CHAPTER 9

CONCLUSION AND SUGGESTIONS

The satisfaction of the users information needs may be regarded as the ultimate objective of any documentation or information establishment and thus of all documentation activity. To achieve that objective it is, first of all, necessary to know the information needs. The first prerequisite for satisfying information needs is consequently to determine those needs, since it is the basis for any effective planning, collecting, processing, retrieval and dissemination of information.

The user is the key person in any information system. All the luxuries of information revolution and problems of information explosion are centered around the user and his convenience. Understanding the user is winning half the battle in providing information services. The success of any information system depends considerably on how best the system design is based on a close and accurate understanding of the users. The effectiveness of library and information system depends on the extent to which the system characteristics correspond with the user and on how much the potential user is willing and able to make use of it.

Information needs of scientists cannot be understood properly without having a clear understanding of their information gathering habits. Literature reviewed in the preceding pages revealed that no systematic study has been made in India so far to assess the information needs of defence scientists working in different labs/estts. The present study aims at filling this gap. The objectives of this study are:

1. to study the organisational structure of Defence in India;
2. to survey the genesis, status and working environment of defence scientists in India;
3. to survey the information resources and services of Defence Scientific Information and Documentation Centre (DESIDOC);
4. to survey the existing library and information services being provided by different defence libraries in India;
5. to investigate the information needs of different categories of defence scientists;
6. to investigate the level of awareness of defence scientists about the existing library & information services and centres;
7. to study the information gathering habits of defence scientists;
8. to study the problems faced by defence scientists while gathering information;
9. to examine if any relationship exists between information gathering habits of defence scientists and their age, experience, languages known, etc. and;
10. to suggest ways and means whereby the information needs of all categories of defence scientists can be met to their satisfaction.

In order to attain the above mentioned objectives, the following hypotheses have been tested and confirmed in this study:

1. DESIDOC has adequate number of information resources to cater the information needs of all categories of defence scientists in India.
2. Advance information technologies are available at DESIDOC and are being utilised for information processing and retrieval.
3. Majority of the DRDO libs/TICs have sufficient money but the library staff available is inadequate.
4. An overwhelming majority of the DRDO libs/TICs have photocopying services.
5. Information bulletins like, accession lists, CAS, indexing services, abstracting services, SDI, etc. are not brought out by majority of the DRDO libs/TICs.
6. Foreign language knowledge among the defence scientists is meagre.
7. Defence scientists, by and large, are not aware of different information centres and services available in India and abroad and the awareness level increases with the status of the scientists.
8. A lot of important information is communicated among the defence scientists by various informal means, such as, meetings, telephone conversations, correspondence, etc.
9. Average time spent in laboratory, for literature search and reading, decreases with the status of the defence scientist, whereas, the time spent on conferences and discussions increases with their status.
10. Majority of the defence scientists have not attended any conference/seminar/workshop at national or international levels.
11. An overwhelming majority of the defence scientists are not member of any professional society/association.
12. Majority of the defence scientists consult the lib/TIC less frequently and for lesser period.
13. Female scientists spend more time in the library than their male counterparts.
14. Majority of the defence scientists visit their respective libs/TICs to consult current periodicals only.
15. Majority of scientist 'Bs', 'Cs' and 'Ds' are not able to understand the shelf arrangement of documents in their libs/TICs.
16. Majority of the DRDO scientists do not subscribe to current periodicals individually.
17. Current periodicals published in U.S.A and U.K are read/consulted by Indian defence scientists more often than those published in other countries.
18. Out of various foreign defence related publications, "International Defense Review" and "Janes Defence Weekly" are most frequently consulted by the Indian defence scientists.
19. Senior defence scientists get the photocopying services more promptly while those in junior positions get it considerably late - even after a weeks time.
20. There is a significant time delay in getting the required document on inter library loan by the defence scientists through their libs/TICs.
21. A majority of the defence scientists feel the need for personalised in-house current awareness service.
22. The frequency of translation problems faced by the defence scientists increases with the status.
23. Majority of the defence scientists do not consult the library staff for retrieving the required information.
24. Defence scientists feel that there is a significant time delay between publication of an information and its retrieval.
25. An overwhelming majority of the defence scientists feel a strong need for using new information technology for information processing and dissemination.

For the present investigation, the size of the population was very large (25,000). Stratified random sampling was followed for collecting the data. The investigator used the existing standard norms given by Taro Yamane (1967) to derive the optimum size of the sample, according to which a sample of 610 respondents was required to be taken. As such, every 41st name on the list of DRDO scientists in-service was tick-marked and selected for administering questionnaire and interviewing. But 12 of them could not be contacted despite best efforts. Thus, 598 scientists in all were surveyed (out of 610 tick marked), thereby covering 98.03% of the total sample. The
data for assessing the information needs, habits, awareness level and problems of defence scientists in India is mainly collected through a questionnaire cum interview schedule for respondents (Appendix-“A”), questionnaire for assessing the resources and services of DRDO labs/TICs (Appendix-“B”) and by personally visiting different DRDO labs/estts.

The information gathering phase of the study was, on the whole, quite fruitful. The data collected for the present study was first analysed according to identificational variables such as age, sex, status, etc. of the respondents. Thereafter, the data concerning information needs, awareness level, information gathering habits and problems faced by the respondents were analysed.

2. INFERENCES

Every research work is concluded with some results, which are either new or supporting the old one. The progress, in any field of life, would not be possible without active research work. The results of the present investigation can be considered indicative of the patterns of communications and information use and several suggestions or recommendations can be made for an organisation wishing to improve its communication and information flow and thus contributing to greater saving and efficiency.

Each DRDO lab/estt is assigned certain subject areas for its R&D activity, and each lab/estt has a library or TIC which provides literature and information services to the defence scientists. It is observed that the DRDO libs/TICs have very varied collections. The total number of documents in the DRDO libs/TICs include: (a) Books [6,49,583], (b) Current periodicals [42,000], (c) Back volumes of periodicals [3,70,800], (d) Technical reports [1,45,543], (e) Standards/Specifications [45,500], (f) Patents [23,776], and (g) Micro-documents [20,015]. An overwhelming majority of DRDO libraries possess reprographic facilities. Even with these, the respondents opined that there is a considerable delay in providing photocopying services. It has also been revealed during the course of the study that only about a quarter of the DRDO labs/TICs have translation facilities. However, none of these are having adequate facilities to meet local demands.
A variety of Information Bulletins are brought out by various DRDO libs/TICs, which include (a) Accession List [15], (b) CAS [17], (c) Abstracting Service [5], (d) Newspaper Clipping Service [3], and (e) SDI Service [4]. Thus the number of information bulletins brought out by DRDO libs/TICs is inadequate. This happens as most of the DRDO libs/TICs are not suitably manned in terms of staff required for providing efficient information services.

DESIDOC acts as a central information agency for DRDO Headquarters and DRDO labs/cstts/offices spread all over the country. DESIDOC is the only library which is being fully automated. Besides computerisation of its library services, it also has facility for online access to various databases through DIALOG. In 1988, it introduced CD-ROM and facsimile for information retrieval and communication. A ‘Translation Bank’ was also set up by DESIDOC in 1980 to collect information on translations available in other DRDO labs/cstts and organisations outside DRDO, such as CSIR, BARC, NAL, INSDOC, etc.

The information needs of DRDO are mission-oriented, project-oriented, and problem-oriented, depending upon the level of management served. On the whole, it is observed that scientists spend only 5 to 10 per cent of their time looking for information -- a figure which is considerably small. The survey reveals that a DRDO scientist seeks information to meet three basic needs. Firstly, to know what other researches in the same field are being carried out or have recently been completed; secondly, to understand the phenomenon under observation; and thirdly, to identify and retrieve all relevant information available on the concerned subject.

It has been observed that only a few of the DRDO scientists had ever visited any foreign country. Scientists who have visited foreign countries have a better knowledge of foreign language and are well aware of national as well as international information sources/centres/services. They are in a better position to exploit information resources and services. About 75% of the respondents have published S&T papers. It is observed that the number of S&T papers published and tendency to attend national and international conferences/seminars/workshops by the respondents increases with the status of the respondents. It has further been revealed that DRDO scientists generally start their information search by using their personal files, which are obviously meagre, followed by discussions with their colleagues and lastly a visit.
is made to the library. The survey reveals heavy use of informal channels and very low use of the libraries by the respondents. The oral communication between scientists is considered most important by DRDO scientists, particularly the telephone conversations and contacts at scientific conferences. Informal communication -- both inter-organisation and intra-organisation -- increases with the increase in age, experience and status of the respondents.

With regard to the time devoted by the defence scientists, it has been found that the average time devoted for laboratory, literature search and reading decreases with the increase in the status of the respondents, whereas, the time devoted for correspondence and discussions increase with their status. It is also observed that the tendency of visiting library and time spent on each library visit decreases with their status. Male users devote less time in the lib/TIC than the female ones. The most disgusting finding of the survey is that a majority of the respondents are not only irregular visitors to the library but also they spend less than an hour per day in the library. It has been observed that the average time taken by the respondents to locate specific information decreases with the increase in status, age and experience. As far as the use of different defence lib/TICs is concerned, the survey reveals that a large number of the respondents do not use lib/TICs at all. The major reasons for this are, insufficient relevant library collections, inadequate time with the user and red-tapism. It has also been revealed from the present survey that a majority of the DRDO scientists are not aware of the services being provided by the library/information centres, especially the online literature searching services. An overwhelming majority of the DRDO lib/TICs remain under-utilised as the users feel inhibited in the use of library because of lack of orientation of the library resources and services. As the subjects are becoming more and more inter-disciplinary, it is becoming more and more difficult for a scientist to retrieve the relevant information. This is primarily because of lack of awareness about the existing bibliographic tools amongst the defence scientists. Very few of them are aware of the information resources and services being provided by the information centres within India and abroad.

An overwhelming majority of the respondents have opined their preference for personal discussions, followed by the current periodicals and books as sources
of information. The reasons for this preference is accessibility, quality, currency and ease of use. It has also been observed that the average time taken by the respondents to locate specific information varies from one day to over a month. So far as the satisfaction among DRDO scientists regarding library resources and services is concerned, it has been found that the senior scientists are more satisfied as compared to their junior counterparts. The main reason for greater satisfaction among the scientists having senior status, is their influential status in the lab/estt and the team of subordinates they have, which makes it easy in getting the right information at the right time.

The survey also reveals that majority of the scientists neither subscribe to current periodicals individually, nor get them by becoming members of learned societies/associations. Even when important scientific papers appear, they are consulted/read by only a small number of scientists. A vast majority of the scientific community rely only on a handful of experts who scan the current literature regularly. During the course of this study, it has been revealed that the existing ILL service in libs/TICs is also not able to satisfy the information requirements of a large number of respondents because the desired documents are either not available with other libraries at all or it takes very long time to get the required document on ILL.

The present survey also reveals that the DRDO scientists, in general, do not make use of library staff. The library staff is not consulted, even when a systematic literature search is undertaken. It is an established fact that the users needs are never static. Defence libs/TICs exist to provide services to its users and it has been established by the findings of this investigation that a majority of scientists face certain problems with the lib/TIC with regard to satisfying their information needs. It is absolutely essential for the libraries to help the users to locate relevant information at right time. This could be done by conducting the “users orientation” and “users education” programmes at various DRDO libs/TICs regularly.

3. SUGGESTIONS

In the light of the results obtained by the investigator, the following suggestions are made:
3.1 Compilation of Union Catalogues

The findings of the present study indicate that the majority of the DRDO libs/TICs can not satisfy the information requirements of various categories of defence scientists with their existing resources. Consequently, they have to depend on the resources of the libraries of their sister establishments. But, before a request is made it is essential to know about the availability of required documents in the libraries concerned to save both time and money. For this purpose, it is very essential to have a location tool; union catalogues are the only answer. It is suggested that the union catalogue of the holdings of various DRDO libs/TICs should be compiled separately for each type of documents, such as periodicals, reports, conference proceedings, etc. The union catalogue should include full bibliographic details of documents together with the holding record of the complete or incomplete sets. For prompt communication, complete postal address with the pin code number, telephone number, telex number code, fax number, etc. should also be given for each lib/TIC in the beginning of each catalogue. Of course, regular updating or issue of supplements to these union catalogues is very essential to have up-to-date information.

DESIDOC, Delhi, has already compiled three union catalogues: (i) List of Holdings of Periodicals in DSL; (ii) Union Catalogue of Patents held in DRDO Labs/Estts; and (iii) Union Catalogue of Specifications held by DRDO Labs/Estts. It is proposed that similar union catalogues should be compiled for above listed variety of documents also. This work can be taken up by DESIDOC on priority basis. Copies of the printed union catalogues should be made available to all the DRDO libs/TICs free of cost. When the necessary facilities are available, the data of union catalogues can be stored in the computer. Multiple copies of this data can be made available to various DRDO libs/TICs for use with the help of in-house computers. Finally this data can also be used by all the DRDO libs/TICs through an information network.

3.2 Library Cooperation

As a result of literature explosion and multifaceted needs of different types of clientele, no library or information centre can be self-sufficient. This is mainly due to the scarcity of funds, staff, facilities, resources and equipment. Hence, library
cooperation is the only remedy. Cooperation implies a certain amount of reciprocity. The financial elements are recurring. To overcome the problems of shrinking financial resources, mutual cooperation among libs/TICs is suggested. In this direction, efforts have, therefore, to be made for wide coverage of documents through cooperation among various DRDO libs/TICs.

The mutual cooperation can be in the areas of:

1. Inter-library loan (ILL);
2. Cooperative acquisition;
3. Cooperative technical processing;
4. Cooperative storage and;
5. Cooperative CAS and SDI services.

The survey indicates that none of the DRDO libs/TICs has cooperative acquisition and cooperative technical processing. This kind of cooperation can save time of the library staff and at the same time unnecessary duplication of documents can be avoided. Only two DRDO libraries situated at Hyderabad are having cooperation in the storage of less used documents. So far as cooperation in CAS and SDI services is concerned, the survey reveals that no DRDO lib/TIC has such plans even in the near future.

Regarding ILL service, it is suggested that there should be a directive from the DRDO HQrs to the Heads of all DRDO libs/TICs to honor the ILL request within a couple of days. If the intended document does not exist in the lib/TIC collection, even then the information in this respect should be communicated within the prescribed period.

Since the DRDO labs/estts are scattered throughout the country at far off distances, it is not possible to exercise cooperative acquisition. But, there are nine DRDO libs/TICs in Delhi, six at Bangalore, four at Pune and three at Hyderabad. In such places the cooperative acquisition is possible and should be implemented keeping in view the subject specialisation or similar criteria.

With regard to cooperative technical processing, this does not seem to be feasible at present. But this can be achieved when all the DRDO libs/TICs are automated and linked together through some network. This should be done as a long-
term plan and should be accomplished in phases.

Cooperative storage for DRDO libs/TICs is possible and can be implemented immediately. Certain libraries at different places within the country can be selected for this purpose and the maintenance can be borne by DRDO HQrs. This can eliminate unnecessary burden on the stacks of most of the DRDO libs/TICs.

The survey of various DRDO libs/TICs reveals that very few libs/TICs bring out information bulletins. These have been discussed in detail in Chapter 4. The survey reveals that only fifteen DRDO libs/TICs bring out accession lists, five DRDO libs/TICs bring out abstracting services, and seventeen DRDO libs/TICs bring out current awareness services.

At present, due to lack of library staff in adequate number, most of the DRDO libraries are not able to provide efficient information services to defence scientists. It is also observed that most of the library professionals serving at various DRDO libs/TICs do not inform their clientele about the latest information relevant to them. It is suggested that the table of contents of important S&T periodicals should be duplicated and distributed to the scientists concerned as ‘Current Titles Service’. It is expected that most of the DRDO libs/TICs, with the existing staff levels, can bring out this service easily for all categories of defence scientists.

The CAS and SDI services should be provided by each and every DRDO lib/TIC individually to their clientele without exception. Copies of these information bulletins should also be mailed to all the DRDO libs/TICs promptly and regularly. A common format of such information services may be adopted by all the DRDO libs/TICs. For this purpose, a Seminar of DRDO libs/TICs may be organised at national level and modalities can be worked out. The automated CAS and SDI services can however be provided in phased manner, closely linked with the computerisation of various DRDO libs/TICs.

3.3 Rationalisation of the Collection Development

The results of the present study reveal that the collection of the documents in the DRDO libs/TICs is not based on the needs of defence scientists; rather these have been acquired arbitrarily. Consequently, the scientists and their clientele tap resources of other libraries to meet their information requirements. To meet information needs
of majority of defence scientists from within the lib/TIC, it is suggested that, as far as possible, the acquisition of documents, including current periodicals, should be done on the basis of the suggestions of defence scientists. If each and every scientist cannot be consulted, then either their project leader or the representative of each category of scientists should be consulted for this purpose. This can be decided by the Director, DESIDOC, as a policy matter, which can be implemented in all the DRDO libs/TICs uniformly under executive orders.

3.4 Users Orientation and Education Programmes

As is evident from the results of the present survey, a majority of the DRDO scientists do not use the library and information services because they are not aware of these services. Moreover they are never provided an opportunity to ascertain the extent of availability of such services. The defence scientists generally do not know the techniques of consulting various types of reference sources and services in the area of their interest. At the same time they feel shy to ask the library staff for obvious reasons.

In view of the above, it is strongly suggested that the user orientation programme should be introduced in all the DRDO libs/TICs. To start with, all categories of the defence scientists should be given orientation about the location of the DRDO lib/TIC and the facilities and services provided by them. This can be done in small groups on fixed days of weeks. This can be repeated from time to time as per the requirement or changes in the lib/TIC. The new entrants should, however, be given suitable orientation immediately after their joining the organisation.

For the purpose of educating the defence scientists as to how to consult certain reference tools or indexing/abstracting services or computerised information services, different categories of defence scientists should be given an extensive course at regular intervals. It is like a formal teaching, involving actual use of the reference sources, practical training or hands-on. This helps the user to have first hand information about the reference tool/service and he/she is given training to use the same independently.

The users education should be given by the senior library staff members assisted by their juniors. This should also be imparted regularly and according to the
preplanned and notified programme. This will help the defence scientists not only to know what library and information services are available within the organisation but also how to consult certain reference sources or retrieve information. This will make them library conscious and they will ultimately use the library resources and services to the maximum extent. Only then the purpose of lib/TIC will be achieved.

3.5 Compilation of Directory of Subject Experts

The present survey reveals that a majority of the defence scientists do not visit their libs/TICs regularly or they spend very little time in gathering information. Moreover, they are dependent on informal means of communication rather than the use of formal documents for this purpose. A significant amount of useful information is communicated to defence scientists by means of correspondence, discussions, meetings, conferences, seminars, workshops, telephonic conversations, etc. The findings strengthen the need for scientists to know who else is working on similar or allied projects. If this information is made available to the defence scientists promptly and accurately then the available subject expertise can be effectively utilised. To achieve this target, compilation of a directory of subject experts available in various DRDO labs/estts and similar other allied organisations within the country is suggested. The directory should include the educational and professional qualifications, subject specialisations, experience, languages known, projects completed or in hand, etc. It is understood that the directory will include the official as well as residential postal address along with the telephone numbers, if any, of the subject experts. The directory should also be supplemented with various indexes. Since the information in such a directory is subject to change, it should be regularly revised and updated. This work can be undertaken by DESIDOC, Delhi, after obtaining approval from DRDO HQrs.

3.6 Compilation of Guide to Sources of Information

The defence scientists are not aware of a majority of information sources. Moreover, these sources of information are not available at one place in any lib/TIC. There is a need for compilation of comprehensive and descriptive guides to sources of information in defence-related areas, such as aeronautical sciences, armaments,
rockets, missiles, combat vehicles, food sciences, naval sciences, etc. These compilations should include primary, secondary and tertiary sources of information in a particular subject field. This work of compilation of guides to information sources can be undertaken by the lab/estt in the concerned subject fields.

3.7 Defence Science Information Network (DESINET)

The National Conference on Scientific Information for Defence (NACSID) held during 25-26 Feb. 1986 and subsequently the Seminar on Defence Science Information Network (DESINET) held during 17-18 Feb. 1987 in Delhi, recommended that the government should develop an integrated network for scientific information for defence organisation.

Objectives of the network.

i) To maximise the use of existing resources;
ii) To avoid unnecessary duplication of research;
iii) To ensure economy;
iv) To avoid wastage of resources, manpower and time;
v) To enhance the speed and comprehensiveness of research;
vi) To overcome the language barrier;
vii) To overcome the geographical barrier;
viii) To encourage bibliographical control;
ix) To encourage cooperation at national level;
x) To enhance the social and economic development of the country;

Functions of the Network

i) To provide information regarding the availability of information resources from within the country and abroad.
ii) To plan for effective utilization of the resources at various levels.
iii) To create and maintain databases.
iv) To provide computer facilities for information storage and retrieval.
v) To coordinate the information activities of national and international systems.
vi) To make a survey of the information sources and techniques available within the country.
vii) To conduct research for improvement in the existing facilities and
implementation of new information technologies.

viii) To provide access to the information online.
ix) To make resources available in less time and at less cost, thus achieving cost-effectiveness.
x) To develop effective tools and techniques for handling information.
xi) To establish standards for information resources, equipment and other entities.
xii) To develop competent manpower for network implementation.

The DESINET aims to be a computer-communication network for linking defence libs/TICs. It will be a national effort to improve capability in information transfer and access by providing access to document collection of defence libraries by creating online union catalogues of various types of documents. It will establish gateways for online access to international databases besides the indigenous databases created by sectoral information centres of NISSAT. It will provide optimum information utilization through shared cataloguing, inter-library loan with document delivery services, collection development and by avoiding duplication in acquisition to the extent possible. It will facilitate scientific communication amongst defence scientists, researchers, etc. through electronic mail, file transfer, teleconferencing, etc.

There are various common network configurations, i.e., centralised network, tree network, ring network and distributed network. Of the various network configurations, the centralised network configurations would be most suitable for Defence Scientific Information Network because it would not be feasible to develop a network without having a centralised organising and monitoring body. This network would be developed through mutual cooperation of three Departments under the Ministry of Defence, namely, Department of Defence, Department of Defence Production and Supplies, and Department of Defence Research and Development. As these departments have different administrative set-ups and their functions are different, a central coordinating unit is necessary for the management and governance of the network.

It will be a versatile integrated information system for defence. There will a national centre at the apex. The apex centre will be responsible for managing, monitoring and coordinating the activities and services of the system. The system should be organised on the lines of the existing National Information System for
Science and Technology (NISSAT). DESIDOC, may be made the central coordinating unit because it has already developed expertise in computerisation of information. DESIDOC has basic infrastructure for networking and has a rich document collection on defence-related fields. It also has online access to databases through DIALOG. It is now in a position to organise the proposed network efficiently.

As a first step, databases should be developed at few labs/TICs and interconnected through communication facilities. The cities of Delhi, Pune, Bangalore and Hyderabad may be selected for this purpose because a large number of DRDO labs/estts are located there. Each database should cover all the information resources available within a particular region. Later, databases may be created at all other DRDO labs/estts also. The labs/TICs of the Department of Defence and the Department of Defence Production and Supplies should be covered later, in phases.

For efficient working and smooth running of the proposed network, the organisation system should be sound and all problems related to the function, execution and implementation of policies should be given due consideration. As far as the manpower is concerned, majority of the DRDO labs/TICs have inadequate number of trained professionals. More manpower should be recruited and necessary training imparted to the new recruits. The cost of this network could be borne by the Ministry of Defence, Government of India.

It is suggested that all the participating labs/TICs should be connected through a network using dedicated P&T lines, so that the P&T Department need not be repeatedly approached for permission to use telecommunication lines. It is further suggested that the software to search the database should be menu-driven, so that it becomes more user-friendly and use of passwords should be stressed for properly safeguarding the access to information.

DESINET is a proposed bibliographic information network for defence, covering only unclassified scientific and technical information. The users of DESINET would be scientists, researchers and defence personnel from the Department of Defence, Department of Defence Research and Development, and Department of Defence Production and Supplies. The Defence Science Information Network will have close links with other similar networks for exchange of information on mutually agreed terms.
This network has to be mission-oriented and has to be developed in phases. This would enable judicial usage of resources, assimilation of the new technology in each phase, and ease of management. Development of this network of computers is crucial for disseminating defence information exhaustively and expeditiously.

If the above mentioned suggestions are considered and implemented, then we can see a considerable improvement in the library resources and services of DRDO libs/TICs, which shall ultimately lead to greater users satisfaction.

4. IMPLICATIONS FOR INFORMATION MANAGEMENT

As libraries and information centres become more electronic oriented, the personnel manning these centres need information handling skills to enable them to instruct the end-users. They will need to promote awareness about new developments, new technologies and new sources of information. It will be necessary for them to be knowledgeable about information sources and document collections. They will act as consultants when the end-user has problems or needs advice on database sources for various types of information. They will also be responsible for handling the information technologies, their development, maintenance and access to the information systems. Quality and cost of information will be high on their list of priorities. Finally, they will maintain information in a paper less society.

Keeping in view the literature explosion and technical changes, the concept of librarianship has altogether been changed. Non-book materials, audio-visual aids, electronic gadgets, computerised information storage and retrieval, online searching, etc. are becoming very common these days. Artificial intelligence and expert systems are being introduced in the profession. Moreover we are moving towards paper less society and electronic library. Consequently, the habits of users to consult their lib/TIC for literature searching shall also be changed drastically in the very near future. There is a need to keep an eye on these technological changes and the library staff should come to the expectations.

Despite the availability of the technology that is capable of great speed and precision in delivering information, we are not able to provide the necessary mechanised structure and express the meaning and significance of information.
Expert systems, intelligent knowledge-based systems and primitive robots are beginning to make a contribution, but we are many years behind the practical scene. Information scientists have an important role to play in the development of software and systems which are able to handle the structure and semantics of natural language. Such developments are fundamental to expert systems and intelligent knowledge-based systems. To conclude, it is suggested that frequent "user studies" of defence scientists be made from time to time in order to satisfy their information needs by providing them with the required information exhaustively and promptly.