Tobit regression coefficient of 2.386. It is followed by membership of social organization with coefficient 1.986. Other important determinants of level of utilisation of agricultural information on selected arable crops are farm size (-0.861), household size (-0.402); perception of utilisation score (0.375); and age (0.347). The positive sign of the coefficient value show direct relationship between utilisation and independent variables. This implies that for every unit increase in the marital status, membership of social organization, perception of utilisation score and age of the respondents, their level of utilisation of agricultural information increases. Vice versa, the negative sign of the coefficient values shows the inverse relationship between level of utilisation of agricultural information on selected arable crops (dependent variable) and the determining factors (independent variables). It can be implied that for every unit increase in farm size and household size of the respondents, their level of utilisation of agricultural information decreases by 0.861 and 0.402 units respectively.

The negative sign of the coefficient of farm size does not conform to the a priori expectation as it is expected that increasing the farm size would make it possible to practice the information received on a large scale by young farmers. Farm size has been found to be significant in the study of Banmeke and Ajayi (2006) with positive relationship with level of utilisation of agricultural information among women farmers in southwest Nigeria. But the negativity of the coefficient of the parameter estimate for farm size implies that the respondents were

constrained to apply the agricultural information on a large scale. Hence, acquiring additional agricultural information on selected arable crops on large scale operations may be discouraging. At the same time, it could have been that they were constrained to utilise agricultural information in terms of input needed to increase their farm size.

Conclusion

The study concluded that utilisation of agricultural information is a prerequisite to agricultural development in Nigeria. Agricultural information on selected arable crops were made available and utilised to some extent among the respondents especially technical agricultural information category. Age, membership of social organization, household size, farm size, perception of utilisation of agricultural information significantly determined the likelihood of utilisation of agricultural information on selected arable crops. The extension would need to increase their efforts in making information on marketing and legal information more available and accessible to the end users in order to facilitate high level of utilisation of these categories of agricultural information among the respondents. Also those factors that have positive associations with utilisation of information should be considered in planning rural youth extension programmes in the study area.

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IAALD: Your Professional Connection to the Virtual World

Toni Greider, IAALD
Secretary/Treasurer

For close to 60 years the International Association of Agricultural Information Specialists (IAALD) has aimed to *connect* information professionals from around the world and provide a means of *communication* among its members; *convene* meetings around the current issues of agricultural information and *collaborate* with like minded organizations. The aims have remained constant but the methods continue to change. Beginning in 2005, IAALD began to make fundamental changes to the way it looked and how it did business and the new IAALD was born. IAALD's changes fall into IAALD 2.0 which is its social networking and internet presence and IAALD.org the establishment of IAALD as a legal organizational entity.

FIGURE 1 – The Ning provides a benefit of IAALD Membership

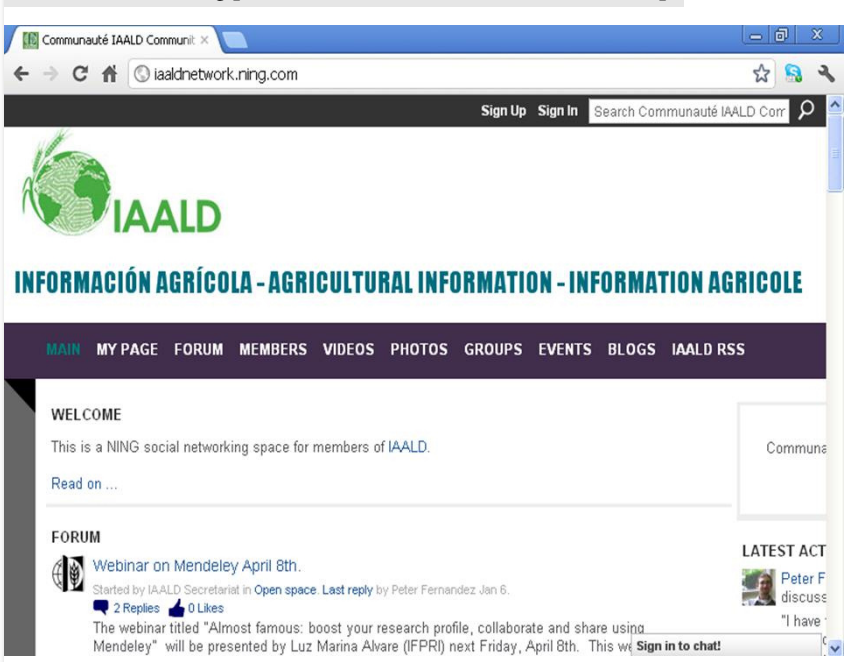


FIGURE 2 – IAALD Website with a members only section as a benefit to IAALD members



IAALD 2.0 – During the past three years IAALD has been working on connecting members with the development of a members only Ning to provide a forum for members [Figure 1] and an interactive website (www.iaald.org) [Figure 2] that allows for a dynamic membership directory. To give the new website a fresh look, a new logo was developed to illustrate IAALD's global focus. The website has a public side with information about IAALD and its events as well as a members only side that provides the membership directory, the ability to pay fees through a secure website and to provide access to past webinars. All of this continues to be developed but the structure is there to move forward and expand IAALD's membership. These developments join AgInfoNews (the iaald blog) [Figure 3] which is a service to the profession that provides up to date news of interest to those interested in agricultural

information; Twitter which now has close to 500 followers, Facebook, Linked in, Slideshare, Flickr and Blip-TV accounts [Figure 4].

In 2008, the *Quarterly Bulletin of IAALD* was transformed into *Agricultural Information World-wide*. The journal remains a peer reviewed journal but the focus changed from theoretical articles to articles of a more practical nature. The journal was given a new look along with its new name. For the first two volumes the journal was issued in both print and electronic formats and in 2010 the journal went totally electronic with the current issues open access [Figure 5].

In 2010 IAALD began offering training in the virtual world with the launch of its webinar series.

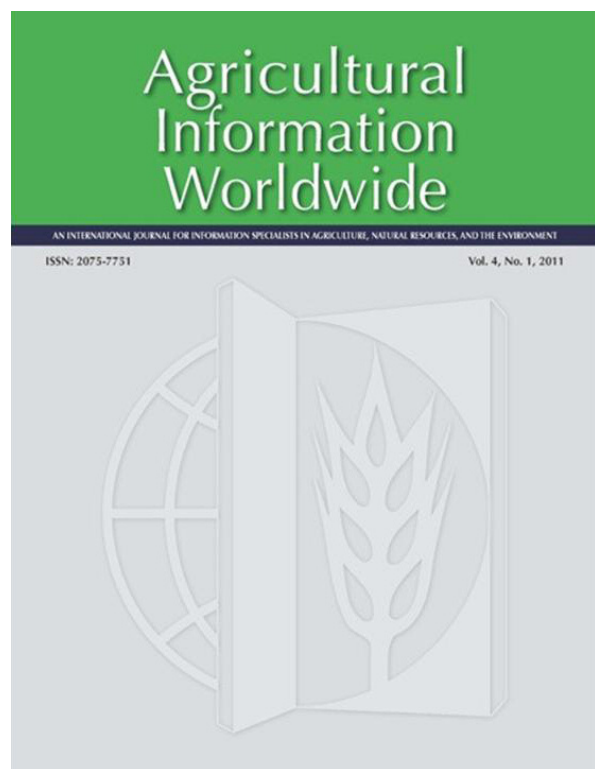
FIGURE 3 – AgInfoNews is a service provided by IAALD to the entire agricultural information profession. IAALD also has a listserv IAALD-L (iaald-l@CALS.arizona.edu)



FIGURE 4 – Social Networking sites provided as service and open to anyone



FIGURE 5 – *Agricultural Information Worldwide* provides open access to quality information. Entire file is available to IAALD members.



The series covered a number of topics from tools like Mendeley and Google Analytics to use of IAALD's Ning. All but two of the webinars were offered in Spanish as well as English [Figure 6].

IAALD.org – IAALD.org was born in 2005 with the establishment of an independent mailing address and establishing the domain, providing independent email and creating a Dgroups space to conduct organizational business. This separated IAALD's identity from the organization where the secretary/treasurer resided and made the transfer of leadership seamless to the members. Also during this time IAALD was established as a not for profit professional organization. The business end of IAALD continued to transform with the automation of the accounting to have better control over the funds, e-mail balloting and voting, and use of conferencing software for IAALD EC Meetings.

In 2010 the membership approved the fundamental way that IAALD does business with an overhaul of the organizational structure. The IAALD Executive Committee went from a maximum of 21 elected members as well as invited representatives to 7 elected members and chapter presidents who are voting members plus invited representatives. The length of terms also changed as professionals no longer stay in the same positions as long as they did and were unwilling to commit 5 years to organizational service. It was difficult to achieve a quorum at EC meetings as travel become more difficult

FIGURE 6 – IAALD Webinars offered in 2011

Almost famous: boost your research profile, collaborate and share using Mendeley – by Luz Marina Alvare (English and Spanish)

IAALD Webinars - CrowdSpotting: The who, the what, the why, the where, and the when of your web audience!

Join us for a Webinar on May 13

REGISTER NOW

As the tools for statistics become more sophisticated we need to move away just from numbers of pageviews on our website and answer more questions on HOW our content is read by our audience. See WHO visits your website and the reach of the internet audience you have in their country. Measure the Height, Width and Depth of your readers behavior and find out WHAT interests them. See WHERE to put your effort in promoting your content. See exactly WHEN your visitors come and... WHY do nearly all our visitors for one particular IFPRI publication come on a Thursday? Join us to find out.

These tutorials are designed to showcase web tools and applications and how they are used to support your work and it is our hope that participants will come ready to explore and discuss these topics with their colleagues in further

CrowdSpotting: the who, the what, the why, the where, and the when of your web audience
– by Chris Addison (English)

**Decentralizing online publishing in your organization:
Creating websites on the fly using Wordpress and
Google** – by Pete Shelton (English and Spanish)

Ning to connect information specialists worldwide –
by Peter Fernandez (English) and Manuel Hidalgo (Spanish)

NING to Connect Information Specialists Worldwide

PRESENTER: Peter Fernandez
Agricultural Sciences & Natural Resources Librarian
University of Tennessee, Knoxville, Tennessee, U.S.A.

CONTENT: This webinar will give an overview of NING's key features. NING is a customizable social media platform that can be used to facilitate communication among agriculture information specialists and their stakeholders.

TIME: 11:00 AM EST (1600 UTC GMT)
DATE: Thursday, December 1st, 2011
ACCESS: Available through IICA's distance learning facilities in Costa Rica. A link will be shared one day prior to the event.

NING PARA CONECTAR ESPECIALISTAS DE INFORMACIÓN A NIVEL MUNDIAL

Expositor: Manuel Hidalgo, Especialista de Información del IICA, Biblioteca Comemorativa Orton

Contenido: Se presentará el concepto de sitio web social y un panorama de las principales características de la herramienta NING. Ning es una plataforma flexible de redes sociales que puede ser utilizada para facilitar la comunicación entre especialistas de información agrícola y sus grupos de interés.

Fecha: Martes 06 de Diciembre, 2011
Hora: 10:00 A.M. EST (15:00 UTC GMT) 9:00 A.M. horario de Costa Rica
Conexión via Blackboard Collaborate (anteriormente Elluminare) por medio de la plataforma del Centro de Educación a Distancia del IICA (vínculo se compartirá el próximo lunes 05).

FIGURE 7 – Transformation of IAALD

IAALD Organizational Changes	
1955–2010 (Terms for 5 years)	2010–
Officers	Officers
President	President
First Vice President	President Elect
Second Vice President	Past President
Secretary/Treasurer	President Elect assumes the role of President and then Past President (total commitment 3 years)
Editor	
Executive Committee (Minimum of 11 to maximum of 16 members)	Three Board Members (3 year term)
Representatives of Regional and National organizations invited by the Executive Committee – non voting	IAALD Chapter Presidents
	Representatives of Regional and National organizations invited by the Executive Committee – non voting

for EC members. The new organizational structure allows for shorter terms but greater continuity in the organizational management. This change allowed for greater participation in the organization as chapter presidents are automatically voting members of the IAALD EC. The EC meetings are conducted virtually and has had a quorum to conduct business. Business is also conducted in between meetings and votes are taken electronically [Figure 7].

IAALD's greatest challenge is providing services to a global group of information professionals. While many of the interests are the same, the methods of communication and connectivity vary greatly. IAALD has worked to meet the challenge by providing different venues to connect the profession. Face to face contact is becoming more of a challenge as international travel budgets and travel money from government and NGOs has decreased. IAALD began addressing this in 1996 with the formation of the Central/Eastern European Chapter followed by the IAALD China Chapter in 1999. These chapters met with short-lived success but in 2006, IAALD launched the IAALD Africa Chapter which is holding its third Conference in Johannesburg in 2012. The XIVth IAALD World Congress is now in the planning stages and will be at Cornell University in Ithaca New York in July 2013.

For the past several years the IAALD EC has been working with various social networking programs trying to find the correct mix for the membership. IAALD's social networking is falling into two categories—those functions that are a service to the profession such as the

AgInfoNews Blog and those functions that are services to members such as the Ning.

IAALD continues to work on finding its niche in this virtual world. The need for professional contact has not gone away but the methods to provide it has changed dramatically. IAALD's greatest challenge will be to maximize what it offers to members in this virtual world.

Any change in the organization requires the work of a group of people. During the past two years the focus has been on the face of IAALD. Thanks to Sarah Hilliar a graphic artists at CABI, IAALD has a new logo and thanks to Johannes Keizer and his team of Mara Folch, Valeria Pesce, Giampaolo Rugo and Adam Sanchez IAALD has a new fully functional website. Peter Fernandez worked with the Ning to give it a new look and make it interactive and continues to help us with our social networking. Former IAALD President Peter Ballantyne still oversees the AgInfoNews blog.

IAALD Africa Holds Its Third Conference

It was with great pleasure that I was able to be part of the opening of the Third IAALD Africa Conference in Johannesburg in May of this year. The conference was held on May 21–23 at the Emperor's Palace in Johannesburg, South Africa and I was pleased to be there to represent IAALD International. I had a personal interest in being there as I was present for the conception of the chapter (in Lexington at the XIth World Conference, 2005) and for the launching of the chapter in Kenya in May of 2006. This year saw the first transfer

of power as the term limits for Justin Chisenga, Dady Demby and Gracian Chimwaza as well as many of the regional representatives were reached. IAALD Africa is growing up as an excellent slate of officers follows in the big footsteps of the first group of people who guided the chapter through its infancy.

Congratulations to all who worked on putting together an excellent conference. A full write up about the conference will appear in a future issue of the AIW.

■ *Toni Greider*

IAALD Election Results

Elections were held for both IAALD and the IAALD Africa Chapter. Peter Walton and Margaret Sranku-Lartey joined the Executive Committee as President-Elect/Vice President and general board member respectively. The IAALD Africa Chapter elected Krishan Bheenick as President, Sylvester Baguma as Vice President and the Secretary/Treasurer duties will be handled by IOTCA. Biographies of the IAALD Executive Committee and a link to the officers of IAALD Africa can be

Nada S.A. Musa of the Agricultural Research Corporation of the Sudan and Rajaene Van Dyk, IAALD member and Emerald Representative share a moment at the conference. Photo courtesy of Sharbendu Banerjee.



found at: <https://sites.google.com/a/iaald.org/executive-committee2012/>

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