CHAPTER SIX

SUGGESTIONS AND RECOMMENDATIONS
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INTRODUCTION

The discussion and analysis made in previous chapters are related to existing information system in the field of agriculture in the state. While the narration of the discussion highlights the plans and programmes of the system carried out by the people related to the field, the analysis part has looked over the issue critically for having a first hand knowledge about the realities (i.e. how far the system is efficient and effective for the end-users' and ultimately for the progress of the State). The observations made after each analysis and finally at the end of the Chapter V, have confirmed that the hypothesis drawn at the beginning is correct i.e. the system is not functional, and therefore it needs to be reorganised for the betterment of the farming.

Considering the importance of the issue, some suggestion, and recommendations are presented here for modification, reorganisation and reorientation of the system. Besides other issues, the newly set up 'Agricultural University' Library has been given here more emphasis so that it can have a good beginning and becomes the central 'database of agricultural-information' in the state in near future. (see also Annexure 'B')

Finally, at the end, a 'design' for 'Agricultural-Information-System' required in the state is drawn for consideration. Based on the model, a
computer based network can be set-up. In this connection, the planners can use the INFLIBNET service from Manipur University Library and NICNET service, of Imphal Centre which will reduce the cost for introducing and implementing the whole programme.

SUGGESTIONS AND RECOMMENDATIONS

1. Combined effort

Since the agricultural production is highly technical, management oriented and time bound and our State is lagging behind in all system of agriculture it should be ensured to involve all departments to work together. This mobilisation for involvement of Govt. departments, research institutes, supplying agencies, co-operatives, financial institutions etc. will ensure implementation of the 10 point Farmer's Programme and will help to be self sufficient in food production.

2. Organised Information Service

The establishment of an "innovation bank" in the country to receive, register, and to disseminate information about new technical know-how generated within the country and that flowing into the country in one manner or other, would facilitate the accessibility to new know-how and co-ordination of technology transfer to institutions and individuals. There should be increasing emphasis on and implementation of applied research, efficient management, and adequate information facility to industrial enterprises for the purpose of creation of an environment conducive to
accelerating innovation and adoption of new knowledge into the production stream.

3. **Technology transfer**

3.1 The design of technology transfer system should take cognisance of the

(a) Differential rate of transfer of technology in different types of industries and enterprise; and

(b) Role of religions, educational, historical, political, economical, sociological, and scientific and technological characteristics, of the given and of the receiver of know-how, and also of the characteristics of the medium and mode of transfer.

3.2 Government and other authorities should be fully aware of the importance of scientific and technical information as an essential means of transfer of technology. They should therefore take necessary steps to identify and strengthen existing institutions or establish new institutions for planning, co-ordinating and management of Agricultural-Information-Systems and services in the State and make appropriate budgetary provisions for the purpose.

4. **Linkages with teaching and research personnel**

4.1 It is recognised that informal channels like seminars, conferences and meetings help to keep the extension officers informed about the latest developments. At the same time it is also realised that deputing all such officers to participate in such meetings at one time is impracticable. Therefore, it is recommended that the Assistant Directors of agriculture should
compile and circulate reports about such meetings, whenever they attend the professional meetings.

4.2 It is recommended that linkages between the research stations of the Universities and the agricultural extension officers in the area be established through periodical field visits or research scientists to the places of work of agricultural extension officers and vice versa. The reports on such visits which must be made compulsory, should be insisted upon by the superior officers.

4.3 It is recommended that a directory of experts on each of the crops in the state be compiled to enable the agricultural extension agencies to contact them for advice.

4.4 The teaching staff of the University and Agricultural College should be able to attend and participate in the monthly meetings of the agricultural extension officers so that the farmer can keep the latter posted on the latest development.

5. Awareness of Farmers

5.1 As a part of the poverty eradication programme the focus attention on the development of agricultural sector with special reference to small and marginal farmers is the need of the present day. It is known fact that the principal test of agricultural development is whether the benefits occurring from increase in agricultural output are shared by the Small and Marginal
Farmers who constitute the bulk of the rural poor. There is no doubt that 95 percent of the total procurement in the country comes from the States like Punjab, Haryana and western U. P. This is mainly because of greater awareness among the farmers towards the use of better agricultural technology and those regions have a much higher coverage of high yielding varieties. As a result of much higher crop intensity in these regions it has helped to reduce rural unemployment and under employment.

In other States in India since the farmers are not aware of both technological infrastructure and extension infrastructure the role of the State in increasing awareness and taking technology from Lab to Land assumes crucial importance.

5.2 As has already been noted that adequate emphasis was not placed on building the necessary on-farm irrigation/drainage infrastructure and improving the water allocation and management practices.

This has ultimately created a number of problem such as under utilization of the irrigation potential created, soil problem and use of irrigation water depriving particularly the tail end areas of the irrigation system of their legitimate share of water.

Agricultural irrigation necessarily involves farmers for whose benefit the irrigation projects are implemented. The need to imbibe in them adequate knowledge and information on the value of irrigation
irrigation practices that will provide high-efficiency and greater productivity of crops and the ill-effects of over irrigation cannot be over emphasized.

5.3 Information - facilities and training to farmers

Therefore, in addition to improving the water delivery system other infrastructural facilities like adequate communication, marketing facilities, and incentives like supply of inputs such as credit, fertilizers, pesticides, machinery, seeds etc. have to be provided. Scientific crop planning, improved method and technique of irrigated farming and conjunctive use of surface and ground water have to be demonstrated, especially in the command areas where the potential for increased cropping intensity and improved productivity of land and water is quite high.

Special training programmes of short duration on various aspects of irrigation management such as water distribution and conjunctive use of surface and ground water, appropriately tailored to the needs of command area farmers to develop skills in organising farmers, resolving conflicts and maintaining discipline, have also be developed for farm leaders. A special farmer's training centre for irrigation management on the lines of the one existing at Melur in Periyar Vaigal Project command will usefully serve the purpose, within the command area of each major irrigation project.
6. **Extension Agency**

6.1 Recognising the vital role of change agent (extension officer) in transferring the farm technology to the farmers and realising the need to keep him up-to-date with latest information, it is recommended that the State Departments of agriculture should organise a full-fledged information service to the agricultural extension officers in each of the...ation in India.

6.2 It was noticed that the extension officers depend more heavily on their superior officers than any other persons for job related information. It is therefore recommended that information services be extended to the superior officers such as Assistant Directors of agriculture, etc. also, so that they in turn pass on up-to-data information to the extension officers.

6.3 Newspapers have been found to be a useful medium in keeping the agricultural scientists and extension officers aware of the latest developments in the field of agriculture. It is, therefore, recommended that at least one newspaper be allowed to be subscribed to by the agricultural scientists and extension officers, and for this purpose necessary financial subsidies be given to them.

6.4 Recognising the fact that the agricultural extension officers use the book collections at the Assistant Director of agriculture's office extensively, and realising the inadequacy of these collections to meet the job related demands of the agricultural extension officers, it is recommended to
strengthen the libraries in the offices of the Assistant Director of Agriculture or the block development officers in such a manner that they do not duplicate the services of the Agricultural College/University Library.

6.5 Considering that the personal visit is the most extensively used method of contacting the superior officers it is recommended that the agricultural extension officers be provided with Vehicle/ Motor bikes or be given suitable conveyance allowances to enable them to obtain job related information from their superiors and to disseminate it to the farmers.

6.6 Recognising telecommunication as a speedier method of establishing personal contacts it is recommended that the agricultural scientists and extension officers are allowed to obtain job related information through phone at the cost of the institution/department.

7. **Orientation Programme**

The development of information services can only be fully justified if users of information are suitably trained. Orientation courses for the users need necessarily to be organised for the purpose during the monthly meeting of the extension officers.

8. **Information - transfer agency**

Noticing the lack of co-ordination between the Agricultural Department and Agricultural College in disseminating farm information it is recommended that the responsibility of rendering information services
be entrusted to a single agency, such as the documentation centre or information centre attached to Agricultural collage library.

9. Information Services through Agricultural University Library

The Agricultural University has been set up recently in Manipur. The preliminary work is going on now. The library has not been set up. The planners should keep in mind that the library attached with the Agricultural University would have a great role in promoting Agricultural-Information-System in the state (see Annexure 'B' at the end). Therefore, a proper and efficient plan should be made beforehand, so that from the outset the library could provide the efficient and effective services to the users of the agricultural field. Now question is what type of services are to be provided by the library?

Ashan and Mehla have pointed out that users in agricultural subjects need tailor-made information, having a direct bearing on local and regional conditions and that specialisation and multi-disciplinary nature of agricultural information are a problem in serving the needs of agricultural information users. The Agricultural University libraries have the responsibility of identifying, collecting, processing and disseminating worthwhile information. The researchers should be made aware of the availability of library and information services in order to promote the use of books and periodicals acquired in the University Libraries. For this
purpose the Agricultural University Library at Manipur has to introduce the following services from the beginning (in this connection, see the Annexure ‘C’ at the end):

i) Indexing services;

ii) Compilation of subject Bibliographies;

iii) Cataloguing of Theses and Dissertations on the subject;

iv) Cataloguing of Periodical holdings of its own library including the holdings of other libraries (on the subject periodicals) in the state;

v) Developing a comprehensive and up-to-date collection of information sources;

vi) Compiling ‘union catalogue’ of periodicals received in the library as well as in other libraries in the state;

vii) Providing ‘current awareness services’ to the users;

viii) Providing ‘reprographic service’ to the users;

ix) Computer application in the library;

x) Other ‘extension services’ to the users, specially to the ‘farmers’;

xi) Efforts should also be made to convert the University Library as ‘State Central Library for Agriculture’.

With a view to enabling the University Library to undertake the above-mentioned services, adequate additional budget provision be made by the State Government/University.
10. The Librarian and end-users

The new technology sweeping the world of information science has had a dramatic impant on the working lives of most agricultural references librarian. This new technology has helped solve many problems but has also created a number of new challenges. Computers, particularly micro-computers, and better and more plentiful telecommunication systems and equipment, have supported a much greater bibliographic control of agricultural-literature. Increase access to both bibliographic information and to documents themselves, and more rapid delivery of information and documentation have resulted.

For the library clientele, particularly in the academic community, the new technology has enabled users to become truly end-users, allowing them in many cases to bypass completely the agricultural librarian to access the automated databases. CD-ROM stations and user-friendly database searching packages permit users to search the literature without the service of an intermediary. In combination with the perception of many users that the librarian and library are barriers between them and their information needs, this capability sometimes mislead users into relying on incomplete information. Librarian need to work with their users to ensure that the use of end user systems are the answer to all information needs. Most of these systems, including CD-ROM, expert systems, Videotext and
end-user online services, should be seen as just one step in accessing the complex literature of agriculture.

11. The Librarian and Technological Advancement

Private sector libraries and information and documentation centres frequently have a strong service orientation. The increased availability of technological advancements allows the staff in these organizations to improve the quality and quantity of the services provided. Although many of the collections of these facilities are not included in any of the cooperative utilities, automation does permit improvement in-house bibliographic control. CD-ROMs permit online searching of a broadly based body of literature but are not dependent on the availability of telecommunication system or the financial resources to access them.

12. Co-operative Acquisition

The challenge to increase the sharing of agricultural information, whether through cooperative acquisition, last location for specific journal titles in regional agreements, cooperative reference, automated information database, or other programmes is particularly important in these times of decreasing budgets. Ways must be found to open avenues of cooperation and accessibility in order that agricultural information is shared with those who need it.
13. Role of Rural Libraries

To improve the channel between information users, the village libraries or village information centres can play a great role. In this connection, the proposal of the 'Committee on National Policy on Library and Information System, Dept. of Culture, Govt. of India' (submitted May 1986) may be noted. The main thrust in the public system should go to the rural public library. A village or village cluster with an adequate population should have a community library which will also serve as an information centre. Resources of different agencies engaged in the work of public health, adult education, and such others may be pooled to build up this composite Centre. The community library should make adequate audio-visual aids available to attract the illiterate villages. The State Govt. should therefore immediately implement the Manipur Public Library Act, 1988 so that the rural libraries in large number under a systematic network becomes a reality. The Department of Agriculture can then utilise the services of these centres for storage and dissemination of information and for constant interaction between information and its users i.e. cultivators. Research activities in future will have to ensure active participation of farmers for properly assessing their needs, priorities, problems and potentials. An awareness that can learn as much from farmers, as farmers can from them, should develop among all the scientists in the research system. The indigenous knowledge of farmers, as a resource base for relevant research planning, should be properly documented and fully exploited.
PROPOSED MODEL FOR AGRICULTURAL-INFORMATION-SYSTEM IN MANIPUR

The first stage of the model is concerned with the interaction with different source-agencies (as shown in the design), collection of latest information and know-how and proper storage of the same for easy access and retrieval.

In the second stage, the retrieval and dissemination and interaction with various disseminating agencies and media and target groups will be conducted.

Key points

- In both the stages, the department of Agriculture (DOA) will act as central figure/hub.

- The DOA will create computerised data-base in its own library.

- Information/data/technical 'know-how'/others should be collected, stored, retrieved and disseminated according to the local needs or for the improvement of local situation.

- The process of communication for interaction and collection may be done both manually and by machine (using computer network system).

- Considering the technological developments in communication and information media and demand for quicker services, the DOA must think for availing Satellite facilities and get link with ICAR (Delhi) and other national and international data-bases on agricultural (AGRIS, AIBA etc.), through network mechanism.
PROPOSED MODEL FOR AGRICULTURAL INFORMATION SYSTEM IN MANIPUR

FIRST STAGE

Department of Agriculture, Govt of India

Agricultural Universities

ICAR, Delhi

AGRIS

ICAR, Imphal

Agricultural Information Bank For ASIA (AIBA)
LosBanos, Philippines

State Central Library

Research Publications

Other Scientists

Foreign Publications

Popular Journals etc.

National Commercial Firms

Local Commercial Firms

Local Radio Centre

Weather Office

Leading Firms

Local TV Centre

Local Markets

NP Locals

National TV Centre

National Info. NP

NP = Newspaper; ICAR = Indian Council of Agricultural Research
- Interaction between DOA and other sources — local, national and international (as shown in model) — should be regular for updating and feedback of knowledge. Initiation should come from DOA.

- The DOA must reorganise its own library system with modern information processing equipments and well trained staff. The system will be extended to all offices of the Department at district, block and village level (if possible, through 'local network' system).

- All facilities must be provided in the Dept. libraries for the users of all levels. Access to information and retrieval of information should be easy and cheap (and to some users, like farmers, free of cost). The environment must encourage the rural users for using the library facilities without hesitation.

After reorganising its own 'home', the Department now can look to other channels for dissemination of information. The nature of the channels may be bibliographic; dialogue through training, spot visiting, organising seminars, conferences, fairs; audio and audio-visual. The structure is shown in the second phase of the model.

Effective information management logically calls for the establishment of effective information system of which libraries and information centres constitute the foremost components. The basic function of information system is to provide meaningful linkages between message of recorded information on the one hand and the users on the other.

**Key points**

**Agriculture Office and Public Libraries.**

- Agricultural offices should establish direct-link with local libraries at all levels (i.e., District Agri. Office, District Library, Block office—Block library and village library) as shown in the model.
- Before and after working hours of the agricultural offices (at district, block and village), the services of the local libraries (which should be kept open during evening and general holidays) can be utilised for dissemination.

**Role of public libraries**

- With the active help of Department of Agriculture, the local libraries can open 'Information wing for Agriculture'.

- Management of agricultural literature (books; bulletins; folders; posters; pamphlets; advertisements, notices for training; loan, distribution of fertiliser, pesticides; and other important information for Agriculture Office); displaying the same and helping the farmers to understand them should be done by this 'Information Wing' of the Library.

- Necessary suggestions and guidance regarding collection of latest 'Know-how', loan, seed, fertilisers, pesticides will also be provided by the 'Wing'.

- To serve the purpose, the 'Information Wing' of the libraries should be organised with the financial and literature support of the Dept. of Agriculture.

- The record will be maintained by the 'Wing' which can be used as 'feed back' to the Department.

**Local medias**

- Department should use local newspapers, local programmes in T.V. and Radio more frequently for dissemination of agricultural information. The programme must be attractive; proper timing for broadcasting (when the farmers are supposed not to be in the field) should be determined.

- Department should organise seminars, conferences, fairs and training programmes at regular intervals for updating its own knowledge about the farming system in the state and for updating knowledge of the farmers and other users (Scientists, Extension people). Department people should also participate in the Seminars/Conferences organised by others for feedback. The
programmes must include both accessible and inaccessible areas of the State (by any means, remote areas should not be left out).

Publication Cell

- Publication cell of the Department should be reorganised; regular publication of bulletin, pamphlets, pictures, current awareness services, reports etc. with latest information in all areas of the field and proper display of these literature should be carried out efficiently; proper information should be displayed at proper place.

- Department should establish a close link with Agricultural University, Agricultural College and ICAR Wing not only for updating knowledge but also for using their expertise in the field.

Note: Many of the programmes cited in the model are already included in the schemes of the Dept. of Agriculture. What is required now is to implement those scheme efficiently and effectively.