

26 Land Drainage : Bibliography and Information Retrieval

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26.1 Introduction

The worldwide acceleration of research is producing enormous amounts of publications. This is also occurring in land drainage. New developments, research results, and findings from field experience are being published in books, journal articles, and as papers in proceedings. Obviously, if a land drainage engineer is to keep up-to-date and avoid needless duplication of work already done by others, he must be aware of this new information. This chapter will tell him how to keep track of the most important publications, without having to read everything that is published.

26.2 Scientific Information

26.2.1 Structure

The flood of publications issued each year seems to be without any structure, but, after a closer look, a certain structure appears.

An idea, after research, either becomes a manuscript or it does not. Of those that do, there are roughly two types:

- Many manuscripts are multiplied by the author himself or by his institute. This type of publication will usually reach only a few colleagues or a few fellow-institutes; not many persons will read it. It becomes part of what is called the 'grey literature', which is difficult to trace, difficult to get, often of little value to others, and soon forgotten;
- A manuscript may be offered to the editor of a scientific journal and, after a review by a peer, becomes an article; or it may be presented at a congress and be included in the proceedings of that congress; or it may become a book published by a commercial publisher. This is called 'primary literature'. It becomes part of the international scientific literature, is announced worldwide, is far more easy to obtain, and is often of great value to others.

26.2.2 Regulatory Mechanisms that Control the Flow of Literature

Knowing the structure of scientific information will help a drainage engineer to be aware of what is published and to understand what is important and what is not.

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And yet, each year enormous amounts of information are produced. It will help the drainage engineer to realize that not all the literature produced is equally valuable. To keep informed of developments, he need not read everything that is published. Several regulatory mechanisms control the flow. These will be explained below.

Quality Selection

Of the manuscripts that become a publication, only a few finally remain as classical articles or books. After 15 years, more than 98% of publications on land drainage are entirely forgotten. This means that if an engineer is starting a new subject and needs published information about it, he need only read some recent articles and one or two review articles that tell him about the older literature.

Qualitative Concentration

Four precepts describe the processes of qualitative concentration:

- **The 'Star System':** A natural concentration of quality occurs among scientists. The leaders in the field, most of whom will be employed by well-known institutes or universities, attract others. Stars are also concentrated in well-known international organizations;
- **A Ranking Order of Journals:** Stars will usually have their work published in prestigious journals. Others will try to have their work published in the same journals. The editors of these journals, with greater numbers of manuscripts being submitted to them for publication, can afford to become ever more critical, selecting only the best articles. In this way, a journal spirals upwards in quality. It will be cited more frequently than others, will be more readily included in library collections, and more persons will subscribe to it;
- **Bradford's Law:** Bradford discovered that articles are scattered over various types of journals. Translated to the area of land drainage, his law shows that:
 - About 1/3 of the articles on land drainage are found in a small number of journals on drainage and irrigation;
 - About 1/3 of the articles on land drainage are found in a larger number of journals related to drainage (e.g. soil science, hydrology);
 - About 1/3 of the articles on land drainage appear in journals that cover a far broader field (e.g. agriculture);
- **The 80/20% Rule:** This rule applies to many things. Librarians, for instance, know that 80% of the requests they receive are for 20% of the literature on their shelves.

26.3 A Land Drainage Engineer as a User of Information

A land drainage engineer needs to know about new publications in order to be informed about new developments and about activities that are ongoing or pending. This involves the dissemination of information by abstracting services, publishers, and libraries.

Alternatively, an engineer may be facing a specific problem and is looking for a solution, or he may be starting some new research and needs to know what has been published about the subject in the past. This involves the retrieval of already existing literature.

26.3.1 The Dissemination of Information

Abstracting Services

Abstracting services (or information suppliers) 'undo' the original 'packaging' of primary literature, and treat the articles in journals, the papers in congress proceedings, and the chapters in books as separate publications. They then 'repackage' these items according to subject. Sometimes they include part of the 'grey literature' too. The titles of these repackaged items, with an abstract of their contents, are published in abstract journals.

An excellent example of how scientists are being helped to cope with 'the literature explosion' is the service provided by the Commonwealth Agricultural Bureaux International/CABI. Each year, under the very broad heading of agriculture, CABI abstracting services search through 10 000 journals and an unknown number of books, annual reports, proceedings, theses, and government reports. Publications selected during this work are inserted in the CABI database. The information available in the database is made available to customers through abstract journals.

Online Retrieval, Compact Discs

The information available in databases is also the basis for the following services:

- **Online Retrieval:** The database is made available by 'host organizations', which offer databases on various subjects. Access to this host organization is possible with the use of a microcomputer, linked via a communication or phone network to the host.
- **Compact Disc:** In some countries, telephone lines are unreliable and access to the host is difficult. Database producers have overcome this problem by making their databases available on compact disc. Anyone in possession of a microcomputer with a compact disc reader can retrieve information from the database. A subscription to the CABI compact disc, to give an example, costs about U.S. \$2500.

Selective Dissemination of Information

Many libraries offer the service of a selective dissemination of information to their users. Each month, the library informs its users of the new literature in their field. Beforehand, the library has compiled an 'interest profile' for individuals or for small groups. This profile consists of keywords that indicate the subjects in which the person or group is interested. The profile is run off each month against the new information that has been fed into databases. Titles containing the keywords of the profile are thus retrieved and a printout is passed on to the person or the group. The cost of this service varies, depending on the number of titles retrieved, but it is usually about U.S. \$250. The ILRI Library provides this service on request.

ILRI Current Awareness Bulletin

Six times a year, the ILRI Library publishes a current awareness bulletin entitled Land Soil Water. This lists all publications and articles on these subjects received by the Library in the previous two months, including new publications on land drainage. It is available free of charge to alumni of the International Course on Land Drainage and to anyone else who is interested.

Subscriptions to Journals

A subscription to one or more journals is another good way to follow developments in land drainage. Because of the different interests of persons, it is difficult to advise which journals a drainage engineer should subscribe to. Section 26.4.5 gives a list of possible journals.

Land Drainage Symposia

About once every two or three years, an international symposium on land drainage is held. The papers presented at the symposium are published in its proceedings. These usually cover many different facets of land drainage.

Publishers and Booksellers

Commercial publishers and booksellers announce their latest publications in their catalogues, which they will supply on request. One bookseller, among others, who offers a Selective Dissemination of Information/SDI service of newly published books is Dawson, Book Division.

International Organizations

The International Rice Research Institute/IRRI publishes the titles of publications of international agricultural research and development centres, in Publications of International Agricultural Research and Development Centres.

Newsletters

Newsletters, for example, Land and Water International published by NEDECO contain reviews of new publications, information on conferences being organized, and so on.

Pages of Contents

The Centro Internacional de Agricultura Tropical/CIAT publishes Pages of Contents: Soils and Plant Nutrition. This presents the contents pages of all well-known journals in the field of land and water development.

The International Livestock Centre for Africa/ILCA publishes A Quarterly Bulletin of Contents : Forage Agronomy and Soil Science.

Annual Reports

Many well-known organizations publish an annual report describing their current activities and/or new developments in land drainage. These reports are often available free of charge and are sent each year to interested parties.

26.3.2 Retrieval of Information

Online Retrieval

Databases available online or on compact disc can easily be searched with keywords that describe a subject someone is interested in. On request and free of charge, various organizations will run a search for researchers and engineers from developing countries and send them a list of relevant titles. FAO and ILRI are two such organizations; another is the Centre Technique de Coopération Agricole et Rurale/CTA.

Systematic Literature Search

A more time-consuming but excellent way of searching literature starts with consulting the tertiary literature. Tertiary literature is a guide to abstract journals and journals on the subject in which one is interested. Letters requesting the information needed can be sent to experts on the subject or to leading institutes.

Snowball Method

In the reference list of an author's publication, he lists publications which he consulted when writing his book or article. These publications, in their turn, also list references to publications relevant to their subject. This linking of citations can be used to retrieve literature. It is called the 'snowball method'. The researcher begins by consulting one of the most recent articles on his subject and then proceeds to consult the literature cited in its references. He repeats the process with the literature cited in those works, and so on. The disadvantages of the method are that the researcher is dependent on the thoroughness of the literature study made by the author of his original article, that literature in languages not familiar to that author is not likely to be included, and that only literature older than the first article is found.

26.3.3 Document Delivery

In the ways described above, a drainage engineer will find the titles of many publications. The ones he wants to consult may not be available in a nearby library or even in the country. In that case, he can often borrow them from document delivery organizations.

Organizations that will supply these publications are ILRI, CTA, and the international organizations of the Consultative Group of International Agricultural Research/CGIAR (e.g. ILCA, CIAT, and the International Institute of Tropical Agriculture/IITA).

Documents can also be requested from the British Library Document Supply Centre.

Document Donation Schemes

The suggestions that have been made on how to keep in touch with new developments and how to retrieve relevant literature usually involve money. Many countries, however, are experiencing an economic decline and are suffering from a shortage of foreign exchange. In these circumstances, international donors can be asked for help. When approaching these donors, one should carefully spell out the needs; it must be explained how and by whom the material will be used.

It is difficult for institutions and individuals to know who to approach for assistance. In an article by Carol Priestley (*The Book Famine: a selective directory for book and journal assistance to universities in Africa*), she writes about some of the major document donation schemes in existence. Several of these organizations are listed below.

More information can be found in the article, which is available as a reprint from the International African Institute or in the ILRI Library. The donor organizations are: