

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

Information means the communication of knowledge or the spread of knowledge derived from observation, study, experience, training or any activity. It is mankind's most valued resource, as each and every single action of an individual being is connected with information. It has played and continues to play a vital role in building human civilization and society. It is a core of research studies and at the same time there is no field of human activity where information is not an element. "Information is a fundamental phenomenon like energy, on which operations can be performed" (Otten and Debons). Researchers, who are involved in doing research in numerous subjects and fields, need information as an on-going basis and they are considered as the biggest users of information. It also plays a significant role in the field of teaching and development. Progressively, the society is being transformed to information society. The need for information in every single sphere of influence of intellectual activity has augmented day-by-day. Due to its nature, it is reckoned as one of the major resources of a country and therefore, it must be made sure that it is exploited, prepared, organized and used for the progress of people.

Information - seeking behaviour is a comprehensive term, which consists of a set of activities that an individual takes to direct information needs, seek information, access and select information, and finally utilizes this information to

meet his or her information needs. So, it is necessary to know the purpose for which information is obligatory, the environment in which the user functions, users skills in recognizing the needed information sources and obstacles to obtain information. Therefore, Information- seeking behaviour includes individual reasons for seeking information. Understanding about the information-seeking behaviour and information usage of individuals is critical for efficiently meeting their information needs. This information may also lead to the finding of original information behaviour and user profiles that can be used to improve current information models or smooth progress of fresh ones. Furthermore, for librarians and other information professionals to be active information suppliers, they need a complete understanding of the information-seeking behaviour, needs, and uses of individuals. Wilson noted that the study of information-seeking behaviour can stand on its own as an area of applied research where the motive for investing is pragmatically related to system design and development. Therefore, what, when, and how information is collected and used by the information professionals is also one of critical importance to meet their information needs.

India primarily is an agrarian country and provides livelihood to about three fourth of the population and contributes half of the national income. The food grain production has reached to 250 million tonnes in 2011-12 from 50.8 million tonnes in 1950-51 during the last sixty years. India's agriculture production has been growing at the rate of 3 percent per annum. India is the one of the important food grain producer country in the world and proposes vast probable for future increase in production. Agriculture contributes about 17 per cent national GDP. It is expected that growth of 4 per cent per annum is required to maintain the GDP rate of 9 per cent. Population of the country may reach to 1.4 billion by 2025 and 1.6 billion by 2050 and require annually 380 and 450 million tonnes of food grains respectively against the current production of

250 million tonnes. Indian agriculture is continuously evolved to remain responsive to meet the growing and diversified needs of stakeholders in the entire production area. Low productivity in high potential region needs holistic management of land, water, crops, biomass, horticultural, livestock, fisheries and human resources. India has developed a comprehensive agricultural program. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and fisheries accounted for 13.7% of the GDP (gross domestic product) in 2013, about 50% of the workforce. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India.

India exported \$39 billion worth of agricultural products in 2013, making it the seventh largest agricultural exporter worldwide and the sixth largest net exporter. Most of its agriculture exports serve developing and least developed nations. Indian agricultural/horticultural and processed foods are exported to more than 100 countries, primarily in the Middle East, Southeast Asia, SAARC countries, the EU and the United States.

Similarly, special programs have also been undertaken to improve food and cash crops. Grow More Special Food Campaign (1940s) and Integrated Production Program (1950s) focused on food and cash crops supply respectively. The many production revolutions initiated from 1960s onward includes Green revolution in India, Yellow revolution (Oilseed: 1986-1990), White revolution (Dairy: 1970-1996) and Blue revolution (Fishing: 1973-2002) etc. India is the world largest producer of milk, fruits, cashew nut, coconut, ginger, turmeric, banana, sputa, pulses and black pepper.

In North Eastern part of India, agriculture and allied sectors are the main sources of livelihood for the people where rural population constitutes about 82% of the total population. Northeast India is the Eastern-most region of India connected to East India via a narrow corridor squeezed between Nepal and Bangladesh. It comprises the contiguous Eight Sister States—Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura—and the Himalayan state of Sikkim has a total geographical area of 262180 Km² which is nearly 8% of the total area of the country with more than thirty nine million populations. About 35% area in the region is plain excepting Assam where plains account for 84.44% of its total geographical area. Net sown area is highest in Assam (34.12%) followed by Tripura (23.48%). Arunachal Pradesh has lowest net sown area in the region. Cropping intensity is highest in Tripura (156.5%) followed by Manipur (152.1%), Mizoram (136.36%) and Assam (123.59%). About 1.6 million hectare area is under shifting cultivation in NE region. Out of 4.0 million hectare net sown area of the region, roughly 1.3 million hectare suffers from serious soil erosion problem. These states are grouped under the MDONER Ministry of the Government of India. Except for the Goalpara region of Assam, the rest were late entrants to political India—the Brahmaputra Valley of Assam became a part of British India 1824, and the hilly regions even later. Due to cultural and historical reasons parts of North Bengal in West Bengal (districts of Darjeeling, Jalpaiguri, and Koch Bihar) are often included in Northeast India.

The present study mainly aims to know about the information seeking and communicating behaviour and also to explore various types of constraints while accessing information by the scientists working in the ICAR Institutes and Centres of Northeast India. In North Eastern Region, the institute is the first of its kind set up by ICAR, which encompasses all the disciplines of agriculture, horticulture, animal sciences,

agricultural engineering, agro forestry, fishery and social sciences to cater to the research needs of the tribal areas of NEH Region including Sikkim. The headquarter of the institute is located in Meghalaya (Barapani), while its regional centres are located at Basar (Arunachal Pradesh), Imphal (Manipur), Kolasib (Mizoram), Jharnapani (Nagaland), Lembucherra (Tripura) and Gangtok (Sikkim). Apart from above regional centres, the National Research Centres (NRC) are located at Rani (Assam), Medziphema (Nagaland), Pakyong (Sikkim), West Kemang (Arunachal Pradesh) and ICAR, Zonal Project Directorate – Zone III and Umiam (Meghalaya). These were taken into consideration for the present study to understand about the information seeking and communicating behaviour of mainly agricultural scientists of different categories.

1.1 AGRICULTURE AND INFORMATION

The study of scientific information and communication are inherent towards the practice of knowledge. Often, research being enthused through new-fangled information and also sustained by the continuous information flow. Through research merely, the scientific community not only gather, store, process, retrieve and use information, but also create it according to their requirements. As in different circumstances, individuals require varied types of information in different forms on a subject, with diverse importance and different depths of clarifications and explanations. They also seek information in different occasions as depending on their knowledge or understanding of the subject and motives for wanting the information. Scientists use to gather information pertinent to their practical difficulties by reading a great collection of literature and attend conferences and meetings etc. For instance, the importance of research cannot be known without information in a form that responses the queries for which the research has been carried

out. Therefore, information is a core of research or it is a planned resource of dynamic nature.

Researchers or scientists are considered to be the major consumers along with producers of information as they require information on an on-going basis. Their main purpose is to keep up-to date through current developments which is one of the important objectives and issue to get achievement in their career to generate new ideas in their subject of interest. They want to become familiar with the state of the art technologies/sciences and also to collect particular piece of information desired at diverse phases of work.

Before conducting any type of research, a researcher firstly has to decide what new study will be undertaken for the study, for this a systematic literature search is essential. This is done by observing or reading a number of documentary, non-documentary sources covering all the information on the topic of the study. These activities help to get familiarity with the state of knowledge. It facilitates to evaluate further possibility of work in the area and also to diminish the probabilities of duplication of work and as a result, to save money, time and efforts. Thus, research is mainly an information based activity and agricultural research remains not at all exempted from this because agricultural research cannot function without wide usage of information. As information has turn out to be a premeditated commodity in the worldwide economy and the dynamic control of the technology is its power to generate varieties of information, which up to now has been inconceivable. From this it is clear that if any nation or country is to remain or keep on internationally competitive in information era, it is necessary to concern itself with developing its people, researchers or scholars, and leaders those who have the ability of managing or handling, exploiting and using of information in a right

manner. It is perceived as the core of a social equality and democratic way of lifetime because those with access to and regulate of information determined the power experts of the future.

There is no country in the world which can neglect the growth and development of agriculture. For example, in case of, the country like India, with dominance of agriculture, having chief source of income from agriculture mainly, and with nearly about 75% to 80% of its population deriving sustenance from agriculture, can under no circumstances afford to disregard the agricultural growth and progress. Generally, all types of activities of the society, state and nation are intended for welfare of the human beings and in present world, welfare is only possible through prepared or planned efforts of research and development. Thus, research in general and agriculture in particular has central place in India where, agriculture delivers livelihood, labour force, and total value of the country's exports which is the result of agricultural research. It has made it probable to improve the per capita net availability of food grains in spite of enormous increase in overall population.

1.2 AGRICULTURAL RESEARCH AND DEVELOPMENT

In present agricultural education, research and extension in Indian Agricultural Education and Research is moving ahead in the right direction and some of most important factors have relevance like soil, water, land utilization, field and forage crops, environment, agro-biodiversity, resource conservation technologies, integrated pest management, pesticide residues, seed production technologies, energy in agriculture, bio-technology, intellectual property rights, agricultural marketing and trading and indigenous technical knowledge. The efficiency of research and development programs were determined by the

superiority and importance of work completed by its researchers, who, have to be helped by technical, administrative other supporting agencies. One of such is Library and Information Centre (LIC) which plays a vital role in information communication and in keeping the scientist up-to-date with latest development in their arena of study.

In agricultural sectors, Agricultural University's Research and Development (R & D) was encouraged and various Committees and Commissions were emerged which are given as under:

- University Education Commission chaired by Dr. S. Radhakrishnan (1948);
- Joint Indo-American Team on Agricultural Research and Education under Dr. Ralph R. Shaw and Dr. D. K. Krishna, Librarian of Indian Council of Agricultural Research library (1954);
- Joint Indo-American Team on Agricultural Education, Research and Extension under the chairmanship of Dr. M. S. Randhawa (1959);
- High Level Agricultural Research Review Team (1963);
- University Education Commission under the Chairmanship of Dr. D. S. Kothari (1964);
- National Commission on Agriculture (1970) and;
- National Commission on Farmers under the chairmanship of Dr. M. S. Swaminathan (2007) was constituted to make recommendations for improvement of agricultural research and education.

1.3 ROLE OF LIBRARIES AND INFORMATION CENTRES IN AGRI-RESEARCH AND DEVELOPMENT

The above mentioned Committees and Commissions have supported or encouraged the Library and Information Centres as an important point to assist the scientists and

researchers in using the development in the field of agriculture. The facility provided by agricultural libraries like information services was made only after the independence. Whereas, developing documentation and information services as inessential activity of the library is accepted by various Committees and Commissions. The chief purpose of the LICs is to develop and improve an agricultural society like capable to lead a cultured and wealthy life, putting importance on certain rudimentary values in the life and following or observing to them. In LICs, the services, facilities and avenues have been developed as due to the new and tremendous development of technologies. The knowledge and information are dynamic for all-round human development and libraries were able to impart this knowledge and information is positively valuable. The role of ICAR for the growth and development of agricultural libraries and information services is admirable. The Standing Advisory Committee of ICAR recommends about the matters and parenting to libraries and their sources and services. In the ICAR Headquarters, library a central information service has been introduced through its numerous projects and also through Agricultural Research Information Centres (ARIC). These centres deliver SDI using CD-ROM from International Information System for the Agricultural Sciences and Technology (AGRIS) database. During 1974-84 Indian National Agricultural Bibliography have been brought out as a nationwide importance for AGRIS and Current Agricultural Research Information System (CARIS) projects of Food and Agriculture Organization of the United Nations (FAO) and central point for South Asian Association for Regional Cooperation (SAARC) and Agricultural Information Centre. The transmission of scientific and technological information the technology to be found as a greater position which results as there is a paradigm change from hard print to digital, ownership of documents to access of information, physical to virtual libraries. Though the electronic resource cannot completely replace the printed collections, it can definitely

supplement the print collection to a large extent. At present, information society is emerged where the formation, distribution, dissemination, use, integration and manipulation of information is an important economic, political and cultural activity and also seen as the successor in the area of agri-research and development.

1.4 IMPORTANCE OF LIBRARIES IN AGRI-RESEARCH AND DEVELOPMENT

Agriculture has a superior responsibility to feed constantly growing population. Ever since the area under cultivation cannot be increased nor the growth of population can be checked, the only other substitute left is the quantitative improvement in farming, which, in turn, needs improved agricultural production technology. In place of this, an effective research and development programme is desired. It is recognized that the effectiveness of research and development programmes depend upon the quality of work done by researchers, who, in turn have to be successfully helped by technical, administrative and supporting agencies. One of such agencies and an important one is library which plays a vital role in information communication and in keeping the scientists well-informed or up to date with latest development in their field of study. Though, agricultural libraries were active under different agricultural colleges even in pre-independent India i.e., Madras (1860); Poona (1879); IARI (1905) and Allahbad (1910). The planned development started to take place only after independence. Soon after, India became independent in 1947, our first Prime Minister, ShriJawaharLal Nehru said “Everything else can wait, but not agriculture.” Consequently, Prime Minister repeated the essential role of science in the development of agriculture and the government policies accorded high importance to agriculture. Thus, this results the establishment and development of agricultural universities, institutions and libraries for effective research and development in the area of agriculture.

1.5 STATEMENT OF THE PROBLEM

The term “Information” is inevitable to provide the right information to the right user at the right time in the right form. It is an essential raw material for all human endeavour’s in a complex modern society. It is recognized as a prerequisite of scientific, socio-economic and cultural development of any nation.

Studies on information – seeking behaviour of agricultural scientists in a library are perhaps one of the most effective methods of understanding their information requirements. It is ever experienced that the agricultural scientists often visit the libraries but they were not aware of different sources of information and various services provided by the library and also have very little knowledge of handling the reference sources, electronic sources etc. available in the library.

The era of information technology changed the status of library in the 21st century. The computer age has shown great impact on information research. Library included different types of services like Long range reference service, Ready reference service, Current Awareness service (CAS), Selective Dissemination of Information (SDI) , Translation service, Reprography Service etc. to help and meet information requirements of different categories of users. Due to the significance and importance of information, today it is regarded as wealth and power also. Use of new technologies are developing in the library and information science field for providing library services to its users.

There are some questions and problems which motivated to conduct the study on ‘Information Seeking and Communicating Behaviour of Agricultural Scientists of ICAR Institutes and Centres in Northeast India: A Study’ which are as follows-

- Are the library services provided effectively and efficiently to the users?
- Do the agricultural scientists in need of such services?
- How do they manage to get the material of their interest from the library?
- Do they face any difficulty to access information?
- Which strategies do they follow for getting the material?
- Are they aware of various channels of information?

1.6 DEFINITION OF KEY TERMS

- **Information:**

Information is a message conveyed or intended to be conveyed by a systematized body of ideas.

- **Information - seeking:**

The term information seeking often serves as an umbrella overarching a set of related concepts and issues. In the simplest terms, information seeking involves the search, retrieval, recognition and application of meaningful content.

- **Information - seeking behaviour:**

Information- seeking behaviour refers as the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking and information use.

- **Communication Behaviour:**

Communication behaviour is a psychological construct that addresses people's use of day-to-day behaviours as a form of communication. Specifically, it refers to

people's tendency to express feelings, needs, and thoughts by means of indirect messages and behavioural impacts.

- **Agriculture:**

Agriculture, also called farming or husbandry, is the cultivation of animals, plants, fungi, and other life forms for food, fiber, bio fuel and other products used to sustain human life. Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that nurtured the development of civilization.

- **Agriculture Institute:**

Agriculture Institute is the combination of different types of institutes under Agriculture like research institutes, colleges and universities.

- **Agricultural Scientist:**

An agricultural scientist is a person who is engaged mainly in agriculture related activity or occupation, for gain or compensation as means of livelihood; such as a permanent career, not as an amateur or pastime.

1.7 SIGNIFICANCE OF THE STUDY

The significance of the study is argued on the basis of the following points:

1. The study aims to make aware of the collection and services of the library of ICAR institutes and centres of Northeast India.
2. Simultaneously, the study will project the efficiency of sources and services of library of ICAR institutes and centres of Northeast India.
3. The study aims to make aware about the library visit pattern of the agricultural scientist of ICAR institutes and centres of Northeast India.

4. The study focuses on the using pattern of different library resources available in the library of ICAR institutes and centres of Northeast India.
5. The study emphases how agricultural scientist of ICAR institutes and centres of Northeast India keep themselves updated in the area of their research works.
6. The study also centres on the skills of using of both print and electronic sources available in the library of ICAR institutes and centres of Northeast India.

1.8 IMPORTANCE OF THE STUDY

In present age of information it has been gradually felt that who serve readers better information needs and users must become the chief focus of attention. In any library and information system, the user study shows a vital role in planning, designing and introducing new information services and products and to assess the quality of services and their values. It is beyond doubt that the success of the information services is more likely to be attained by adjusting the services to meet the specific needs of an individual rather, trying to adopt the individual user to match the output of the information system. In recent years there have been several studies pertaining to information seeking behaviour and this present study is intended to understand the information seeking behaviour of agricultural scientists working at ICAR institutes and centres of northeast India.

1.9 OBJECTIVES OF THE STUDY

In doing something, there is always an objective that should be considered and research study is no exception. The objectives of the study helps to guide the scholar as well as readers that in actual, what is the need and why this study is being conducted or for which purpose this research is being done. The following are some main objectives of the study:

1. To know the allied specialization of the different agricultural scientists of ICAR Institutes and Centres of Northeast India.
2. To study the information needs, use pattern and gathering behaviour of the agricultural scientists of different ICAR Institutes and Centres of Northeast India.
3. To correlate the adequacy of the collection and research needs of agricultural scientists of different ICAR Institutes and Centres of Northeast India.
4. To identify the various channels through which information is accessed by agricultural scientists of different ICAR Institutes and Centres of Northeast India.
5. To identify constrains faced by the agricultural scientists of different ICAR Institutes and Centres of Northeast India.
6. To suggest some remedy which will help the agricultural scientists of different ICAR Institutes and Centres of Northeast India.

1.10 SCOPE AND LIMITATION OF THE STUDY

Area of the study-: The study is confine to 12 (twelve) ICAR Institutes and Centres of North Eastern region of India which are as follows-

- 1) ICAR Research Complex for NEH Region, Umiam, Meghalaya

- 2) ICAR Research Complex for NEH Region, Mizoram Centre, Kolasib, Mizoram
- 3) ICAR Research Complex for NEH Region, Nagaland Centre, Jharnapani, Nagaland
- 4) ICAR Research Complex for NEH Region, Arunachal Pradesh Centre, Basar, Arunachal Pradesh
- 5) ICAR Research Complex for NEH Region, Sikkim Centre, Tadong, Gangtok
- 6) ICAR Research Complex for NEH Region, Lembucherra, Tripura Centre, Tripura
- 7) ICAR Research Complex for NEH Region, Manipur Centre, Lamphelpat, Imphal
- 8) National Research Centre on Mithun, Medziphema, Nagaland
- 9) National Research Centre on Orchids, Pakyong, Sikkim
- 10) National Research Centre on Pig, Guwahati
- 11) National Research Centre on Yak, West Kameng, Arunachal Pradesh
- 12) ICAR, Agriculture Technology Application Research Institute, Umiam, Meghalaya

The present study is limited to the 12 (twelve) ICAR Institutes and Centres of North Eastern Region of India and the data pertaining to the study are collected through the questionnaires and personal observations but the reliability of the facts depends on the honesty of the respondents.

1.11 CHAPTERIZATION

The chapterization comprises of total eight chapters which are as follows-

Chapter 1: Introduction

This chapter comprises of introduction part including agriculture and information, agriculture research and development, role of library and information centres in agri-

research development, importance of libraries in agri-research and development, statement of the problem under study, definition of key terms, objectives of the study, scope and limitation of the study and lastly chapterization of the study.

Chapter 2: Literature Review

This chapter includes the review of related literature based on studies conducted in India as well as in abroad and is organized on the basis of relevance and importance of the study through consulting printed books, journals, websites etc.

Chapter 3: Research Methodology

This chapter provides a brief summary of data collection method, sampling and population of the study, questionnaire development, administration of questionnaire, sources of data collection, problems encountered, techniques used for data analysis, presentation of data and lastly citation style.

Chapter 4: History of Growth and Development of Agricultural Research: An Overview

This chapter gives a brief historical description of growth and development of Agricultural research in national and international scenario.

Chapter 5: ICAR Institutes and Centres in Northeast India: A Profile

It gives an overview and full description of different ICAR Institutes of Northeast region of India.

Chapter 6: Information needs and Information Seeking Behaviour Models: A Conceptual Framework:-

It mainly gives the brief introduction and concept about information, information needs, and information seeking behaviour and also deliberates about different information behaviour models.

Chapter 7: Data Analysis and Interpretation

This chapter discusses and explains the analysis and interpretation of different data which were collected through different types of data collection methods and tools.

Chapter 8: Major Findings, Suggestions & Conclusion

It mainly describes about the major findings of the study including suggestions and recommendations for the further research. In conclusion, a brief summary of the whole thesis is put forwarded including proper management of library resources in the ICAR Institute and Centre libraries of Northeast India and scope of further study in the area.

References

References have been arranged alphabetically, APA (American Psychological Association) citation style has been followed.

Appendices

This part includes covering letters and questionnaires which are as under-

- I. Covering Letter - 1** sent to the authority to get permission for gathering of information from the agricultural scientists and librarian or library -in -charge of the respective institute/centre.
- II. Covering Letter - 2** contains the permission for gathering of information from the agricultural scientists librarian or library -in -charge of the respective institute/centre.
- III. Questionnaire - 1** distributed to the librarian or library -in -charge of every centre and institute.
- IV. Questionnaire - 2** distributed to each and every individual agricultural scientists of different centres and institutes.
- V. List of Publications** contains list of papers published on related study.

