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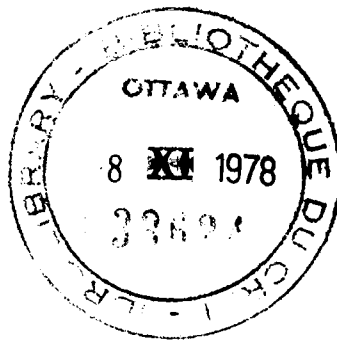
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SOME THOUGHTS ON INFORMATION NEEDS AND SERVICES  
FOR RURAL DEVELOPMENT IN POOR COUNTRIES

by

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## INTRODUCTION

Information relevant to rural development in poor countries of the developing world has to be drawn from a wide range of disciplines. Currently, the capability of those countries to collect, collate and disseminate this information themselves is limited. Similarly, these deficiencies also extend to researchers outside the LDCs, but who are actively engaged in support roles. The result is poor availability of information which is necessary for planning, implementation and ultimate success of projects. Scientists are confronted with a rapidly growing mass of data and literature, much of which is either irrelevant or not of current value to be of much use. A rationale, therefore, is needed to provide easier access to the fulcrum of information that can be used for development purposes.

The planning and development of new services and the coordination of existing ones first requires detailed knowledge of the state of affairs on both the research side as well as the information side. Additionally, knowledge is needed concerning the dissemination of research across both national and linguistic boundaries. At the bibliographic level, more knowledge is required

about the coverage of primary literature by the secondary sources. At library level more needs to be known about library holdings, exchange of information and inter-library loans. At the documentation level information is required about the scope of services; and finally at the international level we need to know something about degree of standardization already achieved, carrier languages and indexing procedures.

As a first stage to satisfying the information needs of rural development it might be useful to first establish the subject scope, identify the users of services rather than the documents, and the flow of information, and then try to list and define any irregularities or deficiencies in those services both within well-defined groups of users as well as between them in different disciplines. Subsequent stages might try to gauge the degree of co-operation required to integrate existing services and libraries to form a coherent retrieval operation including such issues as the extent to which any information required is already readily available and how far bibliographies and/or other tools might just as easily meet user requirements. Finally, one should consider the need for formulating a computer-assisted program capable of drawing from a universe of existing sources the specific items for the

researchers in fields related to rural development. This would need a fairly close analysis of job specifications, training programs, output formulae and software development to provide the type of links with the various information processing centres capable of disseminating literature in the right package.

This paper first outlines these problems and then examines the state of information available to users in the rural development field by conducting a computer-assisted search of several international data bases. These are then compared with the results of manual searches together with an analysis of a group of core journals for articles relevant to low-income countries. The general conclusion reached is that very little material of relevance at the national level circulates in international systems, and that non-conventional literature from these countries is not included.

While the emphasis here has been mainly on international systems and services, it is shown that LDCs can take several opportunities of their own at the national level to improve access to information on rural development. In line with the thinking of the United Nations Program of International Cooperation in Scientific and Technical Information

(UNISIST) it is desirable that any international network should be founded on a strong national base which encourages LDCs themselves to develop systems catering for their own specific needs and for which they can build on their own areas of expertise.

We are now at a crucial stage in the development of the vast rural underdeveloped world which will set the pace into the next century. At the very least we should be thinking now in terms of doing something to provide a workable framework to enable scientists working in these important fields to quickly obtain their precise information requirements to hasten development.

#### BACKGROUND

The World Bank\* divides Less Developed Countries (LDCs) into two groups (treating Communist countries separately, so China, a huge exclusion, is missing from this definition of the less-developed world):

1. Low income countries, with a Gross National Product (GNP) per capita of U.S.\$250 or less. There are thirty-four such countries ranging from Bhutan and Nepal, whose GNP per capita was \$70 in 1976, having fallen by an average 0.3% every year since 1960, to the Yemen Arab Republic.

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\* International Bank for Reconstruction and Development. *World Development Report*, World Bank, Washington, D.C. 1978.

2. Middle income countries, of which fifty-eight can be identified from Togo to Israel with a GNP up to \$3 920.

These figures compare with Switzerland's \$8 880 per capita GNP. Of course, exchange rates do not always accurately reflect purchasing power, so a rank ordering of countries by dollar income per capita reveals a similar picture (see Table 1). But to put it simply, there are some 800 million people in the developing world who still live in absolute poverty, with incomes too low to ensure adequate nutrition and without access to essential services. Many of these people have experienced no improvement in real living standards in this decade and, in some cases, living standards may actually have deteriorated. The basic tenet of economic growth is, in a sense, biblical: to him who hath shall even more be given. So, on average, low income countries have seen GNP per head grow a mere 0.9% between 1960 and 1976, middle income countries, defined above, by 2.8%, whilst industrialized countries have had a growth of 3.4%.

All LDCs face different challenges and have to tackle them in different ways. Two common goals, however, are the need to redress the imbalance of the domestic economy from slow-growing agriculture to fast-growing industry and services, but not at the

expense of neglecting agriculture or the need to preserve the rural environment altogether. Secondly, externally they must be able to trade and attract capital.

Over half the 800 million in dire poverty live in rural areas of four Asian countries: Bangladesh, India, Indonesia and Pakistan. Improved living standards can be a reality not only by introducing better farming techniques but also by rural development in the broadest sense. Broadly, the difficulties LDCs face fall into the following categories:

#### Population

This is by far the most serious problem and whilst detailed demographic projections are never accurate, the World Bank statistics offer some general guidance. They show LDCs' population rising from 2.1 billion in 1975 to 3.5 billion by the year 2000, with two-thirds of the countries not reaching a stable situation until well into the twenty-second century!

#### Food supply

Most international bodies doubt that food supply will keep up with demand in most LDCs.



### Debt

The World Bank estimates that LDCs' foreign capital requirements will rise from \$63 billion (1975) to \$276 billion (1985).

### Health/sanitation

Because of population pressures, health and sanitation standards are actually declining in some LDCs. A WHO survey (1976) indicated that whereas in 1970 27% of urban population in LDCs had sewerage connections, in 1975 this had declined to 25%. And a further 25% had no access to sanitation at all. The pressing need was to have access to basic, simple technology.\*

### Trade

Because of protectionism in industrialized countries, in terms of total market, LDCs will only be able to account for 2.7% (1.2% in 1975) of manufactures in 1985. Because most LDCs are limited to a small range of industrial options like textiles and clothing, they are all chasing more or less after the same market and, therefore, would seem to have no real hope of meeting their export targets. The prospect of prolonged recession in the industrialized countries casts further pessimism on this picture.

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\* WHO Community Water Supply and Excreta Disposal in Developing Countries. Review of Progress. *World Health Statistics Report*. Geneva (1976), Vol. 29 (10), p. 544.

All LDCs need to:

- cut birth rates by half;
- raise the productivity of agriculture to avoid the crudest kind of Malthusian crisis;
- bring air and water pollution under control;
- expand production by substitution, economy and recycling to permit continued industrialization;
- provide education to enable a new generation of technicians to develop the future economy;
- improve health, hygiene, sanitation;
- provide necessary public works such as road, railways, dams and communications to enable an industrial base to modernize;
- restructure investment and trading patterns to permit expansion of the economy.

The interdependence between rich and poor, north and south, is now slowly being learnt. The rich have grown at the expense of the poor and the poor on the jet stream of the rich. Cooperation and sharing of technologies is now very important to world development. The development of LDCs, therefore, hangs on continued cooperation and information sharing. As an OECD report for science policy (Whitehead Report) suggested in 1971, what is required is a global concept of information.\* Most LDCs share common development problems as has been shown above and in Table 2. Research and development on any of these aspects requires that a rapid transfer of technology to solve them is crucial to the total development effort. It is often the case that information services in LDCs are non-existent or inadequate to deal

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\* OECD Committee for Science Policy. *Report of the Ad Hoc Group on Information, Computers and Communication*. Paris: OECD. 25 June 1971.

with the massive problems involved. Many LDCs lack even the most basic information about themselves. Population census data, household surveys and economic land classification and farm surveys do not exist. More importantly, if they do exist, very often they are not retrievable because no adequate mechanisms exist for researchers to obtain the information.

The information spectrum of specific research areas is now being tackled more effectively. Many developed countries\* are now much more aware of the need for information, and developing countries are also showing greater interest in regional cooperation and cooperative projects. For instance, within the field of agriculture there is already in existence an international information system organized by FAO. This service, the International Information System for the Agricultural Sciences and Technology (AGRIS) was established in 1975. The goal is to provide the world with an 'agricultural memory'.

Significant achievements can already be credited to AGRIS, which now has 90 participating countries. The system works along the same lines as the International Nuclear Information System (INIS) (in fact, it uses existing INIS computer facilities in

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\* There is a great deal of literature to be found in Soviet and East European services, but it is not included in this analysis. China, who did not publish any scientific literature at all during the Cultural Revolution (1964 - 1970), is only now emerging as a source in this field.

Vienna). Participating countries send bibliographic entries to the AGRIS coordinating centre, and the total input is, likewise, processed on computer, which generates data printed as a monthly bibliography called *Agrindex*.

Magnetic tapes are also made available to participating governments and agencies: from these tapes, computers can extract items corresponding to specific interests - for example, information about the characteristics of different varieties of wheat, or about methods to extract protein from cottonseed. Several AGRIS member countries have started producing such selective announcement services; Brazil, for instance, distributes selected information items to 1 000 users every month.

In 1975, AGRIS processed some 50 000 references, and in 1977, 150 000. The number is expected to reach 200 000 and to remain approximately at that level.

The AGRIS system is compatible with other information systems, such as INIS, and follows the norms and guidelines laid down by UNISIST, Unesco's program to rationalize global scientific and technical information services, so that as these networks

develop, they can be linked. The cooperative concept of this project has stimulated inter-regional groupings in the LDCs themselves.\* Implicit in this is the desire to reduce dependence on costly outside sources for information. Since the establishment of the large international organizations after 1946, much progress has been made in the collection and dissemination of data and other information especially within the U.N. system (FAO, ILO, Unesco, etc.). Regional organizations of these bodies (ESCAP, etc.) have also done a great deal towards improving the stock and flow of information.

The information needs of development have been considered along the same lines by the Development Sciences Information System (DEVSIS)\*\* to pool knowledge and experience acquired in the development process and making information available to those who need it. It has been estimated that national and international agencies generate more than 100 000 reports annually. Each records some aspects of development that may be relevant to other situations. Articles published in accessible periodicals are thought to represent about 20% of the total, books another 10 - 15%. The remaining two-thirds consists of ephemeral material generally referred to as non-conventional literature, i.e. literature not

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\* In Southeast Asia there is the Agricultural Information Bank for Asia (AIBA) which provides agricultural input from the South-east Asian region. In Latin America there is AGRINTER.

\*\* *DEVSIS Study Team: DEVSIS - The Preliminary Design of an International System for the Development Sciences. Ottawa : IDRC. 1976.*

published or printed in the accepted sense such as mimeographs, conference papers, technical reports of various kinds, etc. DEVSIS as conceived would apply the experiences of INIS and AGRIS to provide better access to both the 'visible' and 'invisible' parts of global information. Presently, the International Development Research Centre (IDRC) is cooperating with the Deutsche Stiftung für internationale Entwicklung (DSE), the German Foundation for International Development, to produce a development index (*DEVINDEX*) first published as *DEVINDEX Canada* in 1975 and 1976 and as a joint effort as *DEVINDEX* 1977. The advantages of both the AGRIS and DEVSIS systems especially to LDCs is that they help the countries themselves to exercise control over their own literature, provides easier access, especially to the non-conventional literature and lays down common standards and compatibility. It is a 'learning while doing and doing while learning situation' that is of great value to countries weak in documentation.

#### IDENTIFICATION OF USERS

Although there is a large group of users now involved in solving problems inherent in rural development, the information

needs tend to be non-specific.

The user community concerned with rural development may be identified as follows:

1. administration and policy makers
2. planners
3. scientists
4. extension officers
5. rural population
6. other interest groups.

User needs are so diverse that they can only be satisfied by tapping many different sources and data bases. At present, there is no single source which is capable of satisfying their 'core' needs. Scientific information is only one part of a whole complex from which the above group of users have to draw.

#### USER NEEDS

In the first place, users need access to information about human, technical, economic and social fields they are working in; they also need information about the past, present and future. That is to say, they need to be able to obtain retrospective searches: "what is known about a certain topic?"; current awareness:

"what is the latest about so and so?"; and "what is being contemplated?". In addition, they also need to be able to tap sources of information on peripheral areas.

The information needs of clientele may, therefore, be defined according to these categories:

1. Administration and policy makers need access to the broad spectrum of knowledge concerned with their work. This information needs to be current and timely.
2. Planners have to have access to more detailed information to support the policy makers. They need both retrospective information as well as current awareness.
3. Scientists require comprehensive knowledge of their subject: literature searches, special bibliographies as well as current awareness.
4. Extension officers need access to specific items of information, condensates, reviews of scientific literature and re-packaged information in a form which can be easily disseminated to the grass roots level.
5. The rural population needs action-oriented literature and access to informative everyday accounts of knowledge which may be easily applied to the current situation; illiterate peasants require audiovisual services.
6. Other groups, which comprise miscellaneous personnel concerned with development as well as small-scale entrepreneurs, rural animators, etc., require area studies and basic data on local resources, etc.

Broadly speaking, rural development is concerned with two important goals:



1. eradication of extreme poverty by satisfying the most basic needs for food, shelter, health, employment and education; and
2. modernization and growth of national output both for domestic consumption and to earn income through export.

Scientific knowledge and technology are an integral part of the development process and information services are a key element.

Two levels of information may, at this point, be identified:

1. information for development, sectoral in nature, that is, relating to industry, agriculture, etc.; and
2. information about development, which generally relates to socio-economic questions.

Information requirements for rural development fall into several broad fields listed into two categories set out below:

#### Major Areas

##### Information for development

industry  
agriculture  
population  
health  
education

##### Information about development

socio-economic data  
trade and investment  
legal aspects

#### Minor Areas

##### Information for development

cartography/remote sensing  
meteorology  
recreation and tourism  
disaster and natural calamities

##### Information about development

anthropology and cultural studies  
resource management

Underlying the problem is the accumulated mass of departmentalized knowledge upon which rural development research must draw. The effectiveness of development programs must depend to a very great extent on how well the existing fund of knowledge is scanned and accessed across disciplinary boundaries for any particular purpose at any given time. For instance, each subject has its own primary literature in the form of monographs, articles, books, etc. To this must be added secondary sources represented by bibliographies, abstracting services and other retrieval facilities based on systems of classification and indexing which provide current awareness of new discoveries and allow their respective fields of knowledge to be readily surveyed and information extracted. However, the extent to which this has been done varies greatly; and, overall, there has been little coordination at the tertiary level of information analysis representing the comprehensive viewpoint from which rural development must operate. If rural development is to be viewed as a practical subject area, it is necessary to provide some information retrieval process. In order to do this the adequacy of existing services, gaps in their coverage and ways in which they may be inter-related, must first be determined.

In order to evaluate existing information services serving

the broad area of rural development (see Table 3 and Annex), it is first necessary to know something of the nature of the literature and the approach made to it by users. The outstanding feature is its diversity of source and variety of form. Much non-conventional literature is ephemeral in nature and not easily documented unless systematic efforts are made to track it down and record it for storage in a library system. Literature in this category forms a major part of the total volume of rural development literature: monographs, working papers, theses, research reports, conference papers, publication of local government organizations and statistical summaries should all be considered prime sources of information.

An important point to consider here is the emphasis placed on draft reports, mimeo publications circulated for discussion amongst users and various materials associated with rural development. They are regarded more and more as a significant means of communication between professionals and thus are growing in number and importance each year largely as a result of the proliferation of theories, experiences and developments in this intensely researched field and as evidenced by the numerous seminars, workshops and conferences on aspects of rural development

held worldwide.

Whilst secondary services of different descriptions cover periodical articles and books, this non-conventional literature is not being covered adequately. It follows, therefore, that researchers may be missing large chunks of information which may be vital to their research needs. Moreover, because the vast amount of technical literature and knowledge required for modernization is increasing rapidly (doubling every decade or so), it is difficult for users to keep up-to-date. Bradford's Law of Scattering puts into stark relief the problem of keeping up with all that is new in one's discipline or area by showing that in an individual's subject approximately the same number of articles are published in journals and books he does not scan as in journals he regularly consults. This refers to researchers in Western countries, so what, then, is the plight of scientists in LDCs lacking easy access to modern channels of information?

#### METHODOLOGY

A sample search by computer was made of both titles and

by indexes of commercial data bases already in operation which were judged likely to include significant amounts of retrievable material pertaining to rural development. A set of broad descriptors (one hundred and fifty-six in total) were on the main subject headings thought to comprise the broad subject area of rural development were given, e.g. rural development; developing countries; rural settlement; education; social change; health; sanitation; appropriate technology, etc. No refinement was made, nor was there any attempt to give a precise listing of all possible terms at this stage, since, without a definite consensus on the target area, such an exercise would be counter-productive to the scope of the present paper which was to elicit an in-depth examination of the subject area. Table 4 sets out the results of this search as follows: Column A presents the results of the search and indicates first of all the large amount of potential material in the broad area. The high amount of retrievable material indicates the amount of 'noise' generated by searching by this method. It also clearly shows that the main body of literature is likely to be contained in several of the established international data bases, i.e. LABORDOC, AGRIS and CAB (see Column C). Column B, where applicable, shows the results of a sample manual search and attempts a more realistic appraisal of the actual,

relevant material likely to be of use and the significant point here is the relatively low result compared with Column A. This is because a sample manual search of these data bases with critical examination of the references revealed that there was little available material on low-income countries themselves in the system. Moreover, the majority of references obtained in this way revealed a fair amount of information on low-income countries produced outside but there was very little material from the countries themselves. The second problem relates to indexing criteria for this type of literature. Few services differentiate between the socio-economic status of developing countries. Hence, countries like Greece, Israel, etc., will be amongst the material retrieved. Even at the middle-income level, 'richer' developing countries figure prominently in the information retrieved, e.g. Brazil, Malaysia, etc.

In order to overcome this problem three further analyses were made. The first was to conduct a geographical search (Table 5) limited to the low-income nations listed in Table 1. The second was to go back to the primary journals, in this case a number of core journals in the IDRC Library, and examine each in detail for a specific year (1976) to ascertain the relevance

and/or value of development literature to the low-income countries as a whole. Apart from India, both exercises revealed the negative result obtained as compared with the mechanized retrieval exercise. This is because although India appears on the list of poorest countries, it is fairly advanced in the way of information services at the national level and already contributes to a few international systems.

A sample analysis of primary core journals (Table 6) also showed an unfavourable result. It is well known that authors in LDCs prefer to publish in Western prestige journals in preference to national scientific publications. The backlog of articles for publication in Western journals is quite considerable. National scientific literature also suffers publication delays which, in turn, may inhibit potential authors in some LDCs from publishing results of their research. The only LDCs with an established publishing industry serving the rural development field were India and Pakistan. The criteria for scanning original articles were:

1. relevance to poor country requirements because of original contribution to fund of area knowledge;
2. authorship by low-income countries;
3. case studies;
4. practical application of development theory.

General articles or theoretical studies, especially by Western specialists, were excluded. A third analysis was finally made of the type of literature appearing in primary sources (Table 7). This depicts the preoccupation with socio-economic literature (agricultural economics and rural sociology).

Estimates of the amount of relevant literature available are difficult to achieve in this way largely because the parameters of the subject encompass such a broad area. In any case, it is felt that the high figure in Table 4, Column A, is misleading for LDCs as a whole, largely because much of the information sought by scientists working in rural development is not retrievable in the bibliographic context because either it is too diffuse or not indexed in the precise form to fit into international systems. It is all too clear, even from a casual glance at existing services, that the needs of low-income countries are not nearly so well served as the needs of rural development in industrial countries, for which



there is already a great deal of information. Very little information on rural development gets into any system from the national level. This can be seen from the sample analysis of primary sources (Tables 5 and 6). Moreover, there are a variety of sources of information in the U.N. system itself, e.g. FAO, ILO, ESCAP, UNIDO, UNCTAD, etc. which is not easily retrievable either, because there is no link to the various forms of data held. The problem is one of levels of information. This is very important within the U.N. system. Identification of the user and his needs is important but difficult.

There is an important requirement, therefore, to establish the appropriate mechanisms to coordinate the retrieval of relevant literature from the complex of services both within U.N. and outside. This could begin by establishing a precise list of descriptors and applying careful Boolean logic to ensure the minimum amount of noise resulted in any search. Haphazardly applied, the result would bring forth a vast amount of unuseable

information. Duplication would also be a problem mainly because the core of information is not in the system.\*

This situation can only be dealt with by applying more thought to what it is we now desire to achieve. Joint operation should be stressed, reflected at the management level in unity of purpose. The value of any service to low-income countries will be maximized only by collective effort on their part to achieve the information relevant to their needs. A permanent arrangement could: (1) Call for a new system best handled by the creation of an agency in the LDCs themselves. If based on low-income countries, a mini-DEVSIS operation would be ideal. (2) Establish a referral centre (Table 3). There are, however, few countries that fall within the scope (Table 1) that could be used for such operations. Training at an early stage is, therefore, signified, as well as other activities, i.e. thesaurus construction and provision of basic tools. Training in LDCs is considered essential because staffs are required to be fully conversant with the local environment and technology in order to be able to successfully interface between the system and the user. Imperfect development and disparity of information structures as well as educational services in most low-income countries as suggested by UNESCO\*\* makes a

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\* This finding tends to be supported by the research carried out in the area of low-cost sanitation literature, see: Rybczynski, W., Polprasert, C. and McGarry, M., *Low-Cost Technology Options for Sanitation*, Ottawa, IDRC (1978), 42 p. IDRC 102e.

\*\* *Study on National Structures for Documentation and Library Services in Countries with Different Levels of Development with Particular Reference to the Needs of Developing Countries*, Paris, UNESCO, 1973.

broad-brush approach to this problem, therefore, undesirable. The experience gained, however, with AGRIS and the preliminary work on DEVSIS, provides some base from which to work on. AGRIS training schemes have been extended to five LDCs in Africa, Asia and Latin America already, e.g. AIBA in the Philippines and AGRINTER in Central America provide useful resources in this respect. Consideration also needs to be given to the fact that both the rapid growth of development literature and the progressive application and reduced cost of communications networks utilizing modern technology means that more and more low-income countries will be drawn into the information process in the area of rural development. To extend or develop any system catering to this sphere without the active involvement of the low-income countries would, therefore, be counter-productive.

In view of the diverse nature of needs and requirements across the broad spectrum of rural development, a new information service might be questionable and may not, in fact, given financial resources, be even a desirable aim. Therefore, a modified structure on the lines of the above LDC-based mini-DEVSIIS service is a possibility. One could also consider (3) a partial response by aiming at the broader aspects only. This would mean, in effect,

ignoring the more precise aspects of information retrieval from a complex of data bases in order to satisfy a number of cross-disciplinary users by adopting a project approach. Such an approach could be based on the experience gained with either the U.N. system, Current Agricultural Research Information System (CARIS), or Common Register of Development Projects (CORE) of the Inter-Organization Board for Information Systems and related activities (IOB).\*

(4) Finally, when discussing secondary sources, including current contents, indexing and abstracting services which cover rural development, one might consider whether or not all these services might be rationalized and if their relevant data could be extracted and merged into one single system. This analysis has shown that information in the commercial data bases tends to be generated outside the national level and tends to reflect theoretical thinking rather than practical application of action-oriented literature. It might be stated at this point that of the services reviewed only *DEVINDEX 1977* revealed a more healthy ratio of usable items in this respect, 430 possible citations of relevance out of 650 (see Table 4). A further point following on from this analysis concerns the value of information which is being stored in international systems. The unfavourable ratio of relevant to irrelevant literature depicted in Table 4 suggests that the criteria for

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\* International Development Research Centre. *Evaluation of the CARIS pilot project*. Ottawa : IDRC. (1977) IDRC-TS5e. At the present time CORE has only limited retrieval capability in that it does not identify key documents relating to each project. However, the authors of CORE made provision in the design for such a component to be part of the system in the near future.

collection of rural development information need to be critically examined. It is not so much a question of what can be retrieved already but rather what should be collected and what should properly be excluded from an information system relating to rural development in low-income countries. U.N. groups with some of the information required already within their system are coming under increasing pressure from field workers to begin a re-appraisal of the information needs of low-income countries on these lines. We can now point to the pioneering work done in agriculture by AGRIS and to the type of benchmark studies represented by DEVINDEX. The problem, however, will be to get governments sufficiently interested to adopt this form of joint strategy outside the rich countries, who appear to be less willing to share their information resources. Therefore, a new network will have to rely on the latent potential of the low-income nations themselves to contribute and share the information that is required to satisfy their basic rural development needs.

#### SUMMARY AND CONCLUSIONS

From the analysis and review of the present situation

pertaining to the information needs of developing countries we can discern some possible measures which might be considered to improve the situation. First on the general plane:

1. More attention should be paid by existing services to coverage of national literature from low-income countries more applicable to their needs.
2. Priority should be given to more comprehensive inclusion of non-conventional literature.
3. Efforts should be made to strengthen systems that establish standards for bibliographic description, thesaurus construction and retrieval of the literature (UNISIST, ISO, etc.).
4. Continue financial and technical assistance to LDCs to enable them to cooperate and collaborate with a view to making their literature more readily available to each other.
5. Step up efforts to provide greater accessibility to documents in every field, with emphasis on microform development for non-conventional literature.

A question implicit in this discussion paper is how best to reconcile diverse information needs, and, in particular, how to strengthen the capabilities of LDCs themselves in this respect and to enable them to make fuller use of existing worldwide sources of scientific information. We have already pointed to the experience of some successful collaborative systems which are directly of benefit to LDCs. The temptation of trying to erect and maintain a central collaborative multi-disciplinary system or systems to cover

the broad field of information about rural development should be resisted. Nevertheless, there are many things that can be done relatively cheaply and quickly to ensure a better access to the broad spectrum of information on rural development. International collaboration in information services over the past decade especially in atomic research and agriculture, has put into perspective the practical advantages of standardization, compatibility, common vocabularies and access to literature. Regional groupings such as AIBA in Southeast Asia and AGRINTER in Latin America have enabled developing countries to pool their efforts, gain economies of scale to work efficiently enough on problems they could not have tackled individually for many years concerning the control of their own literature.

This discussion hopes to stimulate the need for initiatives to find the necessary mechanism to develop a system for rural development which will enable research results in various aspects to be applied more rapidly. If increased collaboration is accepted as a priority, further exploration by international bodies is called for which will find the mechanism that fits the situation best.

In view of the present lack of effective retrieval of

information on rural development or link between systems, it is recommended that special emphasis is placed on the development of suitable links for the effective retrieval of information for the rural sector. High priority should be given to the discussion of this aspect at the forthcoming United Nations Conference on Science and Technology for Development (UNCSTD).

The proliferation of agencies within the U.N. sector itself is very discouraging to efficient information retrieval. UNESCO should, therefore, recommend to its member states, through relevant channels, provision for representation at various committee or agencies involved in and responsible for meeting information needs of the rural sector. In assisting member states in the planning of information systems, proper advice should be available so that these systems be designed so as to provide support for researchers in the rural sector.

Specific items or alternatives which may be considered for improvement are set out as follows:

1. Establishment of a clearinghouse for evaluation and implementation of program and/or project plans involving development information.
2. Mobilization of relevant information available in various services (this includes numeric, textual and graphics).



3. Promotion of standardization in data/bibliographic information collection, storage and retrieval.
4. Strengthen and maintain existing scientific, technological data bases.
5. Establish linkages with national, regional and international information services in various fields of development for mutual data access and use.
6. Determine needs, gaps, priorities and alternatives in order to rationalize and coordinate information resources.
7. Provide guidelines on storage and retrieval of pertinent information specifically for low-income countries.
8. Set up where applicable and maintain a forum for exchange of ideas amongst users working in different disciplines related to development generally.\*
9. Rationalize and systematize information delivery in the light of knowledge already available.
10. Assess the information needs of rural development generally with specific determination of what users need, what knowledge and in what form they can best use such information.
11. Because we find rural development information is not recorded properly in many instances, a program of case studies of development planning, information programs, including new subject areas, needs identifying.
12. Promotion of international support for information on rural development.
13. Documentation of national programs involved in rural development designed to pinpoint emerging trends and needs (e.g. Sahel Documentation, DEVINDEX).
14. Computerized programs to assist systematic classification and efficient retrieval of resource materials in rural development.

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\* We have the following experiences to draw on here: The Special Committee on Agriculture of the International Federation for Documentation, Committee on Asia and Oceania (FID/CAO/AG) and the Special Committee on Industrial Information for Latin America (FID/CLA/IA), the Agricultural Information Society for Asia (AISA), and the Inter-American Association of Librarians and Documentalists (AIBDA).

15. Use of microforms and other relevant technology to improve access to literature.
16. Research into low cost retrieval systems for LDCs, especially those adaptable to small farmer areas.
17. Professional development in area of rural development information.
18. More attention should be paid to inclusion of extension literature in information systems and services.

From the above discussion and identification of problem areas we can now isolate the main constraints. These are:

1. Lack of coordination between systems.
2. Proliferation of agencies dealing with development generally.
3. Lack of cooperation between centres and services.
4. Insufficient use of modern retrieval techniques.
5. Gaps in coverage of rural development literature by existing services.
6. Considerable backlog in processing information.
7. Delays and difficulties in LDC libraries' access to cited literature.
8. Lack of manpower/skill in LDCs.
9. Too much user effort needed since many international services are not sufficiently adjusted to LDC user needs and thus require further sifting and selection by user.
10. Lack of materials of use to extension workers.

Special priority areas for LDCs information needs in rural development are:

1. Definition of subject scope.
2. Bibliographic control of relevant literature with rapid access to documents.
3. Rapid dissemination of information in a variety of packages, especially results of case studies, progress reports, data compilation with mission-orientation, selection and processing of 'action' literature.
4. Making available information on research in easy to assimilate non-technical form for direct use via extension agencies at farmer and community level.
5. Information must provide and be attuned to the changing needs of different socio-economic conditions of countries and social groups. Priority to be given to identifying information about rural development projects and emphasis in indigenous knowledge. We, therefore, need ways of tapping knowledge so that it can become part of the decision-making process.

The general conclusions of this analysis are:

1. Mechanized searches of existing data bases reveal a great deal of 'noise' on rural development information on LDCs but manual searches and scanning of both primary and secondary sources show that there is very little in existing services of relevance to these countries. It also appears that national input as such is non-existent.
2. As a result, we need to 're-think' the information requirements of low-income countries in relation to rural development.
3. More attention is required to be given for improving the services in line with the basic needs of rural development of poor countries.

4. The general direction of development pointed out as a result of this analysis is towards a DEVSIS (in this case described as a mini-DEVSIIS) organization.

TABLE 1  
THE POOREST LOW-INCOME COUNTRIES

<u>COUNTRY</u>	<u>ANNUAL INCOME PER CAPITA</u>	<u>POPULATION IN MILLIONS</u>	<u>BIRTHRATE PER 1000</u>
1. Bhutan	70	1.2	44
2. Cambodia	70	8	47
3. Laos	70	3.5	45
4. Upper Volta	90	6.4	48
5. Mali	90	5.9	50
6. Rwanda	90	4.5	51
7. Burundi	100	3.9	41
8. Ethiopia	100	29.4	43
9. Maldives	100	0.1	50
10. Somalia	100	3.4	47
11. Bangladesh	110	83.3	47
12. Burma	110	31.8	40
13. Nepal	110	13.2	43
14. Chad	120	4.2	44
15. Afghanistan	130	2.0	43
16. Guinea	130	4.7	47
17. Niger	130	4.9	52
18. Benin	140	3.3	50
19. Pakistan	140	74.5	44
20. India	150	622.7	34
21. Malawi	150	5.3	48
22. Sri Lanka	150	14.1	28
23. Timor	150	0.7	44
24. Zaire	150	26.3	45
25. Haiti	180	5.3	36
26. Madagascar	200	7.9	50

SOURCE: Population Bureau, U.S. Department of Commerce, Washington, D.C.

TABLE 2

INFORMATION FLOW PATTERN - LOW-INCOME COUNTRIES

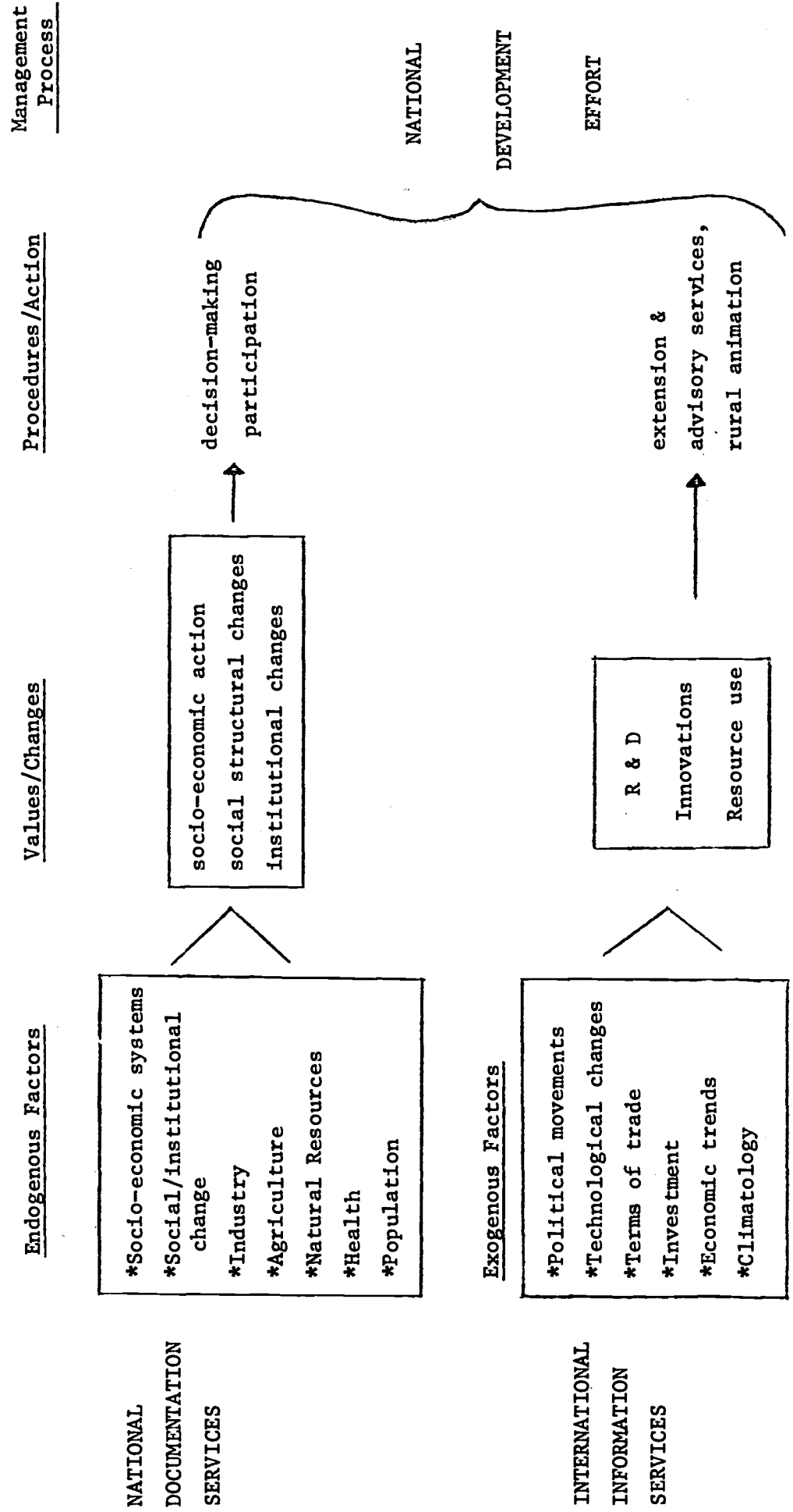


TABLE 3  
COMPLEX OF EXISTING DATABASES IN RELATION TO  
RURAL DEVELOPMENT

Services within  
subject area

Services with area of  
peripheral interest

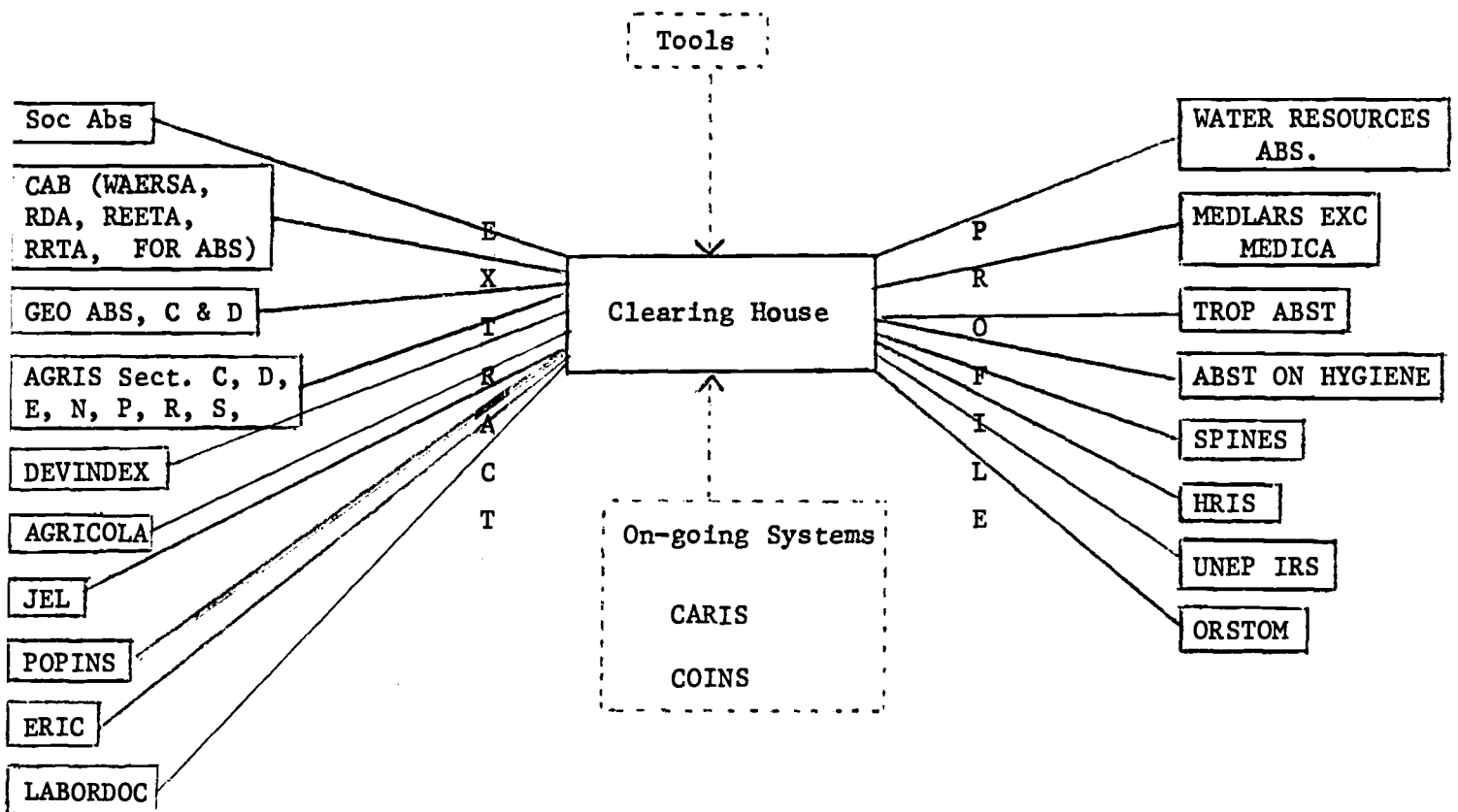


TABLE 4

## COMMERCIALY AVAILABLE DATA BASES DEALING WITH RURAL DEVELOPMENT

Data base	Subject scope	Established	A		Outputs		C
			Typical	Relevant	B	Percentage	
GRA/NTIS (1)	U.S. Govt. Reports	1970	12 995	3 423		26.5	
LABORDOC (2)	Socio-economic development	1965	47 000	12 600		26.8	
IBEDOC	Education	1970	4 200	-		-	
Soc. Abs. (3)	Rural sociology, etc.	1963	27 076	2 996		11.0	
AGRICOLA (4)	Agriculture, extension, etc.	1970	43 997	14 288		32.4	
IRRD	Roads, infrastructure	1974	1 000	-		-	
ERIC (5)	Education	1966	64 645	11 265		17.4	
AGRIS (6)	Agriculture, economics, development, extension, etc.	1975	10 800	4 882		45.2	
INDIS	Industrial development	1978	1 500	-		-	
CLADES	Education, training, etc.	1970	2 000	-		-	
INTIB	Rural industries	1978	1 800	-		-	
CARIS	Development research institutions	1975	1 250	-		-	
CAB (7)	Agricultural economics, extension, rural sociology, recreation, etc.	1964	52 769	6 276		11.8	
INTERFILE	World trade	1975	500	-		-	
MEDLARS (8)	Health, hygiene	1970	56 502	1 328		2.3	
DEVINDEX (9)	Socio-economic development	1975	650	428		65.8	
POPINFORM	Population, family planning	1971	5 000	-		-	
COMPENDEX (10)	Engineering	1970	22 562	9 245		40.9	
TITUS	Textiles and related industries	1967	120	3		2.5	
Environment	Science, technology, sociology, legislation	1971	1 250	-		-	
Abs.							
Soc. Sci.							
Cit.Index(11)	Social Sciences	1972	20 962	719		3.4	



TABLE 4 - continued

COMMERCIALLY AVAILABLE DATA BASES DEALING WITH RURAL DEVELOPMENT

Notes

- (1) 1964 to present.
- (2) Output from 60 000 most recent documents.
- (3) 1972 - 1978.
- (4) 1970 - 1978.
- (5) 1966 - 1978.
- (6) General information on the AGRIS data base is probably one of the most fruitful sources and this is estimated at some 10 000 references annually (about 10% of the total annual input). Most items are found in sections dealing with education (C), administration (D), economics, development and rural sociology (E), machinery and buildings (N), natural resources (P), home economics (R) and nutrition (S). It also includes items from the two regional outputs, *Agrinter* and *Agriasia*, both of which contain additional relevant information.
- (7) This estimate for CAB (1972 - 1978) was taken mainly from *World Agricultural Economics and Rural Sociology Abstracts* (WAERSA) which has sections dealing with development and agrarian reform, employment, income, prices, trade co-operation, extension education and rural sociology. In 1978, CAB launched two new services: *Rural Development Abstracts* (RDA) and *Rural Education, Extension and Training Abstracts* (REETA), but since both utilize records already stored on the WAERSA file care has to be exercised to avoid duplication. Additional relevant material may be found on other CAB files, e.g. *Rural Recreation and Tourism Abstracts* (which is not available on DIALOG at present), *Forestry Abstracts*, *Food Science and Technology Abstracts* and *Helminthology Abstracts* (health aspects in tropical countries).
- (8) 1966 - 1978.
- (9) DEVINDEX 1977 was used which includes input from Germany.
- (10) 1970 - 1978.
- (11) 1972 - 1978.

TABLE 5

INFORMATION AVAILABLE ON LOW-INCOME COUNTRIES ON

INTERNATIONAL DATA BASES

Country	AGRICOLA (1)	FAO (2)	AGRIS (3)	ILO (4)	Soc.Sci. Cit.Index (5)	COMPENDEX (6)	CAB (7)
Bhutan	34	-	-	3	7	-	17
Cambodia	93	1	-	-	66	4	108
Laos	61	1	-	42	63	9	109
Upper Volta	96	11	4	76	32	4	388
Mali	181	23	16	81	57	5	500
Rwanda	67	4	3	43	43	1	105
Burundi	34	4	2	27	25	1	53
Ethiopia	104	10	16	148	305	18	802
Maldives	1	-	-	3	4	-	5
Somalia	58	6	2	46	6	3	86
Burma	141	27	-	83	114	18	212
Nepal	379	3	15	78	146	11	354
Chad	146	6	22	40	42	13	363
Afghanistan	325	4	-	67	124	10	318
Guinea	2 413	-	6	35	337	134	5 073
Niger	976	6	14	42	68	182	1 108
Dahomey	47	3	22	-	40	2	149
India	14 905	91	1 038	2 033	5 723	9 690	42 071
Malawi	231	6	8	63	96	8	655
Sri Lanka	302	19	35	251	183	44	1 126
Timor	16	-	-	-	33	5	82
Zaire	154	9	1	68	101	34	431
Haiti	48	3	-	93	57	1	83
Malagasy	1 111	4	2	6	118	14	1 054
Bangladesh	282	27	172	115	263	48	974
Pakistan	1 351	26	248	608	378	157	2 123
Benin	7	-	-	47	67	1	133
TOTAL	23 173	292	1 626	4 090	9 719	10 445	52 769

- (1) January 1970 - October 1978
- (2) 5 000 most recent documents
- (3) January 1975 - September 1978
- (4) 60 000 most recent documents
- (5) January 1972 - October 1978
- (6) January 1970 - October 1978
- (7) January 1972 - October 1978

TABLE 6

SAMPLE ANALYSIS OF PRIMARY SERVICES

<u>JOURNAL</u>	NO. OF RELEVANT REFERENCES
	<u>1976</u>
African Affairs	2
African Development	4
African Social Research	1
African Studies Review	2
Applied Sciences and Development	3
Bangladesh Development Studies	6
Bulletin of the Population & Development Studies Centre (Korea)	2
Canadian Journal of African Studies	4
Caribbean Quarterly	1
Community Development Journal	3
Demografia y Economia (Mexico)	8
Demography in India	19
Development and Change	4
Development Forum (Malaysia)	4
Development and Socio-economic progress	2
Developing Economies	3
Desarrollo Economico (Argentina)	6
Desarrollo Rural en las Americas (Costa Rica)	12
East African Economic Review	4
East African Journal of Rural Development	11
Economia y Desarrollo	7
Economic Development and Cultural Change	4
Economie et Humanisme	1
économique	1
Ekistics	6
El Trimestre Economico (Argentina)	3
Growth and Change	1
Indian Farmer's Digest (India)	6
Indian Journal of Agricultural Economics	15
Indian Journal of Nutrition and Dietetics	6
Industries et Travaux d'outre mer	3
Intereconomics	2
International Labour Review	4
Journal of Administration Overseas	2
Journal of Agricultural Economics	1
Journal of Agricultural Economics and Administration (Philippines)	10
Journal of Development Economics	2
Journal of Development Studies	6
Journal of East African Research and Development	21
Journal of Hygiene and Tropical Medicine	4
Journal of Tropical Geography (Singapore)	2
Les Cahiers de outre mer	4
Malaysia Economic Review	1
Manpower Journal (India)	6
Medicine and Public Health	10
Mondes en developpement	3

TABLE 6 - SAMPLE ANALYSIS OF PRIMARY SERVICES - continued

<u>JOURNAL</u>	NO. OF RELEVANT REFERENCES
	<u>1976</u>
National Resources and Development	2
NEDA Journal of Philippine Development (Philippines)	1
ODI Review	3
Oxford Bulletin of Economics and Statistics	3
Oxford Economic Papers	5
Pacific Science	1
Pakistan Development Review	18
Pesquisa e planejamento economic (Brazil)	7
Philippine Agriculturalist	1
Philippine Economic Journal	3
Philippine Journal of Public Administration	2
Philippine Review of Business and Economics	4
Population	1
Population and Development Review	3
Population Studies	6
Problemas del desarrollo (Mexico)	8
Reflets et Perspectives de la vie	
Savanna	6
South East Asian Journal of Tropical Hygiene and Medicine	2
Tropical Doctor	4
WHO Chronicle	4
World Development	<u>8</u>
TOTAL	170

TABLE 7  
ANALYSIS OF PRIMARY LITERATURE  
IN DIFFERENT JOURNALS

<u>Journal</u>	<u>No. of items</u>
Agriculture	28
Industry	17
Economics	55
Sociology	10
Health/Hygiene	22
Population	16
Resources	5
Statistics	3
Education	<u>14</u>
Total	<u><u>170</u></u>

ANNEX

MAJOR INTERNATIONAL, NATIONAL AND REGIONAL INFORMATION  
SYSTEMS RELEVANT TO THE FIELD OF RURAL DEVELOPMENT

Abstracts on Hygiene

London: Bureau of Hygiene and Tropical Diseases.

African Development Information Network (AFDIN)

Provides economic development information for all OAU and ECA member states since 1965. On-line services planned.

Agrarian Research and Intelligence Service (ARIS)

Established 1963 at FAO Agrarian Reform Division.  
Manually-produced ad hoc bibliography series and question-and-answer service.

Agriasia - Regional bibliography of Southeast Asian literature

A.I.B.A., College, Laguna 3720, Philippines

Established 1976, approximately 4 000 references annually; includes action-oriented literature relevant to rural development.

Agricultural Requisites Scheme for Asia and the Pacific

Agriculture Division, ESCAP, UN HQ., Bangkok

The main objectives of this service are to provide improved access to regional information with regard to marketing and distribution of primary products especially in the field of small farmer production. Regular services include bibliographies and SDI service.

AGRINFORM

International Centre for Technical Information in Agriculture and Forestry, Berlin, G.D.R.

AGRINTER. Sistema interamericano de informacion para las ciencias agricolas

IICA-CIDIA, Turrialba, Costa Rica

Est. 1974 with regional index of Latin American and Caribbean literature. Includes extension literature. Approximately 10 000 references annually.

Asian Information Centre for Geotechnical Engineering (AGE)

A.I.T. Bangkok

Established 1973. AGE Abstracts.

Bibliography of Agriculture

C.C.M. Inf. Corp., 866 3rd Avenue, New York, N.Y. 10022.

Tel: (212) 925-2000

Since 1942 providing a monthly current awareness service on tape backed up with hard copy. Each tape contains approximately 10 000 items annually from worldwide sources, many of which directly related to development issues. Since 1970 known as Cataloguing and Indexing (CAIN) Data Base from Computer Applications Division, N.A.L., Beltsville, Md. 20705. Tel: (301) 345-6200

Centre for the Study of Education in Changing Societies

Molenstraat 27, The Hague

Question-and-answer service, retrospective bibliographies.

CLADES - Latin American Center for Economic and Social Documentation

A computer-based information service covering the ECLA region since 1970 in Spanish of the main areas of education, training, research and development. The services generally include retrospective searches, bibliographies and plans for hard copy CLADINEX.

CODATA

Committee on Data for Science and Technology (ICSU).

COINS

N.A.L. information data base on cooperation; linked to CAIN.

Computerized Documentation System

UNESCO, Documentation Systems Division, Paris

Worldwide coverage of subjects which generally fall within the scope of UNESCO and, therefore, of interest to development researchers. It consists of on-line retrieval, SDI services and hard copy version of UNESCO List of Documents and Publications (ULDP).

Cooperative Information

I.L.O., Geneva

Provides literature searches, bibliographies and question-and-answer service on all aspects of cooperation since 1920.

Current Agricultural Research Information System (CARIS)

Since 1975 Library and Documentation Division, FAO, Rome  
Collects, stores and disseminates information on agricultural research institutions, stations, workers and projects in developing countries and providing directories of on-going research, SDI and question-and-answer service.

Data Retrieval System for Documentation in the Social and Human Sciences

Social Science Documentation Centre, UNESCO, Paris  
Some 3 500 items available from worldwide sources on anthropology to welfare touching on many broad issues of development.

Development and Welfare

Delhi School of Social Work Documentation Centre. Established 1946  
Bi-monthly annotated index.

Development Sciences Information System (DEVSIS)

Established 1975. Decentralized, mission-oriented system sponsored by IDRC. Since 1975 an experimental service started with Canadian literature in the form of *DEVINDEX Canada*. Currently, collaboration with DSE is producing a joint issue for 1977. Further interest is being generated in some LDCs themselves for 1978.

Dissertation Abstracts - A series

1932. University Microfiches, Ann Arbor, Michigan.  
16 750 abstracts.

DOCPAL - Latin American Population Documentation System

Established in 1975 by the Latin American Demographic Centre, Chile

Collects, collates, abstracts and indexes all Latin American population information. An abstract journal will be produced from the computer and SDI will be offered with hard copy back-up.

Dokumentation Jugendforschung, Jugendhilfe, Jugendpolitik

Deutsches Jugendinstitut, Munich 13, Infanteriestrasse 13  
Abstracting service; 900 entries per year (manual).

Dokumentationsdienst Latinamerika

Institut für Ibero-Amerika Kunde, 2 Hamburg 36, Alsterglaus 8  
Socio-economic development.



Educational Resources Information Centre (ERIC)

ERIC Clearinghouse, SCRDT, Level 5, Stanford, Calif. 94305.  
Tel: (415) 321-2300.

Environmental Abstracts

Environmental Information Centre (EIC), 292 Madison Avenue,  
New York.

ESA Development Information System

UN Secretariat, New York. Department of Economic and Social Affairs  
Worldwide coverage since 1972 of broad field of develop-  
ment. Special consideration given to collection of  
unpublished literature produced by Department. Some  
20 000 items currently available. From 1978 SDI and  
on-line searching available.

FAO Agricultural Information and Storage Retrieval System (FAIRS)

Since 1976. Consists of some 60 000 items with an  
annual input of about 6 000 items. SDI and on-line  
services planned. Hard copy input provides FAO Docu-  
mentation Current Bibliography, List of Selected Articles,  
Cumulative Catalogue of Monographs.

Geographical Abstracts

Univ. of East Anglia, Norwich, U.K.  
Sections C and D cover social and economic geography.  
Est. 1966. Approximately 11 650 abstracts annually.

Government Report and Announcements (GRA)

Est. 1970. U.S. Dept. of Commerce, NTIS, 5285 Port Royal  
Road, Springfield, Va. 22151. Tel: (703) 321-8523.  
Consists mainly of abstracts of government-sponsored  
research in the socio-economic field comprising 40 000 -  
50 000 new research reports annually.

Highway Research Information Service (HRIS)

Est. 1967. Highway Research Board, NRC, 2101 Constitution  
Ave., Washington, D.C. 20418. Tel: (202) 961-1782  
A current awareness service with SDI and retrospective  
searches backed up with hard copy entitled 'Highway  
Research in Progress' annually, and 'HRIS Abstracts'  
quarterly which contains some 2 500 abstracts taken  
from worldwide sources each issue.

Human Settlements Information System

Dept. of Economic and Social Affairs, UN HQ., New York  
Worldwide coverage since 1950 of architecture, construction  
technology, etc. SDI, question-and-answer service planned.

IDSS

Social Science Documentation and Information Service, UNESCO,  
Social Science Documentation Centre  
Inventories, bibliographies, surveys

Indonesian Abstracts

National Scientific Documentation Centre (PDIN), Jakarta.  
Est. 1965.

Industrial and Technological Development Bank (INTIB)

A mechanized retrieval service operational since January 1978 at UNIDO to provide LDCs with information on industrial development. Some 17 000 items annually include monographs, serials and audiovisual material located in UNIDO main library. Services include: bibliographies, profiles and question-and-answer service.

Industrial Information System (INDIS)

UNIDO, P. O. Box 707, 1011 Vienna, Austria

A computer-assisted program established in 1970 to provide industrial information to LDCs, 7 400 abstracts available to the system with some 2 000 currently being added annually. SDI and on-line facilities backed up with hard copy entitled Industrial Development Abstracts.

Information Referral System for Technical Cooperation Among Developing Countries (TCDC)

Operates a referral service on capacities of developing countries for technical cooperation through bilateral or multilateral aid.

Information Service for Technical Assistance in Shipping and Ports to Developing Countries (SHIPASSIS)

UNCTAD, 1211 Geneva 10, Switzerland

To provide a clearinghouse to assist LDCs in external trade problems.

Informationsdienstkartei (IDK) Agrarpolitik, Landwirtschaftspolitisches Marktwesen und Ländlichesociologie (Information card index service for agrarian policy, economics and rural sociologies)

Est. 1967. Bonn, Nussallee 21, Germany

1 000 abstracts and keywords, title in original language over a wide area of rural development, sociology and regional planning, partially mechanized.

Informationsdienstkartei (IDK) Beratung und Ausbildung (Information and card index service for agricultural education and extension)

Subjects covered include general and professional pedagogy, training and psychology.

International Bureau of Education, Documentation and Information System (IBEDOC)

Documentation and Information Unit, UNESCO, Paris

Produces IBEDOC Information, a newsletter; Cooperative Education Abstracting Services (CEAS); Directory of Educational Documentation and Information Services (IBEDATA).

International Bureau of Education, International Educational Reporting Service (IERS)

UNESCO Paris

Since 1975. Information on educational innovation. Provides bibliographies, current awareness bulletin.

International Information System for the Agricultural Sciences and Technology (AGRIS)

Est. 1975. Apimondia, 20 Pitar St., 7000 Bucharest, Romania  
For FAO

Worldwide coverage of agricultural literature, including the broad area of rural development classified under Economics and Sociology, but coverage of development would also be included in section on Administration, Geography, etc. as it impinges on agriculture and the food industry. Title only service with enrichment, current awareness tape services backed up by hard copy, Agrindex. The AGRIS data base now consists of some 250 000 references with 90 000 approximately being added annually. Classified, with commodity index.

International Labour Documentation

ILO, Geneva

Established 1965 to provide LDCs with information on economic and social development and labour problems. Records some 7 000 items annually. Macrothesaurus Journal, computer printout, card service. Social and economic problems of rural development including agrarian reform, cooperation, peasant societies, etc. SDI, retrospective searches.

International Road Research Documentation (IRRD)

OECD, Paris in conjunction with TRRC, U.K.

Semi-centralized documentation system based on international cooperation which collects both worldwide published literature as well as details of on-going research on road development with special reference to LDCs.

International System for the Exchange of Information on the  
Application of Science and Technology to Development (SPINES)  
Division of Science and Technology Policies, UNESCO, Paris  
Pilot version since January 1977. To be fully  
operational from 1983. To collect worldwide information  
on diffusion of science, science policy, industry, trade,  
engineering, etc. SPINES thesaurus, a controlled and  
structured vocabulary of science and technology for  
policy-making, management and development.

Inventory of Published Research in Marriage and Family Behaviour  
Est. 1900 by Family Study Center, University of Minnesota,  
1014 Social Sciences Building, Minneapolis, Minn. 55455.  
Tel: (612) 373-0341  
Covering social aspects of family life, population rates,  
etc. 2 000 selected items annually.

IRANDOC  
Social Science Abstracts Bulletin. Est. 1968. Teheran.

Korean Science Abstracts  
Est. 1962. Seoul.

LABORDOC  
ILO. Est. 1965.  
Monthly. Worldwide journal and micrographic literature  
in the field of labour relations, employment, working  
conditions, economic and social development, management,  
demography, etc.

Legislative Series Documentation  
ILO  
Since 1919 to provide information on international law,  
labour, economics and legislation with approximately  
80 000 items available with some 1 500 titles added  
annually.

Management and Productivity  
Management and Development Branch, ILO, Geneva  
Est. 1976 to enable contact and provide information on  
all aspects of management, management education, develop-  
ment and training and productivity improvement from world-  
wide sources.

Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM)  
70-74 Route d'Aubray, 93140 Bondy.  
Documentation, sociology, economics, demography.

OPENFILE  
Compiled by the International Planned Parenthood Federation  
(IPFF), London, U.K.

POPINFORM

Mechanized program offered by Johns Hopkins University,  
Baltimore, Md.

It is a network of data bases that can be searched separately or concurrently using free text or index terms. The file consists of some 45 000 entries with abstracts.

POPINS

Proposal submitted for consideration to UN Population Commission in January 1977. Now entering its second phase, a two-year exploratory study of feasibility and system design. The recommendations of the Interim Steering Committee and Technical Task Force have suggested a model having a central coordinating unit, regional centres and national centres. POPINS, as proposed, would be the responsibility of and located in UN Population Division. Volume of documents in population is estimated at about 25 000 annually.

Population and Rural Development Information System

Human Resources, Institutions and Agrarian Reform Division, FAO  
Some 3 500 monographs, reports and unpublished documents available for retrieval. Hard copy is an annotated bibliography issued yearly.

Population Clearinghouse and Information System

Population and Social Affairs Division, ESCAP  
Mechanized service since 1972 intends to provide retrospective searches, SDI, etc. on demographic aspects of Southeast Asian development. Some 3 500 citations available annually in hard copy form; ADOPT.

Population Index

Publication of the Office of Population Research, Princeton University since 1935

The service provides an annotated bibliography of world demographic literature in all languages for which titles and/or abstracts are available in a European language. Each quarterly issue has a maximum of 1 000 entries. Mechanization plans began in June 1977. Linking the data base of the Index with the main mechanized system in biomedicine and family planning would provide a substantial international population information resource.

Poverty and Human Resources Abstracts

1966-1975. 1975 names changed to: Human Resource Abstracts, Sage Publications.

Sahel Bibliographic Bulletin

Michigan State University, East Lansing, Mich.

Small Enterprises National Documentation Centre (SENDOC)

India

Est 1971. SDI, current awareness. Appropriate Technology Bulletin.

Smithsonian Science Information Exchange (SSIE)

Smithsonian Institution, Washington, D.C., U.S.A.

100 000 on-going research studies processed annually. An extensive portion of current research on SSIE data base is in agricultural sciences and some 10% relevant to rural development.

Social Science Citation Index Data Base - ISI

From ISI, 325 Chestnut St., Philadelphia, Pa. 19106.

Tel: (215) 923-3300

Est. 1973 to deal with known socio-economic issues of development. Containing 75 000 citations annually.

Sociological Abstracts

73 8th Avenue, New York, N.Y. 11215. Tel: (212) 638-2872

Established in 1975. Computer-assisted bibliographic data base with some 12 000 citations with abstracts annually covering various aspects of use to rural development researchers: community development, rural sociology, cooperation, education, etc.

TECHNONET (Asia)

Singapore

Technical information on small-scale rural industries and training of extension officers. Est. 1975

Thai Abstracts

Thai National Documentation Centre (TNDC), Bangkok, Thailand.

Trade Information Service

International Trade Division, ESCAP

Embryo service in 1978 was based on Trade Information Data Base, a selection of catalogue entries from ESCAP library relating to trade opportunities, etc. of interest to Southeast Asia and Pacific region.

Tropical Abstracts (Abstracts on Tropical Agriculture)  
RTI, 63 Mauritskade, Amsterdam. Tel: 020-53152.

TÜRDOK

Turkish Documentation Service, Ankara, Turkey.  
Since 1967.

BIBLIOGRAPHY

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Directory of development documentation and information  
facilities in Asia and the Pacific. Bangkok, Asian Develop-  
ment Institute, 1976. 1 v. (unpaged) tables.
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Dissemination of research on economic and social development.  
1974. International social science journal, 26(3), Paris,  
p. 525-529.
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