CHAPTER VII

FINDINGS, SUGGESTIONS AND CONCLUSION

Findings:

7.1 Libraries:

In order to study the use of ICT in the Agricultural Universities in western part of India, all the eight agricultural universities were selected. Eight Librarians and 400 users (50 each from eight universities) were fixed as sample size and 333 respondents have given their feedback.

1. First Agricultural University in India was established in 1960 at Pantnagar (UP) and latest one was established in 2011 at Bharsar (Uttarakhand). In western India, during the period 1973 to 2003, no agricultural university was established. Although it is expected to have agricultural university in each state, Goa State did not have any Agricultural University.

2. PDKV was having highest collection of 150531 whereas SDAU Library was having lowest collection of 36745.

3. Thirty-eight percent university librarians were managing by ex-cadre or non-professional in library and information science. 25% university libraries were managed by Assistant University Librarians. Sixty three percent university librarians were in the age range of above 55 years. Twenty five percent university librarians are having a post graduate degree in LIS. Fifty percent university librarians were having 30 years plus of working experience in the library. Whereas 37.5 % professionals were having experience of 20 years plus. 12.5 % professional was having 12 years of experience.

4. The courses offered by the university namely Bachelor of Science, Master of Science and Doctorate in Philosophy in the subject of agricultural and allied subjects are being offered in all the universities in the western India. The courses in fisheries discipline were existed in two universities.
5. Library Advisory Committee was in position in all the eight agricultural university libraries. All the eight agricultural university libraries are having independent and separate library building. All the librarians were satisfied with the present working hours.

6. The electronic gadgets like Compact Disk, Digital Video Disk (DVD), Audio-Video were available in all the university libraries. MPKV library was having highest collections of video cassettes and lowest in SDAU. NAU library was having more collection of audio visuals cassettes but SDAU has low.

7. The PDKV library has subscribed to the Ten International Databases. Seven university libraries were not acquiring these databases. These databases are; CAB Abstracts, AGRIS, AGRICOLA, Biological Abstracts, Biotechnology Abstracts, Agricultural Food Science and Technology Abstracts, Water Resources Abstracts, Agricultural and Natural Resources, Biological and Agricultural Index and Aquatic Sciences.

8. All the University libraries had acquired Commonwealth Agricultural Bureaux (CAB) Abstracts’ database using comprehensively for the purpose of teaching, research and extension in the fields of Agricultural Sciences. 31 % user respondents were interested, used and browsed of CAB Abstracts database ‘online’. 26 % user respondents were interested, used and browsed AGRIS Database online, 13 % respondents were interested and using CD-ROM and 12 % respondents were interested using the hard copy manually.

9. AGRICOLA database was used by 23 % respondents online followed by 12 % ‘CD-ROM. ‘CARIS’ database was used by 12 % respondents online and. ‘Biological database used by 17 % on line.’

10. ‘The Dewey Decimal Classification (DDC) scheme was extensively used in seven agricultural university libraries except AAU library as it was using a Universal Decimal Classification (UDC) to organize their collection. Anglo-American Cataloguing Rules-II (AACR-II) was widely used in all the university libraries. Seven agricultural university libraries were using open access method.
11. During the last 5 years (2005-10), out of total grants sanctioned by ICAR for agricultural university libraries of western India, NAU library had received Rs.393.94 lakh, which was maximum amongst all and the lowest grant of Rs. 25.92 lakh was received by the BSKKV library during the above period. It was observed that sanctioned budget was inadequate to meet their demand.

12. Eight agricultural university libraries faced acute shortage of human resource. 63% university libraries were managing without library professionals’ head. 25% university libraries are executing their services at the Assistant Librarian level. 63 % librarians are lacked in professional computer training and also network related programmes. The existing staff was not sufficient to provide the ICT based services.

13. Workshop, short-term and long-term courses and the mode of training to staff using ICT was much lagging behind.

14. The survey significantly highlighted that the MKV library is having maximum total number of library users / respondents as compared to other libraries.

15. 50 % university libraries do not provide electronic access to their collection, such as Web OPAC, Online journals and online databases.

16. Two University libraries namely BSKKV and MKV ( i.e 25 % university libraries in western India) had achieved 100% library automation. 50 % of the university libraries had achieved the 75 % and 25 % libraries had achieved 50 % library automation.

17. 50 % libraries were using and operating the LIBSYS library software in AAU, JAU, NAU and PDKV. 38 % University libraries were using SLIM++ in BSKKV, MKV and MPKV and 12 % University library namely SDAU using TLSS library software.

18. All the eight university libraries were library software modules. 38 % libraries upgraded and enhanced their software ‘once’ followed by 12 % upgraded ‘twice’, 25 % upgraded ‘thrice’ and the remaining 25 % never upgraded the software during the study period. 50 % respondents were satisfied for getting
after sale service of library software. 50 % respondents were satisfied with performance of library software.

19. With regard to availability of infrastructure facilities (Computers, printers, scanners, digital equipment security systems, operating systems, etc.), the SDAU library was having maximum to the some extent and BSKKV library was having minimum infrastructures. However, all the university libraries under the study lack these facilities to meet demand of the users.

20. The Local Area Network (LAN) was available with MPKV and LAN facility was the least with BSKKV library. 50 % libraries had the ‘Broad Band’ Internet connection, 38 % libraries were having Leased Line and remaining 12 % libraries had ‘Cable Modem’.

21. 50 % libraries were subscribing Internet Services from the BSNL, 38 % of from VSNL, 25 % from ERNET India. 63 % libraries were using ‘Shared Line’, 38 % ‘Dedicated Line’. 63 % libraries were having speed more than 1 mbps Internet Services, 25 % having 256 kbps and remaining 12 % libraries were utilizing a speed of 1 mbps Internet Services.

22. Almost all the libraries were having updated the Anti-Virus Software to protect their ICT programmes. All the university libraries were ready to share their resources to each other. 63% respondents had expressed to face problem of computer accessibility ‘sometimes’.

23. The use of Web 2.0 as a tool for scientific communication, 88 % respondents had expressed their inability to use the software, 12 % respondents used this facility rarely. 75 % libraries were having back up facilities of UPS, Inverters and Genset for restoring data in case of power failure.

24. All the libraries were having facilities of CD / DVD, 50 % libraries had LCD Projector, 38 % had Overhead Projector, 38 % had Television, 12 % Film Slide Projector and 13 % used Recorder and Players.

25. 88 % libraries had initiated for development / creation of digital library with the funds from the ICAR for digitization of their collection.
7.2 Library Users:

1. 58% users mostly male members in the age group of 18-25 years were involved in the field of teaching, research and extension activities.

2. 92% user groups were satisfied with the library working timings and 87% users satisfied with the reading room timings.

3. 80% users were using ‘internet’ as a mode for the source of information. 79% using books and monographs followed by 74% internet resources. 84% respondents were satisfied with the library collection. 70% user categories such as research scholar, faculty members, scientist and agricultural staff are aware of using the digital information resources and. 47% respondents were satisfied with existing e-resources training facilities provided by the libraries.

4. 74% respondents used the internet ‘always’ followed by 49% e-mail, 32% telephone, 24% television and 2% video conferencing.

5. 75% respondents welcomed the change taken place in the university library system due to application of ICT.

7.3 Suggestions:

1. Although the states in western India have agrarian economy and prominence for development, establishment of new agricultural university need consideration the ICAR, an apex body at national level to plan and support for agricultural education, research in these states ICAR and State Governments may consider for establishing agricultural university.

2. ICAR and Govt. of Goa should take lead to set up Agricultural University in Goa State.

3. Qualified librarians should be appointed in university libraries to cater the need of teaching and research and supporting professional staff should be recruited for effective and efficient functioning of library and information services.

4. PhD degree in LIS should be mandatory for librarians to cope up with the advancement of new technologies in the university libraries.
5. Two university libraries namely AAU and SDAU need to be subscribed professional core journals and develop their collection at the regular interval in the subject of Agricultural and Allied Sciences. International journals needs to acquire and also encourage making use of online journals available in Consortium for Electronic Resources in Agriculture (CeRA). It is also recommended that three universities namely: BSKKV, MKV and SDAU should be provided adequate funds by ICAR for the aforesaid facilities.

6. For electronic journals and online full-text databases to make available to their users for browsing and searching, ICAR should provide more funds for subscribing these international databases.

7. Networking in other agricultural universities of India is to be introduced.

8. Taking into account the existing status and infrastructure of libraries, sufficient grants should be provided by the ICAR for development of libraries.

9. Upgrading the skills and technology, training plan for each library professional through workshop, short term and long term courses may be considered.

10. For use of ICT applications, user education programme is to be introduced, formulated and implemented in order to improve the proficiency, skills and knowledge.

11. RFID security system should be procured and installed in all the universities to protect and safeguard the library documents.

12. A consortia moment for the wide publicity of R & D activities is to be accelerated and development among the university libraries.

13. The activity of use of video conferencing as a library facility should be accelerated and effectively used. The ICT based services can be contributed towards knowledge sharing.

14. The international databases such as CAB abstracts, AGRIS, AGRICOLA and CARIS should be made available online and offline and sufficient funds be made available to the librarians.
15. Translation services are need to be introduced to the research communities in agriculture sector.

16. Hardware and software is to be regularly upgraded so as to improve additional features while delivering services.

17. The total ICT infrastructure should be developed in all the agricultural university libraries of western India.

18. Broadband Internet connection having speed of more than 2 mbps be installed for delivering effective and efficient information services to the users.

19. For digital library project, free Web based open source repository software packages such as Greenstone and DSpace is to be installed and used for collection for digitizing their collection.

20. The networking system should be developed in three states i.e. Maharashtra, Gujarat and Goa.
21. A model for consortia based subscription to electronic resources in agricultural university libraries in western India is devised for application.

**Figure 7.1: Model for Consortia-based Subscription to Electronic Resources.**

It is very much possible to access from internet e-resources and web based services with the help of configuration of proposed model depicted above consortia based program:

- Web based services: Web Browsers and World Wide Web
  - E-mail services
  - File Transfer Protocol
  - Telnet
  - Gopher
  - Discussion Group / Forum
  - New Groups
- Online Public Access Catalogue
- Document Delivery Services
- Contact Alert Services - SDI, List of Additional and current content - Access to Full Text e-journals and abstracting and indexing journals. - Database retrospective and prospective searches.
- Library websites and web portal and gateways - Bibliographic databases.

The minimum ICT infrastructure facilities are required for the proposed consortium is as under:

a) Hardware and Software: Windows 2007 Professionals
b) Networking: Access to Internet.

c) CD-Server : CD-Mirroring software/Novel Netware/Any other.

Among eight agricultural university libraries and other related organizations, one university will be designated as a leader of the hub centre of the entire consortium activity. Other university libraries will be associated as the participating members of this consortium network. The proposed model, if implemented will be able to access all electronic resources and digital electronic resources and digital collection. Maximum delivery of services with minimum cost.

7.4 Conclusions:

The university and its role in national life, university stands for humanism, for tolerance, for reasons, for adventure of ideas and for search of truth. It stands for the onward march of human race towards even higher objectives. If the university discharges their duties adequately, then it is well with the nation and the people. These great words highlight the basic truth that universities have a crucial part to play in life, welfare and strength of nation. The universities are the dwelling places of ideas and idealism and expect high standard of conduct and integrity of all the members. While achieving these objectives of the agricultural university libraries have a great potential to help bridge the information gap between the haves’ and have not. While keeping this view in mind, these objectives in general state agricultural universities being attempted to achieve these objectives specific mandates had been developed by the agricultural universities. These mandates are: a) train the man power needed for agriculture, animal husbandry and allied sectors for the development of the state (education). b) constantly improve and generate technologies for increasing production in agriculture, animal husbandry, home science and allied sectors and c) assist through the development departments of the government, in the process of
dissemination of the improved technologies to the farmers of the state (extension / transfer of technology). Thus, the use of ICT played a prominent place while discharging the library services.

Keeping this view in above, a total **seven objectives** formulated and **three hypotheses** were tested while carrying out the present research.

1. **Objective One** was designed to know the extent usage of ICT in agricultural university libraries of Western India.

   Study revealed that fourteen international databases had been identified and used in the eight agricultural university libraries. The CAB Abstracts is ranked I, followed by AGRIS, AGRICOLA, Food and Science Technology Abstracts, Biotechnology Abstracts, Water Resources Abstracts, Agricultural and Natural Resource, Biological and Agricultural Index, Aquatic Science Abstracts and Chemical Abstracts. The study significantly notes that these international databases are used as a part of ICT application electronically and manually accessed. The four major databases i.e. CAB Abstracts, AGRIS, AGRICOLA and CARIS are frequently used by the respondents. At the same time 76% respondents **welcome** the dramatic change taken place in these libraries due to the ICT applications. The seven agricultural universities are using open access method.

   In order to make use of the collection, the entire bibliographical detailed had been automated using a standard library management software under the program of use of ICT in these libraries.

   As a part of ICT use these libraries have the electronic gadgets such as CD, DVD, modem, LCD projector, overhead projector, VCR/VCP, television, film slide projector, recorder / player, beamers, flash memory sticks.

   The study also revealed from the user respondents group that 80% respondents are using ‘internet’ as a mode of major source of information. Books and monographs (79 %) and internet resources (74 %) are being used by the respondents. It revealed that **internet** is the indispensable part of the library system. Therefore, this first objective has been achieved by the present investigator.
2. **Objective Two** was concerned to find out the level of library automation, library management software, its modules, related services and constraints of automation in the library.

While achieving the above mentioned objectives two university libraries had achieved the automation 100 %. Where as four university libraries had achieved the prime objective of automation 75 % and two university libraries had achieved the automation 50 %. The detail is depicted from the Table 5.26.

The LIBSYS (50 %), SLIM++ (37.5 %) and TLSS (12.5 %) are being operated and used by the agricultural university libraries. So far as the modules of the software’s are concerned, all the libraries are using all the modules covered in the study. 37.5 % libraries had upgraded and enhanced their software once in a while, 37.5 % libraries stated that they are satisfied while getting after sale service of library software as a ‘very good’. As such over all libraries are welcoming the new change of technology while automating their activities. The opinion of the LIS professionals noted significantly as they are directly user of the same. Nevertheless, the above mentioned objectives are achieved satisfactorily.

3. **Objective Three** to examine the status of ICT infrastructure in respect of hardware and software, network connectivity use for library services. Similarly a hypothesis was designed to test the study i.e. the present agricultural university libraries are facing a problems while delivering library services in respect of infrastructure.

While fulfilling the objective and testing the hypothesis formulated during the course of research, it is revealed from the Table 5.36 shows the availability of ICT infrastructure in eight agricultural university libraries of Western India. It is also depicted from the Figure 5.16 availability of computers, availability of printers Figure 5.17, Scanners Figure 5.18, electronic surveillance system Figure 5.19 shows that these are inadequate in the basic ICT infrastructure. Therefore, the hypothesis was tested against this data and found true at the same the objective mentioned above is fulfilled by the researcher.

4. **Objective Four** to find out the various aspects of library and information services offered by the agricultural university libraries while using ICT.
While achieving this specific objective, the data about the library and information services has been presented in the Table 5.24 and the Figure 5.5 the study revealed that all the services mentioned in the study are provided by the eight agricultural university libraries. The specific services are reference services, home lending, reading room facilities, audio visual, record player, reprographic, online databases, internet based services and CD-ROM databases services. So far as the translation services are concerned, it is suggested that the majority of scientific literature published in the languages of Chinese, Japanese, Korean, Spanish, German, and French are to be translated for benefit of researcher in the field of agricultural and allied subjects. As languages is a marvelous gift of human mankind. Therefore, this translation services are to be strengthened. Thus the forth objective had been achieved by the present researcher.

5. **Objective Fifth** to evaluate the Digital Library Initiation program adopted in agricultural university libraries.

In order to achieve the above objective, eleven questions were asked and data was elicited and presented. The study revealed that digital library initiation movement is gearing up its momentum in the field of agricultural and allied subjects especially in eight agricultural university libraries in Western India. It is seen from the data that the consortium for electronic resources in agriculture (CeRA) is a glaring example of digital library movement. The international repository (IR) is in also process of digitizing their collection. The 50% of the agricultural university libraries needed support in the forms of major source of finance. At the same time 50% of agricultural libraries needed technical support fro digitizing in respect of PhD theses and M.Sc dissertations. Digital resources are a comparatively theses libraries are also increasing getting involved in the very creation of digital resources. The present study revealed that eight agricultural university libraries are in the right direction moving towards digitizing their own collection of PhD and M.Sc. theses and dissertations. Therefore, the above objective had been fulfilled by the researchers.

6. **Objective Sixth** to know the training and orientation needs of library staff to cope up with new technologies, e-resources, and problems if any faced in adopting them.
Similarly, third hypothesis was formulated to test the study i.e. training and orientation for both library staff and user in relation to use of ICT in libraries are not up to the mark or insufficient.

While achieving the above mentioned objective and hypothesis, Question 14 was designed in questionnaire-I addressed to library professionals to elicit to data almost that total experience, adequacy of the staff, staff deputed for training courses, (workshop, seminar, conference), mode of training and types of problem faced by the library professionals. The data was presented and analyzed in the Table 5.14 and Figure 5.2 additional staff requirement in (Table 5.16) underwent training in (Table 5.17) method of Training in (Table 5.18) and Mode of Training in (Table 5.19) and (Table 5.20) experiences in use of ICT finally problems encountered while using ICT in Table 5.21. The data shows that library professionals are lagging behind to set the training while discharging their day to day duties while using ICT services. Which needs to paid proper attention to make efforts to maximize the effectiveness of library system. At the same time user education program also introduce and implement. The study revealed that 139 additional staff is required by all the university libraries to deliver the ICT based services. The short-term and long-term courses are to be introduced to enhance the knowledge about ICT application.

In this respect, hypothesis mentioned above tested and found to be true. The above mentioned objective had been also achieved and fully justified.

7. Objective Seventh was concerned that to propose a conceptual model for library and information networking within agricultural university libraries in Western India. While achieving this objective, second hypothesis was designed and tested i.e. to lack of library networking is one of the major hurdles while evaluating these university libraries.

In this respect, question 19 was designed and addressed to the university librarians and sought their opinion on LAN Connections (Table: 5.41), Internet Service Providers (Table: 5.42), Internet Connectivity (Table: 5.43), Bandwidth (Table: 5.44), Internet Security / Anti-Virus (Table: 5.45) and Network Problems (Table: 5.46) and use of Web 2.0 tool for Scientific Communication (Table: 5.49).
Furthermore, the data was discussed at length, observed and suggestions made accordingly. The specific objectives mentioned above were achieved by the researcher. At the same time hypotheses which were designed, tested and found to be true. In this respect, conceptual Consortia based subscription MODEL is proposed for the eight agricultural university libraries while subscribing International databases and online journals.

In view of the above detailed discussions, in relation to the use and application of ICT, the present agricultural university libraries playing a very responsible role as knowledge information centre in the western part of India. These centers provide accessibility user focused services to obtain, evaluate scholarly information and knowledge available in various electronic formats and strives to create new knowledge to increase understanding and develop wisdom among students, research scholars, teaching faculties and extension staff as well. The university library provides not only access to specialized information resources and services but also to meet the academic and research information needs of the user community by developing specialized need based collections; organizing information resources; providing access to human and technologically moderated access and orienting users to locate, obtain and evaluate information. These libraries have a big responsibility and a very important role to play in shaping new generation while imparting learning and research activities or endeavors. However, the education, research and extension are the mandatory areas of activity of the university library system are observed by the researcher. The user community that is scientist of tomorrow must be oriented with new technology which delivers knowledge in different forms that needed today. The community will need more knowledge in the emerging disciplines in the field of agriculture. Thus, education and university library are two inseparable concepts both being fundamentally and qualitatively related to and co-existent with each other. The existence of one is impossible without the other. Both of them are ultimate aim. Therefore, it can be inferred that, the libraries are primarily responsible for the provision of academic information to support learning, teaching, research and extension.

With the advent of ICT, the nature of libraries has changed dramatically. The computers and electronic media prominently used for process, store, retrieve and
disseminate information. The internet, which includes websites, database and communication facilities provide remote access to a wide range of resources. Libraries have now completely changed into digital information centre. Today’s libraries are not only as a main store-house of recorded document oriented information but also are playing the role of information dissemination centers surrounded by networked data connected to the vast ocean of internet based information sources and services.

India being an agrarian society and basically depends on agricultural output. It is therefore, essential that new ICT thrust shows greater emphasis on the transfer of scientific and technological information from the research institutes to its actual users. Thus, the success of university library system depends upon the effectiveness and efficiency of information services rendered to the users to meet their educational and research endeavor. The university libraries are expected to deliver the core services which are extremely useful to the research community.

Finally, the survey clearly indicated that agricultural librarian has a special and vital role to play in the rapidly changing and increasingly important information based agricultural fields of our society. In order to play this role, we must look in two directions one is to their users for guidance and for a statement of needs, problems and priorities and second one is to the world of information and ICT oriented for problems, solutions and resources. It is the librarian’s special responsibilities to club together. The task is challengeable and opportunities in its ICT scope, urgency and open-endedness, but what is known about agricultural scientist / researchers and current ICT trends can help focus their effort. Therefore, if librarians are truly concerned with users they must examine users need, wants and perform their role.

7.5 Further Scope of Research:

The research work needs to be continued by the researcher who wants to continue their doctoral research in these areas. There is a scope for further micro level research. Hence, a couple of research topics have been suggested for their guidance:

1. The study may be conducted on training based ICT to users as well as working professionals so that more utilization will increase the use of new technology.
2. Analysis of secondary resources available in agricultural sciences


4. Consortia movement while using ICT in various agricultural university library system.

5. Evaluation of user awareness of latest applications and implications of security system and digital technology.