

INSPEL



1999

Vol. 33

No. 3

Official Organ of the IFLA Division of Special Libraries

INTERNATIONAL JOURNAL OF SPECIAL LIBRARIES
REVUE INTERNATIONALE DES BIBLIOTHEQUES SPECIALISEES
МЕЖДУНАРОДНЫЙ ЖУРНАЛ СПЕЦИАЛЬНЫХ БИБЛИОТЕК
INTERNATIONALE ZEITSCHRIFT FÜR SPEZIALBIBLIOTHEKEN
REVISTA INTERNACIONAL PARA BIBLIOTECAS ESPECIALES

Published in cooperation with the German Special Libraries Association
(Arbeitsgemeinschaft der Spezialbibliotheken - ASpB)

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Telefon: (030) 314-23980, Fax: (030) 314-24741

Printer:

Offsetdruckerei Gerhard Weinert GmbH, 12099 Berlin, Germany

INSPEL is published quarterly. The annual subscription rate is DM 80,00 plus postage.
All subscription inquiries and orders should be sent to the Publisher. All other
correspondence should be addressed to the Editor.

The contents of this journal are indexed/abstracted in the following information services:
LILI (Library Literature), LISA (Library and Information Science Abstracts), ECONIS
(Economics Information System), IBZ (Internationale Bibliographie der Zeitschriften-
literatur).

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ISSN 0019-0217

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SOCIAL SCIENCE INFORMATION & DOCUMENTATION - TIME FOR A STATE OF THE ART?*

By Hans-Christoph Hobohm

When I was working on a chapter for the UNESCO World Social Science Report (Hobohm 1999) on the topic "Social Science Information and Documentation" being a conscientious information professional I did extensive searches on the topic of social science information needs and behaviour in most relevant information systems. The more I progressed the more I could not believe the results thinking that I did some mistakes in the information retrieval. The databases like LISA, ISA or even Social Science Citation Index did not give any recent references to my subject. Finally I contacted the persons of whom I knew they had worked in the area: Maurice Line, Michael Brittain and Arnaud Marks. They confirmed my research skills which was reassuring on the one hand but on the other I started to worry about the situation of the social science information field. Since the investigations known as the "Bath studies" undertaken by Maurice Line and others, there has been very little new research or even replication of the former studies in the field (Maurice Line and Patricia Layzell Ward will report on that in the current session¹). Therefore, in a possible State of the Art one could state that there are no new findings since 1970 and would turn to other business. But what really matters is not the mere lack of subsequent studies but the poor practical consequences drawn from the Bath studies. As Maurice Line will ask himself in the next paper: "what was done about it? (...) Nothing, except that the studies were widely cited for a long time. (...) The citations were made by academics; but (...) the research was intended as a basis for action, especially by producers of secondary tools." (Line 1999)

The Bath studies

In fact the main studies on social science information behaviour in the 70s revealed that social scientists do not use formal information tools like bibliographies or reference databases, but rather rely on personal

* Paper presented at the 65th IFLA Council and General Conference, Bangkok, August 20-28, 1999

¹ Unfortunately I could not convince Arnaud Marks, the former chair of ICSSD, to come and Michael Brittain would have liked to but is currently on the other side of the world. Catherine Saugy, actual chair of ICSSD unfortunately did not answer my invitation to join us today.

recommendations, browsing in journals, and citations found in other publications (often referred to as citation chaining) (Line 1971, 1980). They rely on monograph as well as on periodical literature, but their own citations refer to a large extent to primary data. Social scientists often use literature outside their own discipline (exceptions: psychology and economics) with the consequence that one may not always find relevant resources in just one database or information system. The data used by the social sciences does not always come from social science research, but is mainly taken from other contexts not indexed in social sciences information systems. Unlike the other broad scientific areas, social science information is not only used by researchers, but also by practitioners.

Generally, less than 10% of both scientists and social scientists make regular use of formal information resources such as databases in even a mediated way, although in the beginnings of the online information era it was observed that social scientists were more frequent database users than natural scientists (Stoan 1991; Hurych 1986). In contrast, humanities are generally reported in the few empirical studies to be heavy library users, but they use formal secondary services even less because they prefer browsing in open stacks arranged by subject classification (Stoan 1991, 244-6). Since some of the social sciences are fairly close to the humanities (e.g. history or political science), this is also an important element for them. Even scholars who have been trained in information retrieval techniques, or who are given more convenient access to the databases, continue to show the same information-seeking behaviour (Stoan 1991, 254).

The Bath studies made clear that social scientists do not work as systematically as the information producers suppose. Bibliographers and reference librarians seem to overestimate their impact or even their possible support for social science research. They are too far away from the invisible college of informal contacts and non-systematic flow of information. Social science librarians - more than librarians working for other disciplines should be aware that for their clients they are only one information resource among others.

The world "after Bath"

When Stephen Roberts stated clearly 1980 in the *Encyclopedia of Library and Information Science*: "...that the present resources data base is not designed with the real interests of the social sciences or social scientists in mind" (Roberts 1980, 73), one might still re-subscribe to this assertion about twenty years later. Most databases and information systems - even the newer ones based on internet technology - do not really have the user in mind but only the amount of data to be treated. And he also writes:

The involvement of social scientists in their own information activities has been an implicit one (albeit at a low level); if every thing it shows a substantial contrast to the scientific, technological, and medical fields, where researcher and practitioner involvement in information activities has been far greater and more profitable. (Roberts 1980, 92)

Another general review article about ten years later still points out:

The academic social sciences are not at the leading edge of information dissemination technology for reasons such as: costs; interdisciplinary structure; imprecise terminology and fuzzy-edged concepts of the subject areas; and the possibly poor prospects for return on investment. (Preschel/Woods 1989, 282)

The information world has changed dramatically "after Bath". The seventieth and eighties mainly saw the development and spread of big databases. Online information systems were at first considered as big magic boxes where you can get all relevant information just by pressing the button. This has turned out to be an illusion. Several studies revealed the limited effectiveness of online retrieval systems, and most of the studies on computer retrieval performance have been undertaken in natural sciences where conceptual and terminological problems are far less than in social sciences.

So one can say that social sciences have a twofold problem with information systems: the rigid methods of the computer with regard to storing and retrieving information, and the fuzzy object and informal scientific behaviour of the scholars. Information retrieval is inherently uncertain and incomplete because on the input side you never really know for which circumstances a document indexed will find a future use, and on the output side - the moment of information retrieval - you do not know which context has produced documents you will find. And necessarily it has been different in most of the aspects, not only in terms of the date of creation. And finally there is the indexing process itself which is problematic regardless if it has been done by a human in intellectual indexing or by a machine in automatic indexing. This holds particularly true for the more hermeneutic or narrative disciplines: it seems obvious that indexing will not reproduce an exact counterpart of the original document.

Scholars generally build up their own information collection, with a great variety of material from conference papers to photocopied articles, pre-prints, research reports, books and general reference materials. Several studies on information behaviour indicate that the information-seeking process always starts from the personal collection. Especially for the social sciences and humanities scholar it is

considered the most important source of information. The reason for this is the convenience of use and the high degree of specialisation sometimes reached by social scientists. They consider their institutional libraries only as last resort for more expensive or seldom used material.

This, in fact, coincides with a definition of traditional library services as available to a potential user 'just in case' of need. More modern library concepts follow the new management trend of delivering their service 'just in time', no longer relying on not foreseeable potential use, but rather on actual needs. Of course, this paradigm change (as it is felt in the library world) has become possible mainly through the existence of information and communication technology and elaborate co-operation models for resource sharing and delivering by libraries. The most timely information resource for the scholar will remain his own collection. But with increased accessibility of resources on the Web, one may speculate that the library will lose importance and that even personal collections will change when Internet services become more reliable.

New conceptions in information science and practice

Already the above mentioned aspect would propose a new look at social science information needs and behaviour. But there are still three other areas which heavily suggest a re-investigation. The Bath studies were based to a large extent on bibliometric and scientometric methodology. Bibliometrics had to face severe criticism from time to time. Often it was considered to be too positivistic a method, exaggerating only one aspect of the scientific communication process and being founded on a far too small empirical basis. In fact, this criticism does not apply to the Bath studies as they used a very sophisticated methodology seldom encountered afterwards. Mostly recent bibliometric studies rely on the big databases and among them on the Citation Indexes from ISI. With the amount of data increasing in the databases some new ideas have been developed in bibliometrics for social sciences. The concept of cognitive mapping, for example, has been put forth for social science applications by French researchers mainly in order to find new navigation tools for database retrieval (Meter/Turner 1994). One may speculate that since the 70ies bibliometric methodology as well as its empirical basis have advanced to such an extent that a repetition of at least some aspects of the Bath studies might generate new insights into the information and publication behaviour of social scientists in the 90ies. But this is not the only methodological element that might have changed since then.

Systems design and information science in general have discussed several new concepts which try to overcome some of the problems with the first very rigid

database and information retrieval systems which perhaps are the reasons why scientists do not use formal information systems. In contrast to the database producers information scientists have perhaps learned from studies such as INFROSS that the information seeking process is not always as simple as thought before. Discovering the importance of informal information channels information science reconsidered the concept of the user and proposed to enlarge the perspective of "information behaviour" to its context in the real world. They discovered the user as a living and working person indeed. Whereas early information science mainly followed the structuralist approach of a simple sender-receiver model in the communication and information transmission process newer studies more and more integrate the world of the user in their reflections (cf. Vakkari et al. 1997). This has been interpreted as a radical change if not a completely new paradigm under which it might also be interesting to reconsider social science information behaviour.

With the advent of the new information technologies it often has been stated that the information infrastructure as well as the information production has undergone radical change too. In several aspects scholars have taken over some roles formerly held by the information professionals. Cataloguing, for example, is supposed to be done by the authors themselves when they are producing the "metadata" for their electronic publications. Mainly in Science disciplines some scholarly societies or associations have created their own repositories of electronic documents which may replace traditional libraries. When we are considering the forces of internet technology mainly as one of a "communication machine" we see that they meet most of the informal information needs and procedures which are even more important for humanities and social science scholars. They allow to give access to the above mentioned private scholarly collections which are now more and more digitised and consequently placed on of each social scientist's website. It is obvious that not only the information behaviour has changed since the 70ies but also the research methodology and its instruments.

World-wide socio-economic implications

Both Myoung Wilson's and Ma Wengfeng's & Wang Liqing's papers yet address another argument for a re-evaluation of Social Science Information & Documentation but on another scale. Both papers pinpoint indirectly the reason for a certain loss of interest in these sort of studies in some countries and they raise arguments for them at the same time. In the light of their arguments it would be worth carrying out an in-depth study to reveal the amount of economic loss resulting from sub-optimal information infrastructures in the social sciences especially for and in developing countries. Very much like Myoung Wilson also

Kishida and Matsui (1997) observed a net correlation between the social sciences production and the wealth of a nation (in terms of the GDP) but they also state a general concentration of the titles mentioned in the IBSS in very few countries. This has been described in depth by Michael Brittain who called one of the characteristics of the social sciences their parochialism. Sometimes it is even national policy not to allow users from outside the country to access the information resources because they are considered national property and one fears to give away valuable advantages over other nations. In view of the developing gulf between the information rich and the information poor nations some countries decide to close down their information highways. This, of course, increases the problem of the social sciences which are even more confined to provincialism although international co-operation would nowadays be more necessary than ever.

The problem is even bigger when the indigenous information resources in the developing countries are not well known and most of the information seeking behaviour is aimed at foreign secondary services for the social sciences (Tyagi 1994). What is felt as a distorted information flow on a world-wide scale is perceived as an even more serious drawback in the area of applied social sciences for practitioners working in developing countries. When national social science documentation centres in the non-western world have problems to access essential information how could one think that social workers based in the villages or in the socially deprived city areas of the developing countries might have access to information relevant to them. When one talks about social and cultural differences between the areas in the world this aspect of the big informational differences is one of the most critical problems in the social sciences world-wide: important knowledge may be present in some information sources over the world but the mainstream information flow is western, non-applied and too expensive anyway. In general, one can state that networking, co-operation and international collaboration have decreased after a period of euphoria - APINESS for instance or even ICSSD are not seen as the potential partners for interregional or international efforts supporting the social sciences information flow down to those who really need them. Not only on the academic level of reconsidering the Bath studies but also under world-wide social and economic aspects there is a need for new endeavours in social science information.

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SOCIAL SCIENCE INFORMATION - THE POOR RELATION*

By Maurice B. Line

Abstract: Several characteristics make the social sciences less amenable to bibliographic control than the sciences: inherent instability of the subject matter, the lack of a terminology that is common over time and across countries, strong political and national biases, low penalties for duplication of research, and an apparent lack of interest on the part of social scientists in improvement of information services. A large body of research carried out 25 years ago shed much light on the information needs and uses of social scientists and indicated means of improvement, but led to no action. In an information world radically changed by the Internet, we need to carry out new studies into information uses and needs.

Thirty years ago I initiated some research into social science information needs and services. The first study was called INFROSS - Information Requirements of the Social Sciences - and aimed to discover how social scientists, practitioners as well as researchers, used information. One of the reasons I gave when seeking funding for the research was that nearly all previous studies of information needs and use had been in the natural sciences, and I considered that there was a danger that solutions adopted for science would be applied to the social sciences, without thought for the many differences between the two broad areas of study. Let me summarize some special characteristics of the social sciences.

What makes the social sciences different?

First, there is no agreement as to what constitutes the social sciences, beyond sociology, political science and economics. Most would include social anthropology, social psychology and management; some would include education, and others history. The common thread is that the discipline is concerned with human beings interacting or acting in groups. The interaction of largely unpredictable with other largely unpredictable beings produces great scope for instability and uncertainty. Most of the social sciences are relatively young, and scarcely organized as coherent disciplines.

* Paper presented at the 65th IFLA Council and General Conference, Bangkok, August 20-28, 1999

There is also considerable diversity between different social sciences. Economics, one of the younger social sciences, has in econometrics a sub-discipline that is virtually a branch of mathematics, and might therefore be considered a 'hard' science (though it has to be said that most of the data fed into econometric models is very 'soft': the superstructure may be meticulously constructed, but the infrastructure is often shifting sand). Some social sciences are soft through-and-through: the probability that two social surveys carried out on the same subject in the same district within a few months of one another will agree at all closely is not high - one has only to look at political polls.

It follows that concepts and terminology are not international, or consistent over time; there is some agreement within certain regions and across similar political systems and cultures, but even then there tends to be a national bias. In consequence, subject control and access are far harder than in the sciences; by comparison, the humanities are far more amenable to control. And unlike the sciences, nearly all social scientists write in their native language (some would say in their own private language); there is no *de facto* common language. These factors together mean that it is much harder to develop satisfactory international information services.

Because of a relative lack of coherence and consistency in the social sciences, and because the subject matter is very unstable, the penalties for ignorance of previous work in supposedly similar areas are far less than in the pure or applied sciences. And while there are certainly associations (both visible and invisible) of social scientists, they are not nearly so well organized to speak with one voice. Scientists across the world can and do make their views clear, on information services as on other topics - witness the several congresses that have taken place on information problems and needs in the sciences. The net result of all this is that social scientists do not seem particularly concerned as a body about information services or deficiencies, not apparently are they organized to say or do much about it.

In any case, the market for information services is small; the total world market is quite large, but for the reasons given above international services, where they exist at all, have to be supplemented by national services. Nor is the market a rich one. This perhaps helps to explain why there are so many small indexing and abstracting services, and why almost any social scientist has to search at least three or four to obtain reasonable coverage of a topic. Very few of them do, of course, partly because it is too much trouble, partly because they do not think it matters much if they miss something.

We found out quite a lot from INFROSS about the needs and uses of social scientists in the United Kingdom - not merely researchers, but practitioners of various kinds. This knowledge was supplemented during a second research project, called DISISS - Design of Information Systems in the Social Sciences. A main part of this was a massive bibliometric analysis of citations, before it was possible to do machine analysis on large bodies of computerized data. This had two features that were in those days unique to citation studies, and are still very rare: they included references in books as well as journals, and references in lowly ranked as well as highly ranked journals. The patterns of citation revealed by the different sets of references proved to be quite different; in the light of this, and of the fact that monographs are almost as important as journals in most social sciences, it astonishes me that subsequent social science citation studies draw confident conclusions from the analysis of references restricted to journals. One finding of our studies was a very heavy dependence of subjects such as sociology on other disciplines; this clearly magnifies the problem of providing services.

What to do about it?

DISISS was intended to offer some solutions to the information problems of social scientists, and to this end it included some other studies. One of these looked at the size and growth of social science literature, and produced much illumination and some surprises. Another examined coverage and overlap of secondary services in two fields. A third evaluated two information services in social welfare. However, the most interesting for the purposes of this paper was a practical experiment concerned with the optimization of indexing and abstracting tools, e.g. achieving the best balance between frequency of issue and size. No work has, to my knowledge, been done in this area before or since. Some interesting and potentially useful conclusions were reached.

Overlapping INFROSS and DISISS, another study took place: a three-year Experimental Information Service in the Social Sciences, aimed at researchers and teachers at Bath and Bristol Universities. This showed that a personal information service given by two persons, themselves both social scientists, was not only greatly appreciated, after some initial cynicism; it achieved a far better information flow than could have been achieved in any other way.

What was done about it?

What happened as a result of all this research, which we did our best to disseminate? Nothing, except that the studies were widely cited for a long time - too long, since inevitably some of the findings went out of date as the information

scene entered a period of dramatic change. The citations were made by academics; but, as said above, the research was intended as a basis for action, especially by producers of secondary tools. Unfortunately, it proved impossible to interest them. They tended to be either rather amateur bodies running shoe-string services, which almost certainly did not cover their costs, or big publishers, who were not interested in changing so long as they were making profits; no-one seemed especially concerned to give users better services. The only real chance of change was if new and better services put existing services out of business, but the field was not lucrative enough to attract much competition.

The points I made earlier in this paper about the social sciences are still, I believe, valid. However, my fear that social science information services would follow blindly science information services was misplaced: if they had done, they would be far better than they are now.

Where to go from here?

If previous efforts at improvement failed, what can we do now? There are three stages. The first is to make a new diagnosis. The information world has changed radically since INFROSS and DISISS. It is now possible to find all sorts of interesting things on the Web, if one is prepared to risk wasting a lot of time in the process. Some things can be found with far less effort than before; for example, direct access can now be gained to many datasets, including collections of statistics and social survey information. How far can access to this poorly controlled, hit-and-miss mass of unrefereed information compensate for, or complement, the inadequate miscellany of 'organized' services? Does it merely add confusion? Whether we like it or not, the Internet exists, and we need to know what sort of uses social scientists are making of it, and if and how it is changing their information habits. We certainly need to know how their information uses, and their perceptions of their needs, have changed over the 30 years since INFROSS. Uses are not difficult to ascertain, but needs are another matter; we tried in INFROSS to take a step back from uses and ask what research each respondent was involved in, but this took us only so far, and I would now favour the use of 'softer' methodologies like focus groups in addition to questionnaires, which seem to me essential if we are to get a broad enough sample. This time the study should if possible take place in several countries, using the same methods to make comparison possible. I would also carry out more bibliometric studies, not because they tell us much about either needs nor uses (they don't), but because they reveal a lot about interdisciplinary relationships, and they are now much easier to do than they were 30 years ago.

Then we need to make renewed efforts to see that something is done about whatever problems social scientists prove to have. We could of course just leave them to muddle along, and some might feel they deserve to be so left, since they seem to have done so little to help themselves. But our job as information scientists is not to criticize people for being as they are but to design services for them. I have never been happy about trying to redesign human beings to fit information services. We might have more success trying to provide access to the Web than we have been in trying to get producers of secondary services to improve them, since - at present, anyway - fewer commercial interests are involved.

This is not the first time that a plea has been made for new studies into social science information needs and services. Previous pleas have had no success because the persons doing the pleading - and here I must include myself - were unable for various reasons (mainly pressure of work) to do much themselves, because there were few others who seemed to be interested, and because sources of funds to carry out the necessary research were not found. Let's try again to make sure that information services in the social sciences are no longer the poor relation of those in science and technology.

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CAPITALIZING ON A PAST INVESTMENT: WHY WE NEED BIBLIOMETRIC STUDIES OF SOCIAL SCIENCE LITERATURE AGAIN*

By Patricia Layzell Ward¹

Abstract: Describes a bibliometric study carried out in the 1970's which examined the size and structure of the literature of the social sciences. It is suggested that the project should be replicated, and indicates the benefits that could be gained from the earlier investment.

Introduction

The 1970's was an important decade for research into library and information science. Governments around the world, particularly in North America and Western Europe, made funds available for projects at a higher level than in the past. Obtaining research funds was easier in many respects. The funding agencies were willing to examine proposals for investigations which were often of an exploratory nature. At the same time the library and information schools were expanding and developing research programmes backed by their universities and polytechnics. It was also a time when methodology was becoming important.

Project INFROSS investigated the information needs of social scientists. Towards the end of the project, discussions took place between Maurice Line, Michael Brittain, Stephen Roberts and other members of the research team at Bath University and David Nicholas, Maureen Ritchie and Patricia Layzell Ward at the School of Librarianship at the Polytechnic of North London which laid the foundation for collaboration on a project known as DISISS – Design of Information Systems in the Social Sciences. The work was carried out between 1971-1975 and funded by the British Library Research and Development Department and the Polytechnic of North London. The aim of DISISS was to isolate some significant questions about published secondary services – "because they exist in large numbers, they cost in total a great deal to produce, buy and use,

* Paper presented at the 65th IFLA Council and General Conference, Bangkok, August 20-28, 1999

¹ Patricia Layzell Ward is an editor, writer and researcher who was formerly Head of the Departments of Information and Library Studies at Curtin University, Western Australia and the University of Wales Aberystwyth. She headed up a research team at The Polytechnic of North London School of Librarianship which collaborated with Maurice Line's research team at the University of Bath to investigate the literature of the social sciences.

they are grossly underused...” (Line, 1980, 2). It involved a series of sub-studies that examined the literature of the social sciences. Maurice Line has drawn attention to features of social science information that distinguish it from the sciences, this includes instability and imprecision since they are concerned with the behaviour of human beings. He considered that there ”can be no general consensus, over time or place, on the classification and terminology of the social sciences” (Line, 1980, 1).

What the investigation produced was a set of reports that examined the nature of the literature of the social sciences in the mid-1970’s. The suggestion that lies behind this paper is that perhaps it is time to revisit the data collected and capitalize on the investment made in DISISS.

Why re-visit the data?

In the early 1970’s, when the project commenced, the professional literature was carrying papers on the information explosion. There was a view that this growth might continue – and so - how could users of the literature keep up with this continuing flood of publication? Given the level of investment in R & D in all disciplines at this time in the Western world, this was perceived to be a major problem. At the same time the computer was becoming a useful research tool in the field of library and information science, and Gene Garfield at ISI was producing the *Science Citation Index* and the *Social Science Citation Index*.

Maurice Line, in writing of the future output of social science information, commented that during the course of the project there were the ”first real signs ... of the possible effect of the combination of economic crisis and technological advance on an unprecedented scale”. He drew attention to the ‘paperless society’ or ‘electronic journal/book’, and commented that it remained to be seen how far-reaching this change would be (Line, 1980, 22).

Today we know that, whilst we may still not be working in an entirely paperless society, electronic access has changed dramatically the way in which we can identify and use social science information. At the same time we are also aware of the changes that have taken place within the disciplines that comprise the social sciences. Interest has grown in some fields such as politics, environmental planning, law and management – in others there may have been a decline.

As a profession we need to know what is happening in the environment in which information and library services operate, particularly in the field of publishing. Such information is needed to both provide a service to users, and also for securing the funding to support the services. An awareness of what has happened

together with current trends would be a valuable contribution to strategic planning. The DISISS project yielded a snapshot of the literature of the social sciences as it was in the mid-1970's that could be compared with a snapshot of what is happening now, twenty-five years later. It might answer such questions as:

- Has there has been a decline or growth across the whole social science discipline?
- Has there been decline or growth in the sub-fields?
- Have some new fields emerged; have any died?
- To what extent has the electronic journal replaced the paper-based journal?
- Are the secondary services covering the primary literature as effectively as they did in the 1970's?

Gathering data twenty years on

Collecting data in 2000 would be easier and less costly than it was in the 1970's. Just to give an indication of the challenges of the 1970's, SPSS had recently become available and was used for the analysis of part of the data. One problem was that we had limited experience of using SPSS. The sight of the first batch of printout being wheeled in on a trolley gave a first indication of the benefits of being able to easily write a program that would check all possible variables in relationships between citations. The problem that emerged was of being able to read through all of the print-outs. Another challenge for one of the sub-studies was the need to check copies of social science journals for the total number of pages and number of articles. Willing students beavered away in the basement stacks at the British Library of Political and Economic Science at one point working by torchlight during the major power cuts that took place at that time.

Today we could take advantage of technological development and be able to gather and analyse the data much more easily, and at a far lower cost.

The nature of the data available for comparison

In this short paper it is only possible to give an indication of the richness of the data collection. Amongst the facts which emerged:

- world production of social science monographs 1961-70: a rise from 66,530 to 106,159

- output by country: in 1970 of the world's monograph production the USSR published 18%, followed by West Germany at 13%
- output by subject in the UK: in 1970 21% in economics, followed by 14% in modern history
- current social science serials: in 1820 there were 22; by 1920 - 694; by 1950 - 1806; in 1970 - 3490.
- In 1901-10 148 new titles were created and 5 ceased; in 1961-70 there were 1154 new titles and 134 ceased.
- In 1970 the USA published the highest number of serials – 340, followed by France – 199.
- In 1970 by subject there were 711 serial titles in economics, followed by 270 in political science.
- One example of a sub-study: coverage by secondary services in criminology – 2 primary serials were covered by 6 secondary services; 31 were covered by 3, and 531 were covered by only 1 service.
- The time lag between the publication of a primary journal in criminology and coverage in a secondary service varied between 4 and 27 months, with most intervals being between 8 and 16 months.
- From a careful analysis of citations US titles were more productive of references than British titles.
- Economics, psychology, linguistics and education showed high concentrations of citations within the subject field, while environmental planning, librarianship and political science had a wide scatter.
- The monograph authors most cited by serials were: Lenin, Marx, Engels, Freud, Parsons, Friedman and Pavlov.

The situation today

With developments in technology it is now possible for the secondary services to provide a speedy individualised service to subscribers. This has been of great benefit to researchers and practitioners. But there is still a need to examine some of the fundamental questions that DISISS set out to answer. These include:

- How much literature is there to cover?
- How much of this needs to be covered?

- How many services in a field should there be?
- How much overlap is necessary or desirable between service?
- How should subject access be provided – by classification or linguistically?
- How can the key literature of the past be identified?

These are some of the questions that should be answered. One critical question that is of continuing concern to researchers in the social sciences is the coverage of their subject field in languages other than those they have access to; and can read. The language barriers still exist. As nationalism increases across the globe this may grow.

The benefits to be gained from replicating DISISS

It would yield a snapshot that could be compared with a database developed by a project that employed robust methods of data collection and analysis. DISISS took the methodology of bibliometrics and moved a step forward through the use of a careful definition of terminology.

The question of replicating the project would also contribute to research in information and library science, for there has been limited replication of methods to date.

The original project was well documented. Much debate is taking place today concerning the extent to which electronic resources are replacing paper-based journals. More hard information is needed for decision-making. And here there is an investment from which we could capitalize. Is there a wider interest in a new look at social science information sources?

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EVOLUTION OF SOCIAL SCIENCE INFORMATION SOURCES IN ASIA: THE SOUTH KOREAN CASE*

By Myoung C. Wilson

Abstract: This paper examines the increasing output of South Korean government publications in social science titles. It attributes the cause primarily to modernization and democratization combined with economic development and growth in associated social life indicators. Government sponsorship of education and research also played a critical role.

I. Introduction

There are at least three hypotheses that are relevant to understanding the contemporary growth of social scientific data and information sources in Asia. One posits that growth depends on an increase in economic output and associated social life indicators. Another posits a historical legacy of library development with holdings that reference, at least tangentially, social science issues. Yet a third suggests that the growth of social science information sources depends upon government sponsorship of education and research including a strong component in the social sciences.

To some extent all three of these hypotheses interlock in the case of Asia. It is, after all, the case that in China in the early years of the Ching Dynasty library holdings were one of the largest in the world. It is also true that in China and Korea the traditional meritocratic basis for status advancement was through an examination system that placed a premium on education. These historical features were firmly imbedded in traditional cultural values and they have left an abiding legacy that has helped in the growth of modern day social science information sources.

Despite these historical legacies, however, it is modernization in general and improvements in social life that have been crucial for the development of social science research. Consider the following. During the last three decades South Korean per capita GNP rose from a little over \$640 to over \$8000.00. The illiteracy rate dropped from 12% in the mid 1970s to less than 5% in the mid 1990s. Government expenditures on social security doubled from the 1980s to the mid 1990s. Life expectancy rose from 61 years in the mid 1970s to 71 in the mid

* Paper presented at the 65th IFLA Council and General Conference, Bangkok, August 20-28, 1999

1990s while infant mortality dropped from 47 per 1000 live births to 12 during the same period.¹

Is there a qualitative correlation between these growth figures and a greater output of social scientific data and information sources? Given the limited nature of this paper, and the fact that much social science data is published in the form of government documents, I will attempt an answer by concentrating on official publications in South Korea.

II. The case of South Korea

1. Historical Antecedents

A 1984 UNESCO study characterized social science research in Asia as emanating from relatively young academic disciplines that were largely imported from the West around the turn of the century.² While this characterization may be true as a gross generalization, it is not the case that social science materials were unknown in traditional Korea. In the royal court of King Sejong in the 15th century, the palace (i.e. the government or the state) actively promoted literacy among the general public even to the extent of creating a new Korean alphabet, *Hangul*. The palace Royal Academy scholars were also responsible for publications on agricultural economics, geographical descriptions of the country, the compilation of legal codes and official histories. Through the Royal Academy (*Chiphyunjon*), a precursor to the numerous government sponsored research institutes that exist in contemporary Korea, the state promoted research in many areas including social science. These historical compilations were critical primary source documents in their day and continue to be so for modern social scientists.

This tradition of government sponsorship of research continues to this date in Korea (as it does in many Asian countries). Hwa asserts that the Singapore Government plays an important, if not crucial role in financing teaching and research in the social sciences.³ Our host country Thailand, passed a National Research Council Act in 1959; it has been said that since the creation of the NRC there has been an increase in the number of social science research cells attached to government departments and agencies.⁴ Although S.P. Agrawal suggests that social science information in India has low governmental priority, it was the

¹ *Social Indicators of Development 1996*. (Washington D.C.: World Bank, 1997), 185.

² UNESCO Regional Expert Meeting on the Asia-Pacific Information Network in Social Sciences, *Asia Pacific Information Network in Social Sciences (APINESS); Report of a Regional Meeting*. (Bangkok: UNESCO, 1986), 8.

³ *Social Sciences in Asia*, Edited by Yogesh Atal. (New Delhi: Abhinav Publications, 1974), 215.

⁴ *Social Sciences in Asia*, 243.

Education Ministry of the Government of India that established the National Social Science Documentation Centre.⁵

In South Korea the government has increasingly become a critical stimulant to the production and growth of scientific research as well as social science information sources. In contrast to technical and scientific research areas, however, social science research in Korea occupied initially an unenviable position as an underprivileged and under-funded area of inquiry; the acquisition of specialized knowledge in technical and scientific areas and in industrial know-how had higher priority. This effort rewarded South Korea with a fast growing economy, the results of which have paved the way for the promotion of research on social issues as well as on the ways that scientific and technical developments have impacted social life.

2. Quantity and Quality of Government Issued Social Science Information Sources

The number of publications of social science materials issued by the South Korean government and by quasi-government organizations, i.e. government-invested enterprises and government-related agencies has increased significantly. According to the 1997 *Catalog of Government Publications* the total number of government publications issued in 1996 was 4,697--among these over 3000 titles (66%) are classified as social science titles. This is an increase of 6% over 1993 in the number of social science titles published by the government.⁶ It is relatively easy to measure the quantity of government issued publications; between 1945-1965 only 293 titles were issued. By contrast in 1966 alone the number of government publications jumped to 903 titles, tripling the total output of the previous 20 years.

When South Korea began its economic expansion in the early 1960s, this also marked the acceleration of official publishing by government agencies, not only in terms of quantity but also in terms of quality. For example, it was the 1960 census that embarked on the expansion and transformation of the census from one where only basic demographic data were collected to one where multi-faceted information on socio-economic characteristics were obtained and analyzed utilizing computerized database processing. In 1964 the government also began to

⁵ S.P. Agrawal, "Appropriation of National Social Science Information Resources," *INSPEL* 26, no.4 (1977), 247, 252.

⁶ *Chongbu Kanhaengmul Mongnok (The Catalog of Government Publications)*, 1997 (Seoul: Chongbu Kanhaengmul Jaejakso, 1997), 764.

review and classify the local administrative districts of the entire country. This was done in order that appropriate data could be collected on each unit. Many government statistics are collected based on these continuing reviews and classifications.⁷

It appears that South Korean government agencies at all levels are rapidly shifting their publications from a print to an electronic format. Many government agencies have an Internet presence, a large number of them with an extensive bilingual homepage (Korean and English). The quality and content of homepages vary from one agency to another, e.g., some carry an extensive publications list with detailed annotations. Examples of government units with homepages are the National Historical Compilation Committee, the Supreme Court, the National Statistical Office, the National Library and the National Assembly Library. The National Statistical Office has begun to build massive numeric data files that are becoming a critical source for contemporary social science research. The electronic information resources that the Korean government provides on the Internet promises to enhance the quantity and quality of global social science information.

3. Types of Publications

At the heart of social science information resources are three principal types of publications issued by the executive branch of the government. These are yearly statistical reports, yearbooks and annual reports and white papers, all of which constitute important primary source data for social scientists. Korean government publications are rich in statistical reports. Publication of these reports is frequently mandated by a comprehensive statistical law that requires that each government agency/ministry issue an annual (or quarterly) statistical analysis. Statistical yearbooks (*Tonnggye Yongam*) issued by government ministries are good examples in this category. The title and the text of statistical yearbooks are often bilingual (in Korean and English) and almost always contain international statistics for comparative purposes. These statistical reports are the best sellers among government publications; about 35% of government publications deal with statistical data.⁸

Following a pattern that originated in Great Britain, white papers (*Baiksuh*) are issued by almost all ministries. These government reports deal with timely national topics. This form of government report has existed since 1948 when the

⁷ Myoung C. Wilson, *Introduction to Korean Government Publications*, (Lanham, Maryland: Scarecrow Press), Forthcoming, 34.

⁸ Wilson, 41.

first government was formed following the end of Japan's colonial domination. Many social, political and economic issues are analyzed by appropriate ministries. Unlike statistical reports, Korean government white papers are almost always written in Korean.

4. Bibliographic Control and Access Tools

Despite Korea's reputation for having moved from "imitation to innovation" in economic and technical matters, there are few innovations in the repackaging of government information for easy public access. Providing access to government publications through specialized catalogs and indexes is largely done by the issuing agency itself. Two of the most prolific of these agencies are the National Statistical Office and the Ministry of Unification. The National Library and the National Assembly Library are actively involved in the dissemination of social science information through their digital library projects.

The two main access tools for South Korean government publications are the *Catalog of Government Publications* issued annually by the Government Publishing Office, and the section on government publications in the *Korean National Bibliography* issued by the National Library.

5. Distribution and Dissemination

While the number of government publications issued by various agencies has increased dramatically in recent years (the number actually doubled in the last five years from 2,680 titles issued in 1992 to 4,697 titles in 1997), no centralized or systematic distribution method has yet been adopted, particularly one designed to reach large numbers of the public. The majority of government publications, while compiled and edited by an issuing government agency, are invariably printed by private printers. They are distributed either by the issuing agency itself or, if priced, through designated sales centers.

The National Assembly Library, the National Library, the National Archives and Records Service and the Library of the Government Publishing Office are currently legal depository libraries. All government agencies, including government-invested enterprises and government-related agencies, whether they are national or local, are required, by law, to place their publications in depository libraries.

Although the word *Nappon Tosohkwan* is translated as depository library, it has a very different meaning conceptually from the term "depository library" as it is used for government publications in America. In the United States US federal

government agency publications are deposited in designated libraries by the government for the purpose of public distribution and public access. In the Korean sense of “depository library” the “deposit” is made by the publishers (including government agencies) in the designated libraries (i.e. government libraries) for the purpose of preserving the cultural heritage, for copyright protection, for international exchange and, lastly, for public access.

The legal depository system was first introduced as part of the 1963 Library Laws. Prior to this in 1961, all publishers were required to submit two copies of their publications to the Ministry of Education which then forwarded them to the National Library. The 1963 National Assembly Law No. 1424 requires all government agencies to deposit three copies of their publications in the National Assembly Library. Since 1991 three copies of publications produced by the executive branch of the government, by city/provincial governments and by city/provincial Educational Commissions have also been deposited with the Government Archives and Records Service. Since 1996 three copies of the same category of materials have also been deposited with the Library of the Government Publishing Office Library.

It has long been recognized, however, that many government agencies fail to comply with these legal obligations. Moreover, there has been no effective way in general to enforce the deposit system law. Some argue that initially the legal deposit system was viewed as “censorship” or “thought police” as it was at times practiced during the Japanese colonial period or under previous autocratic governments. Especially under Japanese rule prior submission of a manuscript to the colonial government was required for official approval.⁹

III Conclusion

Despite the fact that there is an apparent correlation between economic growth and the development of social science information sources, it is clear that this is not the sole explanation. For many years following World War II, Korea labored under various forms of authoritarian government. Democracy as it is understood in the West did not truly arrive until 1992. Prior to that time, social science information sources disseminated by the government were frequently viewed as propagandistic disinformation. Interestingly, the advent of democracy has witnessed a marked upsurge in the quantity and quality of government publications that deal with social science issues. Nothing speaks more eloquently

⁹ Wilson, 38.

to the importance of an open political environment as a stimulant to the production, dissemination and use of social science research information sources.

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**TOWARD THE TWENTY FIRST CENTURY:
RESEARCH ON THE DEVELOPMENT OF SOCIAL
SCIENCE INFORMATION SERVICES OF UNIVERSITY
LIBRARIES IN CHINA***

By Wenfeng Ma and Liqing Wang

Abstract: At the turn of the century, China's social sciences and higher education is experiencing a great innovation and development. It is pressing for the university libraries to adapt themselves to the new situation and strengthen their social science information services.

This paper discusses some major problems of the social science information services of the university libraries in China, including the object, the aim, the users' needs of information, the requirement behaviours, the processed and transmitted content, the social and economic benefit as well as the theoretical research. This article also provides some specific and positive proposals concerning the related problems.

Introduction

Social science information services of higher education have always been neglected among all activities of information services in China today. They are not so attractive as the information services of science and technology of higher education and nor they can be compared with those in the Chinese Academy of Social Sciences in which they are also well concerned. It is by no means to say that the work is less important in the higher education in China. On the contrary, the teaching and research of social sciences rely more than ever before upon the library information services in higher education in China. It is more than necessary for social science information services of higher education to be seriously investigated so as to further the reform and improve their prosperity and development at this period of time. Therefore, in accordance with the characteristics of social science study and the law of the higher education development at this cross-centurial period of time, the writer did some research on some of the major questions that the social science information services of higher education's are confronted with.

* Paper presented at the 65th IFLA Council and General Conference, Bangkok, August 20-28, 1999

1. The Object of Social Science Information Services for University Libraries

Those who could get access to social science information services from university libraries in China used to be students of arts, teachers and academic researchers. So the users of Chinese university libraries at that time were unitary. There is a remarkable change nowadays. It is becoming the important direction of the reform for higher education to give more attention to the education of social sciences and to lay stress on humanistic spirit cultivating and talented students training. As a result, the range of Chinese higher education in social sciences has been widened more and more. This has appeared mainly in two ways: One is the educational scale of arts that has been expanded. In 1949, the university students of arts in China took 33.1% of the year total. There was a readjustment of universities and departments in 1952 and the number of the students of arts reduced to 20.5% and only 6.8% in 1962. The higher education of arts began developing when it came to the 1980s. There was a fast increase in 1995 for the number of the students of arts in universities, which in 1980 was 8.9% of the year total and became 37% of the total in 1995. The other is the criss-cross penetration between liberal arts and science and engineering. The science and engineering universities now began changing their attitude from which they used to give their consideration only to science and technology on campus to which now they pay equal attention to arts and humanities as well. It is becoming a trend of development in China for the science and engineering universities to set up departments of social sciences and open up new courses on social sciences.

For the reasons above, the objects of higher education on social sciences are enlarging and these objects are expanding from the subjects of arts to the subjects of non-arts in former concept. Learning social sciences is becoming more and more common to every student of universities. It is an inevitable responsibility for the social science information services of university libraries to play a part in training of talented students in higher education. The expanding objects mentioned above now surely decide the extension of the range of their social science information services for university libraries in China. The more consideration given by Chinese higher education to the training of more qualified students apparently suggests the necessity and the urgency of strengthening the social science information services in university libraries and much higher and more updated services being called for. Therefore, the libraries should be aware of their social status for their social science information work that ought to be adapted to the development of educational reform in China's higher education.

2. The Aim of the Social Science Information Services of University Libraries

The higher education exists differently from other social phenomenon in society. They are relatively independent and have their own inner laws, which decide the facts that they have to take the knowledge delivering and studying as their everlasting pursuit and the training of talented persons and scientific studies as their main tasks.

The following figures may be convincing properly: By the end of 1995, the universities totaled 1,054 and on campus were 5,400,000 students. There were 7,822 scientific research institutions and 44,800 professional scientific researchers at universities who undertook enormous tasks of the major national scientific research projects. There are nearly 100,000 research programs every year. A lot of accomplishments have been awarded by the national government or the provincial governments or the ministries of the state council.

In a new network environment, the university libraries will also serve all the public who need information from them through CERNET or other networks. But it doesn't mean that the basic task of the university libraries will be changed. It is still the most important work for the university libraries to meet the information requirement for the teaching and scientific researches to a maximum.

3. The Needs of Information on Social Sciences in Chinese Universities

Since teaching and scientific researches are major tasks of universities in China, there have been obvious differences in the needs of information on social science between the universities and the society. For example, in September 1997, the library of Renmin University made a sample survey of social science information needs in its twenty-four specialities and the result shows the problem.

In respect of document content, influenced by the research of social sciences, the needs of information on social science in universities appear diversified and extensive. The needs for comprehensive or interdisciplinary information, data information and countermeasure or decision making information are clearly growing up. In the survey, the need for the comprehensive or interdisciplinary information amount to 44%, data information amount to 47% and the countermeasure or decision making information amount to 43%. Meanwhile, universities must pass on fundamental theory systematically and basic knowledge and deepen study of basic scientific theory and improve teaching quality, which is the chief task of universities. So the needs for basic theory information of social

science and academic development information will be the main demand of social science information users.

In respect of document type, monographs of social sciences are still in users' good graces due to their enormous information capacities, complete discussion and mature content. (83%) Meanwhile, social science periodicals having strong effectiveness for a given period time, especially key periodicals, become the main part of users' demand day by day. (81%)

In respect of document information products, users have an urgent need for secondary documents of social sciences. The result of the survey shows that 63% readers hope that libraries could provide secondary information service such as bibliographies, indexes and abstracts.

In respect of document time limits, compared with natural sciences, the aging speed of social science documents is slow. In general, users of social science are still much more interested in historical materials. Particularly, those whose specialities are literature, history, philosophy, spoken and written language, need much more for retrospective documents. But with social scientific research gradually extending into practical fields, it is becoming a trend of social science needs in China universities to get the latest information conveyed fast. According to the statistics of the request forms, there are 85% persons having a need for social science books published after 90's and there are 80% persons needing social science periodicals published within recent one or two years'.

Information needs are the basis of university social science information work. If we didn't know well what users needed and didn't grasp the need features of users, we wouldn't serve the users well. University social science information work should be led by information needs of users and the ways of passive services should be changed. We should carefully look into users and find out the information needs and utilization in teaching and scientific research, and analyze the features and laws of social science information needs and take appropriate measures to meet the needs of users to a maximum.

4. The Requirement Behaviors of University Social Science Information Users

Affected and restrained by various factors including information environment and research system of social sciences, the need behaviors of university social science users have obviously traditional and backward characteristics comparing with that of natural science.

For example, in the way of exchanging and utilizing information, they like to get it in an informal way. Most of them gain the needed information in individual or from academic activities. We made the survey called "sample survey on humanities and social science information requirement." One of the questions is "How do you often get the documents and information?" There were 102 persons answered that they got their information by taking part in academic meetings, which amount to 58% of the total. Sixty-one persons choose the way of "communicate with colleagues," which amount to 35% of the total. As for the ways of information access, there are only 10 answers being "consult librarians," which amount to 6%. All of these figures demonstrate that social scientists are used to depending on themselves but not on libraries. Although they have the desire to obtain information, they lack the techniques of information retrieval. Most of them are willing to survey primary materials troublesomely, while the knowledge of using reference book or modern retrieval means are seldom known. According to the statistics, there are 54% researchers have never utilized the reference books. Only 0.5% researchers used CD-ROM or online retrieval. In the way of choosing the information, they are rarely influenced by new types of document media. Most of them take the printing document as their main information sources.

There are many reasons why the users of social science information in universities are traditional and backward. The main points are below: firstly, the research of social sciences hasn't completely escaped from the closed, half-closed and separated situation. Most social scientists are backward in their research means and methods, which leads to the backward requirement behaviors; Secondly, library users have an obscure recognition of the social science information work. When they need some information, they seldom think of depending on libraries for help. The third, most university libraries have not finished the change from document delivery to information delivery. The wholesome information consciousness of libraries is low. The ability of providing information is inefficient. It makes a great influence on the users' requirement behaviors.

To change this situation, we should develop information consciousness of university social science users and give more effective training on retrieval techniques to users in order to promote the adoption of advanced research means and methods in their work. Meanwhile, we will improve and deepen information service and make information environment better. We will try to make the role and value of information work fully embodied in the teaching and scientific research activities, so as to promote the users' requirement behaviors changing toward scientific direction.

5. The Content Processed and Transmitted by University Social Science Information Work

Scientific information is the core of social science information and also the major content processed and transmitted by university social science information work. Social science information has the general features of natural science information. However, the different research objects determine the different methods and result.

There are many features of social science information. Among them, the most important trait is the complexity of its content. It demonstrates as the following: Firstly, social science information is quite vague, because social phenomena are irregular and unrepeatable, and the body of knowledge can hardly be imitated, controlled or quantified. Secondly, research objects of social sciences are the current human beings as well as their activities, behaviors, consciousness, and relationships. The body of knowledge can't be taken with a neutral or purely objective attitude. Subjective factors affect the cognition a great deal. So social science information has strong subjective elements. Thirdly, because of the unrepeatability of social events and the strong penetration from the main body, the truth of social science knowledge is only relative and it takes a long time to test the theory of social sciences' correct or wrong. Fourthly, formal logic is often used in natural scientific research, while social sciences usually uses dialectical logic in its research, such as concept system, judgement and reasoning. There is a strong sense of sophistic thinking in the research of social sciences. Fifthly, affected by the vagueness of human knowledge and restrained by academic quality of knowledge body, there exist much invalid and redundant information in social sciences.

The complex nature of social science information content determines that its collection and sorting are more difficult than that of natural science information. The processing and handling depends more on the quality and the capacity of social science information work. Especially at present, the information of social sciences increases sharply and great changes have been taken place in the requirement content, the requirement methods and the requirement environment of the information of teaching and research. University social science information users are no longer satisfied with the access to books or periodicals. More and more users pay attention to obtaining the valid information of documents. As a result, university information services are transformed from document transportation to knowledge and information transportation. It is particularly imperative that university libraries organize information effectively and process

information deeply and make document information utilized validly to meet the requirement of users.

The complex nature of social science information content asks librarians to have more reasonable knowledge structure, richer practical experience, stronger theoretical thinking ability, selecting and judging ability, better psychological quality and more excellent thought morality. So it is an urgent and important problem to improve the quality capacity of university social science formation body as fast as possible.

6. The Benefit of Social Science Information Work in University Libraries

The beneficial result of social science information work in university libraries is different from other information institutions.

The social beneficial result is the focus of university social science information work. The objects of social scientific research are human and society. Its value shows even more in ideological, cultural and educational function and forecasting and decision making function, which determines that the social beneficial result is the main result of social science information. Social science information work in university libraries must serve for university teaching and scientific research. So its greatest and most important social benefit is to provide all kinds of services to improve the quality of teaching and efficiency of scientific research and adapt the trained persons to the all-round requirement of economic, political, cultural and social development. However, the social benefit has potential, slowly effective and indirect traits, the objective results can't be demonstrated in figures or indexes.

It is hard for social science information services in university libraries to create economic benefit. Except a few subjects closely related to economy, most research results in the fields of social sciences, especially literature, history, philosophy, religion and ethics, couldn't be changed into productive forces. So social scientific research results can't be totally merchandised. In subjects related closely to economy, only the researches for exploiting can get into economic field and produce economic benefit. But the benefit cannot be shown directly like natural science and technical science in quality, types, and nature of products. It reflects even more as indirect and macro economic benefit or economic benefit of society. The idea "social science information should be merchandised or industrialized" is not scientific. Certainly, social science information work in university libraries can also gain economic benefit. But the result is manifested indirectly by the way of serving for the teaching and scientific research and developing excellent market body and promoting the development of economic society in all side.

For the above reasons, the significance and value of social science information work in university libraries are always neglected. The only way to change this situation is that social sciences are developed, the public understanding is improved, and the information services of good quality and high efficiency are provided to win a new appraisal of teachers and students. Certainly, there is no cause for much criticism for university libraries to acquire some economic benefit by providing information to society. However, in the circumstance that there is a great deficiency of qualified social science information staffs, the economic benefit is gained at the cost of weakening information services for the teaching and scientific research, in which we lose more than we gain.

7. The Research of the Theory of Social Science Information Work in University Libraries

On the whole, we haven't made brilliant achievement in serving the teaching and scientific research. The scale and level of social science information work in China university libraries are much lower than that of developed countries. It is far away from the function that social science information work should exert. One of the important reasons is the lack of applicable theoretical guidance.

Surely, the theory and methods of traditional information science may direct the practice of social science information work to a certain extent. But it stresses science and technology information and ignores the particularity of social science information. When the cause of social science keeps advancing unceasingly today, it is evidently unsuited to the practice enriched day by day. The theory of social science information work comes from the information activities in social scientific research field and the guidable and inspirational role of it to practice is easy to be known. However, the theoretical system of social scientific information science hasn't been perfect. It overlooks the information activities in universities that are very important and have distinctive features. It couldn't answer many actual questions systematically and definitely that social science information work is faced with. Due to the lack of the proper theory's guidance, most of social science information work in universities is in a blind and passive situation.

Social science information work is restrained by the elements from two aspects. As a branch of social science information system, it is controlled by the general law of social science information work. At the same time, as a component part of university teaching and scientific research, it is dominated by the particular law of higher education development. Universities are not only the important base of social scientific research, but also undertake the historical mission of training qualified students, which determines that social science information work has its

inner laws and motion mechanism. It can't copy the work mode of science and technology or imitate that of the social science research institution as well as other information systems. If it is to extricate itself from a predicament, the information activities in social science teaching and scientific research of universities must be studied carefully. We must grasp the nature and the content of social science information work and go further into the mold and system of services. Besides, we must raise it to the level of theory to widen the practical basis of information science of social sciences and enrich the theoretical system. As a result, its theory and methods will play stronger and more widespread roles for the guidance of the practice. Thus, based on this solid foundation, social science information work will obtain energies of development and exert its functions and roles fully.

Concluding Remarks

The Twentieth Century is soon coming to an end and the social science information services of China's higher education are at a historical turning period of time. We ought to take the advantage of this rare and valuable opportunity and change the rigid way of thinking for a dauntless frontier spirit. We must do serious research and tackle well all the problems in front of us during the development of the social science information services of higher education and keep a close pace with the prosperous development of China's social sciences.

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ASIA-PACIFIC POPIN – KNOWLEDGE BASE DEVELOPMENT, DISSEMINATION AND NETWORKING FOR REPRODUCTIVE HEALTH AND POPULATION*

By Ja-Kyung Yoo**

1. Background

Recognizing the importance of information in making informed decisions for population and development policies, the population information programme has been one of the components of the Asia-Pacific Regional Population Programme since its inception in early 1969.

In the early days, ESCAP established and maintained a large Population Reference Centre to serve the population information needs of the region. However, to cater to the information needs of the countries and territories in the region in a more cost-effective and efficient manner, a decentralized approach was later taken for its information activities through programmes to build national capacity for population information collection, processing and dissemination. Capacity building was achieved through preparing and executing UNFPA-funded national population information projects in each of various countries in the region. The project activities included establishment of a national population information centre and human resources development through training on various topics either at the ESCAP secretariat in Bangkok or at institutes of higher education in developed countries.

As national population information centres became more self-reliant, there was a need to link them in order to exchange information and experience. Therefore, a network comprising these national information centres, namely, Asia-Pacific Population Information Network (Asia-Pacific POPIN), was formed in the early 1980s at the ESCAP secretariat, with the global POPIN Coordinating Unit being located at United Nations Headquarters in New York. The role of the Asia-Pacific POPIN secretariat was to coordinate the activities of the network and to provide guidance for new and better techniques and technologies for handling and

* Paper presented at „Asia-Pacific POPIN-IFLA (International Federation of Library Association) Jjoint Workshop on Demographic Information“ at Bangkok on 26th August, 1999

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disseminating population information. Because countries in the different subregions in Asia and the Pacific share similar population characteristics and socio-economic development status, the network was further decentralized in the 1990s starting with the establishment of Pacific POPIN in 1995. Currently there are three subregional POPINs, namely, Pacific POPIN, South Asia POPIN and East and South-East Asia POPIN.

2. Activities

The activities of the network are centred around: a) providing training, guidelines and technical assistance; b) organizing in-country meetings to sensitize policy and decision makers on population issues including the use of emerging information technology for population information processing and dissemination; c) providing grants to support the generation and dissemination of various information products; d) disseminating population information through publications in print and electronic formats; e) providing information services; and f) coordinating with countries in the production of various national and regional databases.

As for training, ESCAP is promoting the TCDC (Technical Cooperation among Developing Countries) approach -- a concept based on the idea that developing countries can benefit and learn from each other more efficiently through the sharing of costs for the exchange of experiences and expertise. The ESCAP secretariat is trying to introduce as much as possible the TCDC component in all its training programmes.

One of the activities of the regional POPIN worth mentioning here is the grant programme. It started out as a "translation grants" programme to help the countries to translate population information in English into their local languages for wider dissemination of the information. The programme has developed over time so that grants for different types of population information activities, such as translation of information in local languages into English, the organization of workshops and the development/updating of databases. An example of such database development is the directory database series. ESCAP, as a regional network secretariat, chose a standard software package, set the database format and organized training courses on the software and the format for national network members working on the creation of national directory series. This type of decentralized database creation and management has proven to be much more efficient than centralized approaches both in terms of the data collection process and in keeping the database up to date.

In order to provide current and relevant information from a wide range of information available to decision makers, policy makers and planners so as to

increase their awareness of population issues, the secretariat produces various publications including repackaged information products. Examples of these publications include *Population Headliners*, *Asia-Pacific Population Journal*, and *Asia-Pacific POPIN Bulletin*.

3. Change of information environment

1. Development of information technology

During the last few decades, there have been tremendous developments in information technology; these advances have provided opportunities to spread information more widely than could have been ever imagined previously. The most notable development is the convergence of different technologies, namely, telecommunications, computer and audiovisual technologies, which were previously separated by techniques, legislation and modes of distribution. The convergence of these technologies made the "information superhighway", or the Internet feasible. It connects personal computers through telecommunication lines and through these multimedia information can be disseminated and accessed globally and interactively.

The Internet has spread on a remarkable scale during the last few years. It has become a core medium for communication, information dissemination, commerce and entertainment. One of the advantages of the Internet is that the data that can be obtained through it are not only in the form of text, but also graphics, sound, video, numeric data and animation, which are known collectively as "multimedia".

According to the World Communication Report, in 1997 almost 200 countries were connected to the Internet, approximately 75 million people were equipped with an electronic mail-box, and almost 100,000 commercial service sites were listed. In terms of the number of Internet hosts, there were 16 million hosts worldwide in 1997 with 10 per cent of the territorial domain names being located in the Asian and Pacific region.

Another remarkable development is in the area of information storage technology. Optical technology is a revolutionary technology which can store large amounts of text, graphics, pictures, video and sound information on a small disc. Optical media can be grouped into three major categories: read-only; write-once and read-many; and erasable. Because of its large storage capacity, i.e. around 650 megabytes of information on a single disk, CD-ROM technology has become popular among database producers. The new Digital Versatile Disc (DVD) can store even more data, i.e. 4.7 gigabytes of information. Also, because of its capability for handling multimedia information, this technology has been widely

used for producing promotional materials or multimedia books, replacing video technology or traditional publication respectively.

In view of its large capacity and durability compared with magnetic media, CD-ROM technology is a potential candidate for storing archival information in full text. Also, since CD-ROMs can be used as a stand-alone (off-line) device, information posted on the Internet can be down-loaded on a CD-ROM and distributed to those users located where the telecommunications infrastructure is weak, which would make it difficult otherwise to make an online Internet connection. The United Nations is using this optical disc technology to store all its parliamentary documents. The searchable database is available through the Internet in full text form and in all United Nations official languages.

2. Identifying changing needs for information

Because population dynamics are closely related to other social and economic development factors, population policies and programmes should change over time to adjust to changing population trends. Global and regional population conferences are being held at regular intervals to examine current and prospective population trends and problems in light of economic and social development and to provide a better understanding of the role that population plays in achieving development targets. The latest such regional conference, the Fourth Asia-Pacific Population Conference, was held in Bali, Indonesia in 1992 and a global conference, International Conference on Population and Development (ICPD), was held at Cairo in 1994. The theme of the latter was "population, sustained economic growth and sustainable development"

The ICPD adopted a Programme of Action that will guide national and international action in the area of population and development during the next 20 years. The Programme of Action addresses issues related to population, the environment and consumption patterns; the family; internal and international migration; prevention and control of the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS); technology, research and development; and partnership with the non-governmental sector. As the goal of information services is to provide relevant information to the right target group, information professionals should be aware of emerging issues in population.

4. Knowledge base development and dissemination

With the development of EBIS (ESCAP Bibliographic Information System) in the early 1980s, Asia-Pacific POPIN participated in its development by providing inputs to the system from its specialized collection. Originally based on a main

frame computer, the system has been transferred to a PC-based server using CDS-ISIS software.

Asia-Pacific POPIN has been maintaining a close relationship with POPLINE, an extensive bibliographic database in the field of population that is being produced by the Center for Communication Programs of the Johns Hopkins University. In the early days, magnetic data tapes were used to provide POPLINE database search services for users in the Asian and Pacific region. However, with the introduction of the POPLINE CD-ROM, Asia-Pacific POPIN negotiated with POPLINE to provide its members a CD-ROM version of the database free of charge while providing SDI (Selective Dissemination of Information) services from monthly tapes to registered users. The SDI service has ceased with the wide availability of the Internet in the region. The monthly data became accessible through the Internet .

Asia-Pacific POPIN is moving from hard-copy distribution towards Web-based distribution, and from bibliographic to full-text information. In addition to the hard-copy, full-text versions of *the Asia-Pacific Population Journal* (<http://www.unescap.org/pop/journal/index.htm>), *Asia-Pacific Population Datasheet* (http://www.unescap.org/pop/data_sheet/data99.htm), documents prepared for the ESCAP region's five-year follow-up of the Fourth Asia-Pacific Population Conference and a preparatory meeting for ICPD+5 (<http://www.unescap.org/pop/icpd/index.htm>), *Asia-Pacific POPIN Bulletin* (<http://www.unescap.org/pop/popin/bulletin.htm>) are available on the Web. Also, the directory database series (namely Directory of Population Institutions, Directory of Population Experts and Directory of Current Population Research) containing a search engine will be uploaded soon.

To support the activities in the thematic areas identified by ICPD, Asia-Pacific POPIN launched a pilot project to create thematic databases: full-text database of population laws and regulations and a database of reproductive health indicators. Like the case of the directory database series, a decentralized approach was taken to create databases by providing a standard format for each database.

In view of the fact that the telecommunication infrastructure is not strong in many countries of the region, Asia-Pacific POPIN is considering various options for information dissemination, including an electronic mail based listserv and the production of CD-ROMs.

5. Asia-Pacific POPIN -- challenges for the future

We are living at an exciting time in terms of technology development. Whether we like it or not, the digital era is here, making more information available in

digital form than ever before. The development of information technology, especially the rapid development and wide availability of the Internet, has completely changed the way we acquire, process and disseminate information. Considering that information technology is advancing at such a rapid pace that what is new today will soon be outdated, the challenge that the information revolution imposes on information professionals is great. To provide effective information services, it is important for information professionals to have knowledge and skills in information technology.

The Programme of Action adopted at the ICPD provides guidelines for population programmes, including population information programmes, for the next five years. Regarding information, it states that "the tremendous potential of print, audiovisual and electronic media, including databases and networks such as the United Nations Population Information Network (POPIN), should be harnessed to disseminate technical information and to promote and strengthen understanding of the relationships between population, consumption, production and sustainable development". Recognizing the real and potential contributions of non-governmental organizations to population and development activities, the Programme of Action also encourages partnership with the non-governmental sector in population and development activities.

In line with the ICPD Programme of Action and the development of information technology, the programme activities of Asia-Pacific POPIN will be focused on: a) training in new information technology; b) dissemination of population information through electronic media; c) development of thematic databases on topics identified at the ICPD through collaboration with national POPINs; and d) strengthening and expanding the network with other information networks and NGOs.

6. Conclusion

During the last 20 years, Asia-Pacific POPIN has been working on national capacity building in the generation, acquisition, processing and dissemination of population information in countries of the region. With the establishment of national centres, the function of the regional network secretariat has changed from a clearing-house function to mainly a coordinating function for human resources development and for developing collaborative information products. With the development of computers and communications technologies which make information accessible to users anywhere and anytime, and with the changing characteristics of information demands of users, the function of Asia-Pacific POPIN and the national POPIN centres may be expected to change further in the future.

Information professionals working in the digital information age should be able to adapt to such change, and be proactive in terms of both their approach to work and their own professional development. Equally important is a working environment which provides flexible structures to improve effectiveness and which is responsive to rapid change. These are some of the challenges that we all will face in the next century.

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THE LIBRARY OF THE INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES (IIPS) IN MUMBAI, INDIA: ITS STATUS AND SERVICES*

By R.T. Randeria

The Bandung Seminar:

The United Nations and its regional commission, ECAFE (now ESCAP) had organized a seminar on the population of Asia and the Far East at Bandung, Indonesia, in November 1955. It was a historic event as it was the first seminar on the subject of population, organized by the United Nations.

A Regional Demographic Centre:

An important outcome of the seminar was a recommendation that the United Nations should take the initiative of setting up a regional training and research centre in the ECAFE region.

The Demographic Training and Research Centre (DTRC¹) at Chembur, Mumbai, set up in 1956, was the out come of the Bandung seminar. Since the establishment of this centre, five other regional centres have come up; one each at

Santiago in Chile (CELADE - Centre Latino americano de Demografia or Latin American Demographic Centre) 1957

Cairo in Egypt (CDC - Cairo Demographic Centre) 1963

Accra in Ghana (RIPS - Regional Institute for Population Studies) 1972

Yaounde in Cameroon (IFORD - Institute de Formation et de Recherche Demographiques) 1972

Bucharest in Romania (Centre de Calcul et Statistiques Sanitaires) 1974

The IIPS holds a unique position among all the regional centres in that it was the first such centre to be started, and in the fact that it serves a much larger population than that served by any of the other regional centres. It is an

* Paper presented at „Asia-Pacific POPIN-IFLA (International Federation of Library Association) Joint Workshop on Demographic Information“ at Bangkok on 26th August, 1999

¹ The title Demographic Training and Research Centre was changed to International Institute for Population Studies in 1970. It was again redesignated as International Institute for Population Sciences (IIPS) in 1984. It is now Deemed University.

autonomous Institution sponsored jointly by the Government of India, the United Nations and Sir Dorabji Tata Trust. The Institute is under the administrative control of the Ministry of Health and Family Welfare, Government of India.

The functions of the IIPS can be classified under four heads:

- (1) Teaching
- (2) Research
 - (a) Phd.D.
 - (b) NFHS Project
 - (c) RCH
 - (d) Others
- (3) Consultative services: Requests from
 - (a) GOI
 - (b) WHO
 - (c) ILO
 - (d) Others
- (4) Documentation

The institute maintains an excellent library with its collection of 64892 books, 10572 bound periodicals and 13923 reprints. The library adds to its collection annually about 2000 books, 400 reprints/pamphlets and 500 bound volumes of journals.

It receives about 250 Indian as well as foreign journals out of which 150 journals are received by way of subscription and another 100 journals are received by gift/exchange. The library has books on different disciplines such as demography, statistics, public health, family welfare, mathematics, economics, sociology, psychology, health education, politics, geography, computer science, etc. Over the years collection of library has grown in its strength which can be summarised as under:

Growth of Library Collection during 1957-99

Years	Books	Journals	Reprints
1957-60	3592	38	--
1961-70	11283	969	3006
1971-80	17158	2450	4317
1981-90	20620	3529	4569
1991-99 (Aug)	12239	3586	2031
Grand Total	64892	10572	13923

Area of the Library :

Library is housed in a separate building on the first and second floor occupying an area of 11890 sq.ft. (equivalent to approx 1105 sq.mt.).

Services :

The library provides abstracting, current awareness services, documentation, reference, on-line queries, xeroxing facilities. Guided computerised search facilities is extended to faculties/students on their topic of research interest. To protect valuable books and make atmosphere user-friendly the entire library is air-conditioned.

Staff Structure :

Total strength of Library Staff is 16 which may be detailed as below:

Posts	Nos.
Library & Information Officer	2
Asstt. Library & Information Officer	1
Sr. Library & Information Assistant	1
Library & Information Assistant	1
Data Entry Operator	1
Library Clerks	3
Xerox Operator	1
Library Attendants	4
Sweepers (Attendants)	2

Pay and allowances and service conditions for all library staff are the same as is applicable to Central Government Employees stationed in Mumbai and bye-laws of the Institute.

Library Timings :

The library is kept open throughout the year excepting on public holidays and Sundays.

Day/Period	Timings
Monday to Friday	9.30 a.m. to 8.00 p.m.
Saturday	9.30 a.m. to 6.00 p.m.
Academic Vacation	9.30 a.m. to 6.00 p.m.

However, above timings are subject to change depending upon Institute's needs.

Membership :

All the bonafide students admitted into DPS/MPS/ Ph.D. programmes are allowed to consult and refer the library. However, borrowing facilities limited to 10 books at a time is extended to those students who pay refundable library deposit of Rs. 1500/-. This rule is extended to outside scholars/researchers staying officially at the campus.

Membership is open to all the persons regularly employed at the Institute. Unrestricted borrowing facilities is extended to faculty members.

Moreover, students/readers belonging to other universities/ research organizations/institutions/NGO's from India and abroad are allowed to use the library with due permission. Commercial organizations are required to pay.

Classification & Cataloguing Schemes :

IIPS Library is using 18th edition of DDC with adaptation for population science for better depth classification. A.L.A. cataloguing rules are being followed for cataloguing purpose.

Library Computerization :

Since July 1996 the Institute's library has initiated computerization of books, journals, reprints with the help of SLIM (Software for Library Information & Management). Computerization of its entire collection is achieved by July 1998. The OPAC (Online Public Access Catalogue) module is made available on nine user's terminals. More user's terminals will be provided in the near future. 25 User's Novel Netware software is installed. The Library has acquired internet connection with TCP/IP account. Our e-mail address is randeria@bom2.vsnl.net.in.

The web site of IIPS and its library can be accessed by <http://www.iipslib.tsx.org>.

Future Plans :

- (1) Achieving excellence in data entry work : Our library is engaged in editing the library data in order to standardize the data and spell checking. The library shall have to standardize data as per the INFLIBNET programme.
- (2) Transferring data on CD-ROM : Once the editing job of library data is completed it is proposed to make available IIPS library data on CD-ROM.
- (3) Active participation in INFLIBNET programme : IIPS is committed to actively participate in INFLIBNET programme of UGC.

- (4) Inclusion of relevant journal articles in computer : w.e.f. 1.1.98 relevant articles appearing in core journals are being entered author and title-wise in computer.
- (5) Introduction of bar-code technology : Library has acquired bar-code scanner, printer, ribbons and sticker paper role for the introduction of bar-code technology. This will expedite circulation work and make it free from human errors.
- (6) Campus networking : With the IIPS campus networking faculty members will have direct access to OPAC module.

Acknowledgement : The author is thankful to Prof. K.B. Pathak, Ex-Director and Prof.(Ms) S. Kulkarni, Officiating Director, IIPS for their constant encouragement and support. Co-operation rendered by IIPS library staff is gratefully acknowledged. Thanks to UNESCAP for providing financial assistance and IFLA to provide an opportunity to present this paper.

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UTILIZATION OF STATISTICAL INFORMATION: THE CASE OF POPULATION STATISTICS*

By M. Khalid Siddiqui**

Introduction

Statistical information is essential for effective development planning, policy formulation, action programmes and monitoring of the progress made. It is fundamental to a democratic society for informed decision making by its institutions as well as individuals.

Historically, statistics were gathered by the state for administrative and planning purposes. The church, often affiliated with the state, also maintained records of baptism, marriages and burials which had the potential of providing population statistics. In fact, population data are by far the oldest among the statistics collected by the state as they provided the number, ethnic and other composition, and geographic distribution of the people. In the region covered by the Economic Commission for Asia and the Pacific (ESCAP), evidence suggests that some sort of record-keeping concerning people existed quite some time ago, for example in 668 AD in the United Sila Kingdom of Korea. In Asia, the colonial rulers introduced civil registration soon after their arrival, such as in India in the 1860s. In the ESCAP region most of the government census and statistics organizations were established in the twentieth century, while in some cases they had already been constituted towards the end of the nineteenth century.

Until the formal collection of statistical information for research began in the modern times, the collection, dissemination and use of data largely remained with the government departments. However, with the spread of democratic norms, statistics began to be perceived as public good. Slowly, the notions of 'government statistics office' and 'government statistician' began to wane and were replaced by the 'national statistical offices (NSOs)'. Now the national statistical offices in a democratic society strive to assist the process of decision-making, research and discussion not only within the government but also in the community. It is well

* Paper presented at „Asia-Pacific POPIN-IFLA (International Federation of Library Association) Joint Workshop on Demographic Information“ at Bangkok on 26th August, 1999.

** The views expressed in this paper are those of the author, and do not necessarily reflect those of the United Nations.

recognized that, the privacy of individuals notwithstanding, all potential users of data – including the general public, the civil society and the private sector – should have easy and equal access to basic official statistics.

Soon after statistics began to be perceived as public good, the demand for quantitative information rose. With limited resources at hand and multiplying demand for statistical information, NSOs introduced procedures for prioritizing their data collection through such institutions as data user committees for determining the topics to be collected in population and housing censuses and surveys. In some countries this process has become an extensive dialogue between the NSO and the community. Effective interaction between the data producers and data users is now considered an important element and a major aim of modern national statistical services. Now different interest groups are involved at a very early stage of data collection planning for which various user groups and advisory bodies are used. Similarly, users' views are taken into consideration at the dissemination stage. However, since the timing of the release and access to statistical information may have implications for the markets, election results and other processes in the society, many NSOs follow transparent procedures for data dissemination by announcing schedules of data releases in advance so as to give equal access to information to all concerned.

Focusing on the area of population statistics, this paper emphasizes the need for paying greater attention to the utilization of data. It argues that a great amount of data produced by the national statistical agencies remains grossly underutilized while the demand for new data has been multiplying at a fast rate in this era of information revolution. Therefore, concerted efforts are required by all concerned to promote the effective exploitation and fuller utilization of data. That will also help rationalize the production of additional data.

I Population Statistics

Strictly speaking, demography is the study of the size, distribution, structure and growth (or decline) of populations. Additional characteristics of the population, such as ethnic, social, and economic are also of interest, while the focus on reproductive health and family planning adds a host of new dimensions to population studies. Therefore, the term 'population statistics' has replaced 'demographic statistics' to reflect the wider sense of the field of demography.

Population statistics are not only vital for development planning, but are also utilized for decision making in the government, in industrial and other businesses, and for stimulating research and debate on important issues of concern to the society. Basically, there are three sources of population statistics: administrative

records, population and housing censuses, and household surveys. In most developing countries of the ESCAP region, administrative systems of data are scarce or inadequate for statistical purposes and many of the countries lack suitable programmes of household surveys to fully meet their data needs. Consequently, population census becomes the center of attention of many data users, perhaps more than the census statisticians realize. Under these circumstances, the users of data often experience frustration when the population census statistics do not meet their expectations. While the population census cannot meet all the wide ranging demand for data in these countries, such as for short-term monitoring, its dominant role must be duly recognized.

A population census is a process consisting of many phases involving extensive resources. To meet the broad requirements of potential data users, census organizations consult data users at the questionnaire designing stage as well as receive feedback on the needs of major groups of data users in terms of topics of interest, desired accuracy, timeliness, disaggregation and mode of dissemination. Being one of the most expensive statistical operations, the high cost of a population census would not be justified unless its data were fully utilized. In that regard, timely dissemination of data assumes utmost importance.

Population and housing censuses provide a consistent series of statistics on the size, distribution, and composition of the population of a country and for its geographic, administrative units and social groups, permitting monitoring of long-term changes of those variables. The population and housing censuses together with other sources of data, such as vital registration and household surveys, constitute an integrated system of statistics in modern societies. While for many conventional indicators the numerators come from other sources, the population census often provides the denominators, such as for per capita food consumption. One important strength of the population census lies in the fact that it can provide information for smaller administrative units and communities.

A. Changing shape of census reports

Until the decade of 1970, generally the census and national statistical offices released numerous and voluminous census reports which required huge shelf space in the libraries. However, trend towards reducing the size and volume of the published census reports gradually caught up, as it became possible to disseminate detailed data on electronic media such as magnetic tapes and on-line access. Now it is very common to release a census reports with some analytical commentary, accompanied by several thematic reports such as on fertility, mortality, population projections, women, the aged, the disabled and the family. Since the users who require detailed data on a given topic are relatively small in number and often

need special attention, their needs are met through special tabulations and supply of data on demand.

The analytical nature of the thematic reports varies from country to country. Some are prepared as monographs with detailed analytical chapters, while others focus on the release of more detailed tabulations in separate reports on topics such as demographic, social and employment characteristics. The inclusion in the main census report of some interpretation and analysis of summary tables has sharply increased. Apart from presenting summary tables and comparative data from previous censuses, some main census reports also include detailed analyses on selected topics of common interest such as demographic trends, internal migration and projections of major demographic and socio-economic aggregates.

II. Understanding the Nature of Population Data

Population Statistics and indicators are derived from various sources, either from a single source or a combination of several. In developed countries, the adequacy of the required data sources ensures the production of good quality information. However, in developing countries, the quality is not always assured due to gaps in the data collection systems, especially the civil registration and vital statistics systems. The United Nations publication entitled *Population and Vital Statistics Report* under the Statistical Papers Series (ST/ESA/STAT/SER.A) provides vital statistics for each country as well as information on the year of latest census and the extent of completeness of the registered data. The meta information included in this publication also reveal that even for simple measure as mid-year population, the estimates are not strictly comparable across countries. In many cases, they have to be estimated by the United Nations, utilizing information at hand and demographic techniques.

Despite the inadequacies of vital statistics systems, for some purposes, demographers are able to produce reasonable estimates for selected population parameters. However, often the data users fail to make a distinction between statistical estimates based on scientific models and the data produced from the sound statistical data sources. Attention to meta information is crucial for effective utilization of data. Again, the simple indicator of total population (by age or any other characteristic) may be any of the following: based on the census and adequate civil registration, an estimate that refers to mid year or beginning of the year, a figure based on population projections, or an estimate made by an outside agency. The situation becomes more complex with rates and indicators such as life expectancy. For the latter, the data requirements are relatively extensive. As a

rule of thumb, when the civil registration is inadequate, the basis of computation of a complex statistics should be reviewed and the estimate be corroborated.

III. Utilization of Poulations Data

The recognition of population policies and programmes as an integral parts of social, economic and cultural development has important implications for statistical data collection and analysis. While the demand for additional and more sophisticated data will continue to pose challenges for national statisticians and demographers, part of the demand for information can be met through further analysis and utilization of multiple sources of data.

The large quantity of census data produced by the statistical agencies remains under-utilized. In many developing countries this is mainly due to the lack of sufficient analytical capabilities, within the statistical office or even in planning departments and other potential research institutions. However, as will be discussed later, the timely availability and usable format of dissemination of census data also has important bearing on data utilization. Often the availability of census report becomes the guide for further research and that role of the census report perhaps has not been realized in many instances. Otherwise the commentary and interpretations included in the report, and the preliminary analysis of the topics of contemporary interest to the country, such as migration or urbanization, could be highlighted to invite researchers for further in-depth investigations. The introduction of analysis also adds value to the statistical products and satisfies some of the unmet needs of data users who may not have analytical capabilities, such as the non-governmental organizations(NGOs).

Table 1 provides some examples of potential uses of census data, by providing illustrative tabulations usually released by NSOs. Unless pointed out in this manner, the link between the tabulation and the uses may not be apparent to many consulting the census reports.

A. Factors Influencing Data Utilization: Experience in the ESCAP region

To be effective, census reports require adequate resources, attention and publicity to encourage their use. The inclusion of some commentary and interpretation has been found useful and interesting. The inclusion of information on data quality and limitations of census results would also facilitate the utilization and interpretation of the census results. Dissemination of information on definitions, standards and classifications used, and their comparison with past censuses, would also promote effective utilization of census data. In the absence of such information, there is danger of misinterpreting data. For example, the absence of

information on changes occurring in the boundaries of urban and rural areas over time would make it difficult to study population movement based on data from succeeding censuses. Many countries publish information on boundary changes, and they should be made available together with other census publications.

Tabulations produced should be usable and conveniently understood by users. Multidimensional cross-tabulations which are often included in census reports may at times be difficult to interpret. The utility of those tabulations may be enhanced if summary sub-tables at appropriate levels are also included. Otherwise data users not comfortable with complex tabulations may be discouraged to use the report. Also, researchers in some of the developing countries feel that many census statistics are not available in a form that make them useful, or statistics beyond published material are not accessible. While it may not be possible to release all possible tabulations from a census, adequate provisions should be made for the release of unpublished tabulations. For instance, the need for providing census tabulations containing data on the characteristics of data on small communities has been voiced. The availability of basic census tabulations for small communities have been found useful for research on population distribution and to analyses needed to aid planning in many fields, including housing, education, urban development, transportation, public utilities etc.

IV. Improving Data Utilization

A large amount of data remains underutilized for a variety of reasons: users may not be fully aware of the range of data that can be made available by the NSOs; producers may not publicize their products and services well enough; data may not be available when users need them most; statistical information may not conform to the form required by the users; poor interaction between the users and producers of statistics; access to data may not be easy; poor understanding of data limitations and strengths among the users; poor skills of research and analysis among the potential users. Considerable progress can be made by addressing the above mentioned issues and by establishing networks and partnerships.

A. Role of the producers of data

Effective communication between the producers of statistics with existing and potential users consists of involving users at all stages of the census, such as planning, questionnaire design and tabulation plan. Moreover, the cooperation of researchers and academics in the analysis of census data, conducting national and international seminars to disseminate census results, educating users and potential users on the strengths and limitations of data, and providing access to

databases containing data from current and past censuses are important. In some countries, the user inputs are sought in the production of draft chapters for the census report.

There is a need for the statisticians to play a more effective role in fostering population census data analysis. In the first place they should pay greater attention to the publicity of products and services. Information brochures, catalogues, press briefings, advance announcements of data releases, and user workshops are among the several approaches adopted by advanced statistical offices.

However, NSOs should also take the lead by demonstrating the use of statistical information for a better understanding of issues of public policy and various phenomena of interest to the society at large. The thematic publications now produced from the census data provide that opportunity. Moreover, by releasing data on a timely basis, the NSO would enhance the value and utility of their outputs.

B. Role of the users of data

The data users also play an important role through active participation in the consultative process and by providing feedback. They should take greater interest in understanding the strengths and limitations of the statistical system. The expression of the felt needs to the budgetary authorities would also ensure resources for priority areas. The greater use of meta information and demand for it would encourage NSOs to release such information.

The questionnaires used in censuses, surveys, and registration forms provide clues to the sort of data that could be available from the NSOs. By familiarizing themselves with those and other key documents, users will be better prepared to request data and tabulations.

C. Role of the libraries

Since many data users, including the general public, students and researchers, often turn to libraries for their data needs, libraries can play an important role in promoting effective data utilization. Census data catalogues, release calendars and press releases constitute important sources indicating the potential availability of data. Some NSOs also issue annual reports and forward work programme which may also provide updated information on recent and forthcoming products as well as contact addresses for obtaining information on request. In addition to census reports, efforts should also be made to obtain other relevant publications, such as on data evaluation and boundary changes. Now some advanced NSOs provide some meta-information on key outputs on their website.

While hard copy publications remain a dominant mode of data dissemination, NSOs are increasingly utilizing electronic media, such as the Internet services, floppy disk, CD-ROM, and magnetic tape. Of these, CD-ROM may turn out to be a preferred mode among the library users as it provides easy access to massive data. There is growing realization among the Internet users that, except for browsing small sets of data, it is quite burdensome and time consuming for downloading large amounts of data. Since in developing countries the access per capita to the computer facilities is exceedingly low, the availability of access to data on CD-ROM in the libraries would no doubt boost data utilization. In turn, the NSOs would be able to increase the number of CD-ROM produced.

Reference material to help data users may include dictionaries and encyclopedias for a better understanding of the technical terms. A glossary of selected terms is included in this paper as an illustration. A selected list of reference material follows:

R. Presat (1985). *Dictionary of Demography*

J. Ross (1982). International Encyclopedia of Population

Population Reference Bureau (1991). Population Handbook, 3rd edition.

United Nations (1983). Manual X: Indirect Techniques for Demographic Estimation (ST/ESA/SER.A/81)

United Nations (1998). *Principles and Recommendations for Population and Housing Censuses*, revision 1 (ST/ESA/STAT/SER.M/67/Rev.1)

Table 1

Illustrative Tabulations by Potential Use of Census Data

Illustrative tabulation	Potential use
<i>Total population by major and minor civil divisions, by sex</i>	<ul style="list-style-type: none"> - Studies of internal migration and other factors affecting the trends of population distribution. - Studies of the internal distribution of population in relation to economic and social facilities. - Base data for projections of the future regional and urban-rural distribution of the population.
<i>Decadal variation in population by major and minor subdivision, by sex</i>	<ul style="list-style-type: none"> - For studying population growth and trends.
<i>Population by locality size and sex</i>	<ul style="list-style-type: none"> - Studies of national pattern of concentration and dispersion of population. - Studies of urbanization.
<i>Population by geographic division and age, by sex</i>	<ul style="list-style-type: none"> - Construction of life tables. - Current population estimates and projections. - Estimation of the size and distribution of population groups, such as school age, voting age etc. - Analysis of population change.
<i>Population in households by relationship to head of household, marital status and sex</i>	<ul style="list-style-type: none"> - Studies on changing patterns of household compositions and of characteristics of heads of households.
<i>Population by type of activity, age and sex</i>	<ul style="list-style-type: none"> - Studies of the growth and distribution of manpower. - Studies of determinants of the size and composition of manpower. - Manpower projections. - Economic activity rates. - Studies of unemployment and underemployment.
<i>Population by duration of residence in locality and major civil subdivision, age and sex</i>	<ul style="list-style-type: none"> - Studies of internal migration. - Future population estimates by localities.

Glossary

BALANCING EQUATION. A basic demographic formula used to estimate total population change between two points in time. The balancing equation includes all components of population change: births, deaths, immigration, and emigration.

BIRTH RATE (or crude birth rate). The number of births per 1,000 population in a given year.

CHILD-WOMAN RATIO. The number of children under 5 years old per 1,000 women aged 15-49 years in a population.

CLOSED POPULATION. A population with no migratory flow in or out.

COHORT. A group of people sharing a common temporal demographic experience who are observed through time. For example, the birth cohort of 1900 would be the people born in that year.

DEATH RATE (or crude death rate). The number of deaths per 1,000 population in a given year.

DEPENDENCY RATIO. The ratio of the economically dependent part of the population to the productive part; arbitrarily defined as the ratio of the elderly (those 65 years and over) plus the young (those under 15 years of age) to the population in the "working ages" (those 15-64 years of age).

GENERAL FERTILITY RATE. The number of live births per 1,000 women aged 15-49 years in a given year.

GROSS REPRODUCTION RATE (GRR). The average number of daughters that would be born alive to a woman (or group of women) during her lifetime if she passed through her childbearing years conforming to the age-specific fertility rates of a given year.

INFANT MORTALITY RATE. The number of deaths to infants under one year of age in a given year per 1,000 live births in that year.

LIFE EXPECTANCY. The average number of additional years a person would live if current mortality trends were to continue.

LIFE TABLE. A tabular display of life expectancy and the probability of dying at each age for a given population, according to the age-specific death rates prevailing at that time.

MARITAL FERTILITY RATE. Number of legitimate live births per 1,000 married women aged 15-49 years in a given year.

MATERNAL MORTALITY RATE. The number of deaths to women due to pregnancy and childbirth complications per 100,000 live births in a given year.

NATURAL INCREASE. The surplus (or deficit) of births over deaths in a population in a given time period.

NET REPRODUCTION RATE (NRR). The average number of daughters that would be born to a woman (or group of women) if she passed through her lifetime from birth conforming to the age-specific fertility and mortality rates of a given year. This rate is

similar to the gross reproduction rate, but takes into account that some women will die before completing their childbearing years. An NRR of 1.00 means each generation of mothers is having exactly enough daughters to replace itself in the population.

PERINATAL MORTALITY RATE. The number of fetal deaths after 28 weeks of pregnancy (late fetal deaths) plus the number of deaths to infants under 7 days of age per 1,000 live births.

POPULATION PROJECTION. Computation of future changes in population numbers, given certain assumptions about future trends in the rates of fertility, mortality, and migration. Demographers often issue low, medium, and high projections of the same population, based on different assumptions of how these rates will change in the future.

POPULATION PYRAMID. A special type of bar chart that shows the distribution of a population by age and sex.

RATE OF NATURAL INCREASE. The rate at which a population is increasing (or decreasing) in a given year due to a surplus (or deficit) of births over deaths, expressed as a percentage of the base population.

REPLACEMENT LEVEL FERTILITY. The level of fertility at which a cohort of women on the average are having only enough daughters to "replace" themselves in the population. By definition, replacement level is equal to a net reproduction rate of 1.00. The total fertility rate is also used to indicate replacement level fertility; in the more developed countries, a TFR of 2.1 is considered to be replacement level.

SEX RATIO. The number of males per 100 females in a population.

STABLE POPULATION. A population with an unchanging rate of growth and an unchanging age composition, because of age-specific birth and death rates having remained constant over a sufficiently long period of time.

TOTAL FERTILITY RATE (TFR). The average number of children that would be born alive to a woman (or group of women) during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year.

ZERO POPULATION GROWTH. A population in equilibrium, with a growth rate of zero, achieved when births plus immigration equal deaths plus emigration.

Source: The Population Reference Bureau, *Population Handbook*, 3rd edition, 1991

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