

ADEQUACY OF COLLECTIONS IN MALAYSIAN AGRICULTURAL LIBRARIES

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ABSTRACT

This study, using a questionnaire-based survey, explores the adequacy of library collections at five major agricultural research institutions in Malaysia. Data analysis revealed that their libraries are providing adequate information support to their scientists to sustain their research activities. However, a disparity was observed among these libraries for the adequacy of different types of materials. It was also found that involvement of library users in the selection of library materials is likely to improve their perceptions about library effectiveness in meeting their information needs. The study noted that purchasing power of Malaysian libraries has substantially decreased due to recent budget cuts and depreciated currency. The paper suggests various measures for improving library co-operation to effectively cope with the current economic slowdown.

Keywords: Agricultural libraries; Collection assessment; Library effectiveness; Malaysia.

INTRODUCTION

Agriculture is considered as one of the pillars of Malaysian economy. Although the manufacturing and services sectors have played a phenomenal role in moving Malaysia towards an industrial society, the contribution of the agricultural sector in the national economy is still very significant. The current economic and financial crisis has further reinforced the importance of this sector as billions of Ringgit are being spent on importing food products. Dependence on food imported from other countries can also make the country vulnerable to external pressures. To bring the country close to the target of

food security, a dynamic agricultural research system is required to develop modern cultivation techniques to improve productivity.

Agricultural research and development activities in Malaysia gained momentum in the sixties and were carried on into the seventies. The same period witnessed the establishment of many government and statutory bodies devoting themselves to different aspects of agricultural development (Agha, 1984). These organisations, based on their mission and objectives, have either focused their activities to a specific aspect of agriculture or to a single

commodity such as rubber and palm oil or engaged in whole spectrum of agricultural disciplines and crops.

Research and development activities were supported by establishing libraries at these institutions. However, a disparity and imbalance among agricultural libraries in Malaysia have existed in terms of their collections, services, facilities and budget allocations (Agha, 1983). During the late eighties and early nineties the robust economic growth helped these libraries to strengthen their collections and improve their services. Abdullah (1992) observed that libraries in agriculture and allied disciplines, as compared to other branches of S&T in Malaysia, had the most comprehensive and well-established information systems. However, it is expected that with the passage of time needs of scientists have changed due to certain factors. Therefore, a systematic assessment of library collections is desirable to determine their adequacy and relevance in meeting current information needs of their users.

The body of literature in the agricultural sciences is immense and growing rapidly. Oslen (1989) estimated that over 200,000 citations were being produced per year in the field of agriculture. Current figures should be much higher considering that scientific literature is doubling in magnitude after every 10 years. However, Oslen noted that it was "painfully obvious in the libraries of many Third World universities and research centres that almost unfailingly the state of the collections is abysmal". While libraries cannot be expected to meet all the demands placed on them, it is necessary to analyse their col-

lections to determine as to what extent they are relevant and adequate in meeting the information needs of their users. Pointing to another advantage of collection assessment, Osburn (1992) noted that proper evaluation could be used as "a marketing device of high quality, possessing the potential to make known the strengths, limitations, needs and possibilities of the library". As library collections play a central role in meeting information needs of users, their inadequacy may drive the potential users away from the library. Mwila (1993) showed that over 75 percent of academicians from different faculties of the University of Zambia had been less frequently visiting their library due to the inadequacy of library materials. In the light of what has been said above, it becomes desirable for libraries to periodically assess their collections to determine their adequacy and relevance to the information needs of their clientele.

Several studies have pointed out strengths and weaknesses of different collection assessment techniques. Traditional methods of collection assessment fall into two major categories: use-centred and materials - centred (Dobson, et al., 1996). Use-centred studies concentrate on the use of the collection and how well it meets patrons' needs. User surveys and evaluation of library circulation and interlibrary loan statistics fall in this category. Material-centred approaches use the library collection as a base for their analyses and include methods such as citation analysis, overlap studies, and projects like National Shelflist Count and the RLG Conspectus (Wood, 1992). Several studies have successfully used the citation analysis technique for evaluating serial collections

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(Herubel, 1991, Loughner, 1996; Udofia, 1997).

Carrigan (1996) outlined a use-based collection assessment technique called "proportional use statistics" that considers the extent of use of materials in each subject relative to holdings in that subject. In this technique the circulation percentage in each category is divided by the holding percentage of that category. If circulation and holdings percentages were identical, the proportional use statistics would be 1.00. If the proportional use statistics is less than 1.00, this means that collection is less frequently used. Another use-based technique known as "80/20 statistics" has been used by several studies (Clouston, 1995; Britten, 1990). The 80/20 rule is based on Trueswell (1969) study which concluded that "80 percent of the circulation requirements are satisfied by approximately 20 percent of the library's holdings". The interlibrary loan data can also be used for assessing adequacy of library collections. Carrigan (1996) argued that "data showing the extent to which a library's clients must turn elsewhere for the materials they need provides a means to evaluate collection development".

Osburn (1992) felt that the proliferation of electronic information sources might cause problems for collection evaluation activities. "Our traditional methodologies of [collection] evaluations are likely to be even less satisfactory in a networked environment in which the principles of access and demand are dominant and in which we will want to analyse both in-library and extra-library activity". New evaluation methods need to be developed

for libraries that work in both access and ownership environment (Harloe & Budd, 1994).

A problem with some use-based approaches is that they may not necessarily reveal adequacy of collections as they mainly focus on use patterns. These approaches may not point out the inadequacy and under-selection of collections. A user-based approach could be more revealing as it is based on assessment provided by patrons for whom these collections are developed. Osburn (1992) observed that the concept of collection assessment was steadily shifting from a collection-centred interpretation to a clientele-centred interpretation. Ribbe (1990) also felt that library users could be one of the reliable sources for evaluating library collections.

Irrespective of arguments about the suitability of different approaches, the significance of collection assessment studies cannot be denied. However, the review of literature reveals lack of any such study on Malaysian agricultural libraries. It is, therefore, desirable to study the adequacy of collections of these libraries. Current economic crisis in the region resulting in drastic cuts in collection development budgets has further enhanced the need for such an investigation. The objective of this paper is to analyse the adequacy of the collections of Malaysian agricultural libraries in effectively meeting the information needs of their users. The paper will also offer suggestions for improving resource sharing among agricultural libraries in Malaysia to overcome the inadequacies of their collections.

METHODOLOGY

The study used a questionnaire-based survey design for data collection. This technique was preferred as it was less time consuming and affordable for a scattered population. Another reason for using a questionnaire was the convenience of contacting the scientists, some of whom often go out-station for field experiments.

Study Population

Five major agricultural institutions, i.e., University Putra Malaysia (UPM), Malaysian Agricultural Research and Development Institute (MARDI), Palm Oil Research Institute of Malaysia (PORIM), Rubber Research Institute of Malaysia (RRIM) and Forest Research Institute of Malaysia (FRIM), were selected to participate in the study. These institutions are considered most reputable and well-established among science and technology institutions in Malaysia. Only agriculture-related departments of UPM were included in the study. PORIM and RRIM are mono-commodity institutions whereas MARDI is a multi-commodity, multi-discipline agricultural institution with a network of sub-stations located in different parts of the country. FRIM is responsible for research and development in forestry and related disciplines.

Agricultural scientists and academicians, with at least a bachelor's degree in science or an equivalent, were included in the study population. Lists of library members, departmental telephone directories, and certain other sources were used to compile names of scientists working in

these institutions. The population of the study comprised 1,328 scientists. Proportionate stratified random sampling technique was used to generate random sample. Each institution participating in the study constituted a stratum. Using a *random number table*, a sample size of 25 percent was drawn.

The Instrument

Several studies on the related topics were consulted and their instruments were critically examined to help develop the questionnaire for this study. Section 1 of the questionnaire dealt with personal information about respondents such as job title, age group, gender, and highest academic qualification. Section 2 elicited assessment about the adequacy of different library resources and certain other related aspects. Section 3 was designed to seek overall assessment of respondents about the effectiveness of their libraries in meeting their information needs. A variety of *factual*, *informative* and *attitudinal* questions were included in the questionnaire. The questionnaire was pre-tested on eight UPM academicians and five MARDI scientists, not included in the randomly drawn sample, to ensure reliability and effectiveness of the instrument.

A total of 332 questionnaires were distributed and 236 filled-in questionnaires were received back. The overall response rate for the survey was 71.1 percent, which is considered satisfactory for this type of survey. An institution-wise breakdown of respondents is given in Table 1.

Table 1: Questionnaire Distribution and Response Rate

| Institution | Number of Questionnaires Distributed | Number of Questionnaires Returned | Response Rate (%) |
|---|--------------------------------------|-----------------------------------|-------------------|
| University Putra Malaysia | 92 | 61 | 66.3 |
| Malaysian Agricultural Research and Development Institute | 118 | 88 | 74.6 |
| Palm Oil Research Institute of Malaysia | 33 | 24 | 72.7 |
| Rubber Research Institute of Malaysia | 48 | 33 | 68.8 |
| Forest Research Institute of Malaysia | 41 | 30 | 73.2 |
| Total | 332 | 236 | 71.1 |

Two questionnaires, one each from UPM and MARDI, were not usable and thus excluded from the data analysis. Therefore, the data for 234 (70.5%) respondents will be presented in the analysis.

RESULTS AND DISCUSSION

Respondents

Job Titles: Table 2 shows the job titles used by respondents. Job titles used by scientists of agricultural research institutions were different from those of the academic staff of UPM. Faculty members of UPM were using three job titles, i.e.,

professor, associate professor, and lecturer. Respondents from the remaining four agricultural research institutions were using identical job titles that were head of division, principal research officer, senior research officer, and research officer.

Eight professors, 20 associate professors, and 32 lecturers represented UPM. Of the remaining 174 individuals affiliated with four agricultural research institutions, the distribution was: 13 (5.6%) heads of division; five (2.1%) principal research officers; 22 (9.4%) senior research officers; and 134 (57.3%) research officers.

Table 2 : Job Titles of Respondents (n=234)

| Job Title | | Frequency | Percentage |
|-----------------------|----------------------------|-----------|------------|
| Univ. Putra Malaysia | Professor | 8 | 3.4 |
| | Associate Professor | 20 | 8.8 |
| | Lecturer | 32 | 13.7 |
| Research Institutions | Head of Division | 13 | 5.6 |
| | Principal Research Officer | 5 | 2.1 |
| | Senior Research Officer | 22 | 9.4 |
| | Research Officer | 134 | 57.3 |

Age and Gender: Table 3 presents a breakdown of scientists by their age groups and gender. Twenty-four (10.3%) respondents were 30 years' old or less. Fifty-eight (24.8%) were in the age group of 31 to 40 years. The largest group of scientists (59.8%) belonged to the age group of 41 to 50 years. Only 12 (5.1%) individuals were in the age group of 51 years or above. One hundred sixty-six (70.9%) respondents were male and 68 (29.1%) were female.

Academic Qualifications and Work Experience: Of the 233 scientists who provided information on their academic qualifications, 103 (44.2%) were holding a Ph.D. degree; 98 (42.1%) had M.Sc. or M.Phil. and 32 (13.7%) held B.Sc. degrees. Altogether 86.3 percent of the scientists possessed a post-graduate qualification. One hundred and seventy (73.3%) scientists acquired their highest academic qualification from overseas and the remaining 62 (26.7%) from the local academic institutions. Two respondents did not provide information about the place of getting their highest academic qualification.

Majority of the respondents has had substantial work experience. Over 67 percent of them had more than 10 years' work experience as compared to 13.4 percent who had a working experience of five years or less.

Adequacy of Library Collections

Respondents were asked to provide their appraisal about the adequacy of various library collections by using the five-point Likert scale. Their assessments have also been cross-tabulated with other variables to see if any relationships existed among them. Table 4 provides assessment of scientists about the adequacy of various library collections.

Books: The highest assessment for book collection was obtained by the UPM library (mean score 3.45), closely followed by RRIM with a mean score of 3.42. The lowest assessment for the adequacy of books was received by the MARDI library (mean score 2.67). It might be due to the fact that for the last several years the MARDI library has not received any budget for purchasing books. The ANOVA test showed that differences among

Table 3: Age Groups and Gender of Respondents (n=234)

| Age Group | Frequency | | | Percentage |
|--------------------|-----------|--------|-------|------------|
| | Male | Female | Total | |
| 30 Years or Below | 10 | 14 | 24 | 10.3 |
| 31 to 40 Years | 38 | 20 | 58 | 24.8 |
| 41 to 50 Years | 107 | 33 | 140 | 59.8 |
| 51 Years and Above | 11 | 1 | 12 | 5.1 |
| Total | 166 | 68 | 234 | 100 |

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Table 4: Adequacy of Library Collections

| Collection Type | <i>Mean Score (Std. Deviation)</i> | | | | | <i>F</i> |
|---|------------------------------------|----------------|---------------|----------------|----------------|---|
| | UPM | MARDI | PORIM | RRIM | FRIM | |
| Books (N=229) | 3.45 (1.01) | 2.67 (1.02) | 2.96 (.86) | 3.42 (.83) | 3.07 (.87) | <i>F</i> =7.05 <i>p</i> =.000 <i>df</i> =4, 224 |
| Scientific Journals (N=231) | 3.43 (1.13) | 3.15 (.96) | 3.46 (.88) | 3.76 (.94) | 3.50 (1.11) | <i>F</i> =2.35 <i>p</i> =.050 <i>df</i> =4, 226 |
| Research reports/ monographs/ manuals, etc. (N=225) | 3.05 (.92) | 3.05 (.93) | 3.52 (.79) | 3.61 (.75) | 3.34 (.90) | <i>F</i> =3.66 <i>p</i> =.007 <i>df</i> =4, 220 |
| Reference materials (N=223) | 3.12 (.96) | 3.09 (.92) | 3.48 (.67) | 3.32 (.83) | 3.21 (.86) | <i>F</i> =1.52 <i>p</i> =.333 <i>df</i> =4, 218 |
| Abstracts and indexes (N=223) | 3.53 (.92) | 3.36 (.99) | 3.46 (.88) | 3.32 (.87) | 3.28 (.88) | <i>F</i> =.55 <i>p</i> =.701 <i>df</i> =4, 218 |
| CD-ROM databases (N=195) | 3.45 (1.03) | 3.11 (1.09) | 2.32 (.75) | 2.71 (1.01) | 3.45 (1.02) | <i>F</i> =5.92 <i>p</i> =.000 <i>df</i> =4, 190 |
| Audio-visual materials (N=186) | 2.92 (.95) | 2.52 (.99) | 2.45 (.91) | 2.52 (.80) | 2.57 (1.03) | <i>F</i> =1.77 <i>p</i> =.136 <i>df</i> =4, 181 |

Scale

1. Very inadequate 2. Inadequate 3. Somewhat adequate 4. Adequate 5. Very adequate

Malaysian agricultural libraries for the adequacy of their book collections was highly significant

Serials: RRIM obtained the highest assessment for its serials collection (mean score 3.76). It is supported by the fact that user-journal title ratio at the RRIM library was the highest (1:3.4) among Malaysian agricultural libraries. The next highest appraisal for the adequacy of serials was obtained by FRIM (mean score 3.50). The user-journal title ratio at the FRIM library was 1:2.6. The lowest rating for serials collection was obtained by the MARDI library (3.15), although its

user-journal title ratio (1:2.4) was not very low. One possible reason for receiving low assessment could be that the MARDI library has been getting nearly 83 percent of its journal titles either through exchange or gifts. All these journals may not necessarily be relevant and useful for the MARDI scientists. The ANOVA test showed significant differences among Malaysian agricultural libraries for the adequacy of their serials collections.

Research Reports/ Monographs/

Manuals: The RRIM library received the highest assessment for the adequacy

of research reports, monographs and manuals (mean score 3.61). Other libraries receiving high assessment for these materials were PORIM and FRIM. Once again, the ANOVA test showed high significant differences among agricultural libraries for the adequacy of these materials.

Reference Collection/ Abstracts and Indexes: The PORIM library secured the highest appraisal for the adequacy of its reference collection (mean score 3.48). Two other libraries ranking high for the adequacy of reference materials were RRIM and FRIM, with a mean score of 3.32 and 3.21 respectively. Once again, the MARDI library obtained the lowest assessment for its reference collection.

The highest appraisal for the adequacy of abstracting and indexing sources was obtained by the UPM library (mean score 3.53). Assessments received by other libraries for the adequacy of these materials were quite close with marginal variations. The ANOVA test showed no significant differences among Malaysian agricultural libraries for the adequacy of their reference collections as well as for abstracting and indexing sources.

CD-ROM Collection: So far as the adequacy of CD-ROM databases and products was concerned, the UPM and FRIM libraries obtained the highest assessment (mean score 3.45). The UPM library was subscribing to 23 CD-ROM databases and FRIM library to two databases. The lowest evaluation for the adequacy of CD-ROM databases was obtained by PORIM (mean score 2.32) which was subscribing to five CD-ROM databases.

The MARDI library was subscribing to seven and the RRIM library to two CD-ROM databases. The ANOVA test showed high significant differences among agricultural libraries for the adequacy of their CD-ROM collections.

Audio-Visual Materials: Almost all libraries received relatively low assessment for their audio-visual collections. The highest mean score for this category of materials was obtained by UPM (2.92) and the lowest by the PORIM library (2.45). However, no significant differences were found among various agricultural libraries for the adequacy of their audio-visual materials.

The overall picture for the adequacy of library materials and information resources showed that the UPM library is strong in books, abstracting and indexing sources, audio-visual materials, and CD-ROM databases. The RRIM was ranked high for its serials collection, research reports, monographs and manuals. Its book and reference collections were also considered adequate. The strength of the PORIM library was its reference collection, abstracting and indexing sources, and research reports. Scientists from the FRIM considered CD-ROM databases and serials collection of their library as adequate. MARDI scientists considered most of their library collections inadequate in meeting their information needs. It might be due to inadequate budget available to the MARDI library for building its collections. For most library collections, except audio-visual materials, the cumulative mean scores for all agricultural libraries were in the range of 3.00 to 3.50, slightly better than the category "some-

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what adequate". This means that library collections of various Malaysian agricultural libraries have been meeting the expectations of their users to a reasonable extent.

In order to develop a better understanding of assessments provided by scientists for their library collections, the relationships between this variable and some other related variables were investigated. These are presented in the following sections.

Adequacy of Library Collections and Selection of Library Materials

It was felt that involvement of users in the selection of library materials might have some bearing on their satisfaction with library collections. Agricultural scientists were asked if their libraries sought their opinions in the selection of library materials. Table 5 presents the responses provided by 230 scientists. Forty-seven (78.3%) UPM faculty members responded in the affirmative. Similarly, over 73 percent of FRIM scientists indicated that they were consulted in the selection of library materials. A split response was received from the remaining three agricultural institutions and 50 to 60 percent of the scientists from these institutions

said that their libraries do involve them in the selection of library materials. It is worth noting that UPM and FRIM libraries, getting comparatively better assessments for the adequacy of their collections have been more frequently consulting their users for the selection of library materials. This shows that involvement of library users in the selection of library materials is likely to result in higher user satisfaction.

Adequacy of Library Collections and Assessment about Library Effectiveness

A direct relationship was found between assessment of scientists about the adequacy of various library materials and their perception about library effectiveness. Those respondents who considered their libraries as "very effective" in meeting their information needs gave high assessment (mean score=3.77) to their book collections (Table 6). Assessment for library effectiveness declined with decrease in mean scores for the adequacy of books. The lowest mean score for the adequacy of books (1.75) was recorded for those scientists who considered their libraries as "very ineffective" in meeting their information needs.

Table 5: Involvement of Users in the Selection of Library Materials (n=230)

| Selection of Materials | UPM | MARDI | PORIM | RRIM | FRIM | Total |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Involved in Selection | 47 (78.3%) | 43 (50.0%) | 12 (54.5%) | 19 (59.4%) | 22 (73.3%) | 143 (62.2%) |
| Not Involved in Selection | 13 (21.7%) | 43 (50.0%) | 10 (45.5%) | 13 (40.6%) | 8 (26.7%) | 87 (37.8%) |

Table 6: Adequacy of Library Collections and Perceptions about Library Effectiveness

| Type of Material | <i>Library Effectiveness</i> | | | | |
|---------------------------------------|-------------------------------|--------------------------|-----------------------------------|----------------------------|--------------------------------|
| | 5 Very Effective (N=12) | 4 Effective (N=80) | 3 Somewhat Effective (N=93) | 2 Ineffective (N=38) | 1 Very Ineffective (N=5) |
| Books | 3.77 (1.24) | 3.50 (.81) | 2.93 (.92) | 2.39 (.92) | 1.75 (1.50) |
| Serials | 4.23 (1.24) | 3.85 (.75) | 3.27 (.98) | 2.59 (.85) | 2.00 (.82) |
| Research reports/ monographs, etc. | 3.92 (1.19) | 3.53 (.70) | 3.22 (.87) | 2.49 (.68) | 2.00 (.82) |
| Reference materials | 3.83 (1.27) | 3.49 (.73) | 3.10 (.80) | 2.65 (.82) | 2.00 (1.15) |
| Abstracts and indexes | 4.00 (1.21) | 3.68 (.73) | 3.37 (.86) | 2.84 (.97) | 2.00 (.81) |
| Audio-visual materials | 3.31 (1.25) | 2.95 (.93) | 2.55 (.83) | 2.06 (.77) | 1.50 (.58) |
| CD-ROM databases | 4.00 (1.22) | 3.38 (.91) | 2.97 (1.06) | 2.71 (1.10) | 2.75 (1.26) |

Scale for Collection Adequacy:

1. Very inadequate 2. Inadequate 3. Somewhat adequate 4. Adequate 5. Very adequate

The highest mean score for the adequacy of serials (4.23) was given by those individuals who considered their libraries as "very effective" in meeting their information needs. Mean scores for the adequacy of serials decreased steadily and those individuals who considered their libraries as "very ineffective" awarded the lowest mean score of 2.00. Almost the same trend was observed for research reports, monographs, reference materials, abstracting and indexing sources, AV materials, and CD-ROM products.

The Pearson's Product Moment Correlation test showed a positive correlation between perceptions about library effectiveness and assessment about the adequacy of library collections. This means that those scientists who consider their

library collections as adequate are more likely to perceive their libraries as effective in meeting their information needs.

Abandoning Research Projects

In order to estimate the adequacy of collections of Malaysian agricultural libraries indirectly, scientists were asked if they had ever abandoned a research project due to non-availability of information. It was found that only 23 (9.8 percent) scientists have abandoned their research projects due to shortage of information. However, a further analysis of these scientists indicated that they did not belong to a particular institution, department or subject area. This means that, in general, collections of Malaysian

Pearson's Product Moment Correlation Coefficient

| Type of Material | Pearson's (<i>r</i>) | <i>P</i> |
|---------------------------------------|------------------------|----------|
| Books | .446 | .000 |
| Serials | .494 | .000 |
| Research reports/ monographs, etc. | .456 | .000 |
| Reference materials | .408 | .000 |
| Abstracts and indexes | .385 | .000 |
| Audio-visual materials | .402 | .000 |
| CD-ROM products | .300 | .000 |

agricultural libraries are not acutely deficient to force scientists to abandon their research projects. However, it is possible that there might be a critical deficiency in some current and highly specialised research areas.

CONCLUSIONS

This study was designed to investigate the adequacy of library collections available at different Malaysian agricultural institutions. It was found, as previously reported by Agha (1983), that a disparity still existed among these libraries for the adequacy of their collections. However, a majority of agricultural scientists felt that their library collections had been reasonably meeting their information needs. It was also evident from the fact that only a small number of scientists had to abandon their research projects due to information inadequacy.

However, current financial crisis has created a difficult situation for most Malaysian libraries. Drastic budget cuts and

depreciated Ringgit has substantially reduced their purchasing power. During a crisis of this magnitude, it is imperative that Malaysian agricultural libraries should take the much-talked concept of library cooperation beyond the traditional interlibrary loan activities. Extra-ordinary situations demand extra-ordinary measures. Under the current scenario, these libraries in addition to providing access to their collections may also allow patrons from other agricultural institutions to freely borrow materials from them. Though it may create some administrative problems, it would be comparatively easy for agricultural libraries to do this as most of their users are from the public sector. For this purpose a SmartCard may be issued to scientists valid at all agricultural libraries for a limited time period to determine its practicability.

Malaysian agricultural libraries may also consider implementing a loose cooperative collection development approach. They may inform other cooperating libraries about the materials they intend to

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procure or subscribe to. Such an effort will avoid duplicate procurement of materials thus saving scarce financial resources. A cooperative approach will also help meet information needs of their users more effectively as more new materials could be acquired.

REFERENCES

- Abdullah, Szarina. 1992. Science and Technology Information Systems in Malaysia. *Asian Libraries*, Vol. 2 no.3: 38-49.
- Agha, Syed Salim. 1984. Effects of AGRIS on national and regional agricultural information systems based on the experience of Malaysia and Southeast Asia. Paper presented at the Seminar on AGRIS and International Cooperation for the Exchange of Scientific and Technical Information, June 1984, at Rome, Italy.
- Agha, Syed Salim. 1983. Response to the information needs of the agricultural sector in Malaysia. Paper presented in the 6th Congress of Southeast Asian Countries, 30 May-3 June 1983, at Singapore.
- Britten, William A. 1990. A use statistics for collection management: the 80/20 rule revisited. *Library Acquisitions: Practice & Theory*, Vol. 14no.2:183-189.
- Carrigan, Dennis P. 1996. Collection development - evaluation. *Journal of Academic Librarianship*, Vol. 24 no.4: 273-278.
- Clouston, John S. 1995. How much is enough? Establishing a corridor of adequacy in library acquisitions. *Collection Management*, Vol. 19 no.3/4: 57-75.
- Dobson, Cynthia; Kushkowski, Jeffrey D. and Gerhard, Kristin H. 1996. Collection evaluation for interdisciplinary fields: a comprehensive approach. *Journal of Academic Librarianship*, Vol. 22 no.4: 279-284.
- Harloe, B. and Budd, J.M. 1994. Collection development and scholarly communication in an era of electronic access. *Journal of Academic Librarianship*, Vol. 20 no.2:83-87.
- Herubel, Jean-Pierre V.M. 1991. Philosophy dissertation bibliographies and citations in serials evaluation. *Serials Librarian*, Vol. 20 no.2/3: 65-73.
- Loughner, W. 1996. Scientific journal usage in a large university library: a local citation analysis. *Serials Librarian*, Vol. 29 no.3/4:79-88.
- Mwila, Apollinaris Buleti. 1993. The use of the University of Zambia library by the social science, humanities, and science faculties. Ph.D. dissertation, University of Michigan, 1993.
- Osburn, Charles B. 1992. Collection evaluation and acquisitions budgets: a kaleidoscope in the making. *Journal of Library Administration*, Vol. 17 no.2: 3-11.
- Oslen, Jan Kennedy. 1989. Strategic issues in information: with special reference to developing countries. *IAALD Quarterly Bulletin*, Vol. 34 no.3: 119-125.

Adequacy of Collections in Malaysian Agricultural Libraries

Ribbe, Paul H. 1990. A scientist's assessment of a microcosm of the serials universe. *Serials Librarian*, Vol. 17 no. 3/4: 121-142.

Trueswell, R.L. 1969. Some behavioral patterns of library users: the 80/20 rule. *Wilson Library Bulletin*, Vol. 43: 458-461 (cited by Carrigan).

Udofia, U. I. 1997. Selecting veterinary medical periodicals through citation analysis. *Library Review*, Vol. 46 no. 1 & 2:105-12.

Wood, Richard J. 1992. A conspectus of the conspectus. *Acquisitions Librarian*, Vol. 4 no.7:5-23.