E-networking of All India Coordinated Research Project on Tuber Crops

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The All India Coordinated Research Project on Tuber Crops (AICRPTC) is bestowed upon with the responsibility of generating region-specific value added varieties, agro-techniques and production systems technologies, integrated pest and disease management strategies and transfer of technologies, along with creating awareness among the farming community, policy makers and researchers. Food security challenges brighten the prospects of root and tuber crops, both nationally and internationally. AICRPTC covers 17 States and one Union Territory of India under the project, covering major root and tuber crops growing areas of the country. The major tuber crops covered under this project are cassava, sweet potato, yams, aroids, Chinese potato etc.

There were many selections/accessions identified for farmers adoption, especially in cassava, sweet potato (both high starch and high carotene), taro, yams and yam bean. Very good collection of germplasm of 24 species of root and tuber crops were characterized, catalogued and maintained at different centres as gene-bank for developing region specific varieties with value addition. Production and protection strategies were formulated, standardized and validated for different crops suited to the different regions. The centres are doing an excellent service to the tuber crops farmers in creating awareness of the importance of specific package for the cultivation of tuber crops. They have exhibited live specimens, charts and pamphlets in the regional language at different farmers meets/melas. The centres have distributed quality-planting material of improved and proven varieties to the farmers of different regions.

Web-based networks have been replacing the conventional local area networks (LAN) and wide area networks (WAN) as the mainstream of computer information technology. As Hamel and Sampler (1998) conclude, it is the foundation for a new industrial order. The smartest companies and not-for-profit organizations are using the Internet/WWW to create a whole new way of doing business.

AICRPTC has developed and disseminated many location specific agro-techniques on integrated nutrient management, fertigation techniques, use of bio-pesticides , pest and disease management practices of various tuber crops in different regions. The Internet has the capability to improve a farm's performance particularly when it takes advantage of it (Hall et al., 2003). Rolfe et al. (2003) showed increased availability of technical information added levels of productivity to some extent.

Stakeholders of AICRPTC are of many types and their requirements are also diverse. They include farmers who seek better variety and agro-techniques, extension personnel who need information on varieties and technologies to disseminate, researchers who require information to sharpen their research focus on untouched areas as well as for students. To connect all the clienteles with the AICRP system and improve the communication and data transfer among them, and bridge the gap between AICRPTC and the clienteles e-networking of AICRPTC was launched on 18 June, 2012.

The software was designed (Fig.1) for three categories of users and each category was given separate rights. The user categories are:
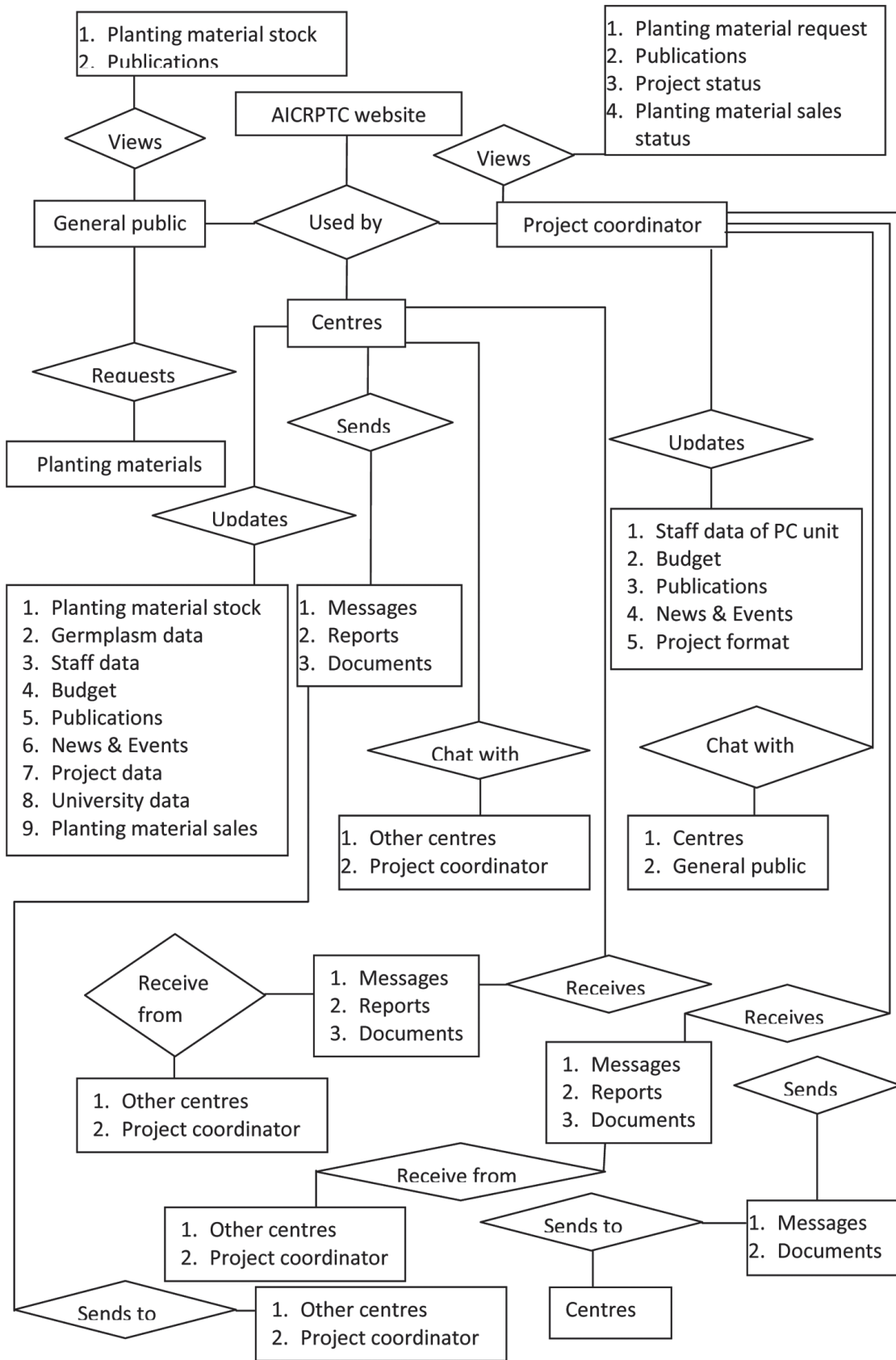
Fig 1. www.aicrptc.in entity-relationship diagram

a. General public: They need not login to the site to avail the facilities offered to them. They can see the home page, section of Project coordinator (PC), chat with PC, request planting material, request publications etc. The input forms designed for them are:

1. Planting material request and

2. Publications

Output forms designed for them are:

1. Details of planting material request processing and

2. List of publications at various centres

b. Centres: They should login with username and password to avail the facilities. They can send and receive messages and reports from different centres as well as from the PC unit. They can chat with other centres and PC. In addition to this they can update various data regarding their centres so that others can see it. Various data which they can update and the other facilities are:

1. Planting material available in their centre with the information on crop, variety and quantity available for sale

2. Publications released from the centre with the link to the soft copy

3. Data on germplasm available in the centre with information on crop, variety and quantity available

4. Data on the staff of the centre with the information on name, designation, mobile number and e-mail address

5. Basic data about the university where the centre is located

6. Important news items and events happening in the centre

7. Submit the report of various projects being operated from the centre

8. Update the weather data as part of any project in the specified format and

9. Update the experiment data as part of any project in the specified format

Input forms designed for them are:

1. Update planting material stock

2. Update publications

3. Update germplasm stock

4. Update staff information

5. Update university details

6. Update news and events

7. Submit project report

8. Update weather data as per the project format and

9. Update experiment data as per project format

Output forms designed for them are:

1. Message box

2. Report box

3. Chat room

4. Update centre and

5. Project centre

c. Project coordinator: Project coordinator should login with username and password to avail his facilities. PC being the custodian of this site is provided with some special rights so that he can monitor the activities of the centres from his office itself. He can send and receive messages and reports from different centres. He can chat with the centres and with public from project coordinator's section. In addition to this they can update various data regarding PC unit so that others can see it. One copy of the planting material request received by each centre will be forwarded to PC's message box automatically. All the data which can be updated by the centres can be updated by PC also for his unit. In addition to this some exclusive facilities available to PC are:

1. Updating the tour programme and message from PC

2. Assigning projects to each centre and designing its data entry form and

3. Collecting data from all the all the centres for processing

Database design

The relational database working at the back end was designed with 35 tables. Among these tables some are for supporting the general working of the site. Fig 2. describes the data flow of these tables between centres, project coordinator and public.
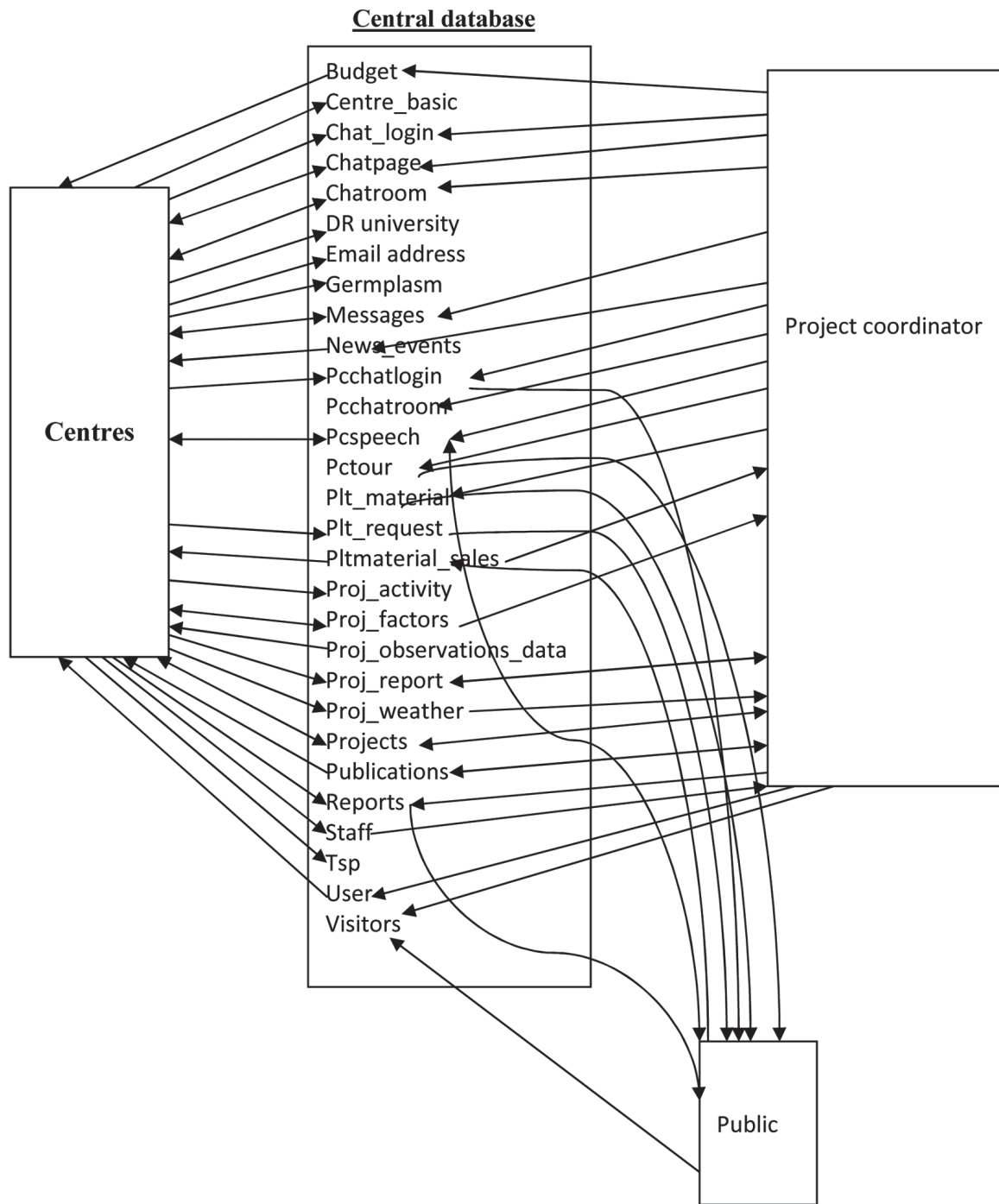
Fig 2. Schematic representation of data flow between public, centres and project coordinator

The main menu of the home page contains four items *Home, About us, Centres* and *Contact us* (Mithra, 2012). General description of AICRPTC is given in the home page. Other than this item there is a section to display important news and events in any of the centres or in the HQ. Three other important links are also provided in the home page. First one is a link to Project coordinator's section, where various details of PC are shown. Second one opens to a section on planting material. Facility for booking planting material as well as the information on the planting material stock at various centres can be seen in this section. The third link gives information on various publications released by different AICRPTC centres and HQ.

The section on Project coordinator gives a brief description on various aspects of the Project coordinator. This section is categorised into four subsections *About PC, Chat, Tour programme* and *Contact PC*. From the link *About PC*, brief bio-data of the PC can be seen. The link *Chat* leads to the chat room of PC. After creating a user ID anybody can chat with PC if he is available in the chat room. When somebody enters the chat room PC gets the message in his e-mail. Tour programme of PC as well as the contact information about him are available at the other two links. From the Contact PC page, messages can be sent to PC's e-mail

The section on planting material is another important section linked to the home page. Details of planting material of tuber crops available at various centres are displayed in this page. The details include crop, variety and the quantity. Request for planting material can be sent to any centre through this page. The name, address, e-mail address and mobile number of the person requesting the planting material also should be sent. He should mention the crop, variety and quantity needed also.

Publication is another important section which can be accessed from the home page. Information on the list of different publications released from the centres and HQ of AICRPTC can be seen on this page.

Centres is the most important link for e-networking of the AICRPTC. By following this link a page showing the list of coordinating centres of AICRPTC will be displayed. By clicking on the name of the centre, the basic details of the centre will be displayed in a popup menu.

From this page the section for each centre can be accessed by logging in with the respective user ID and password.

This section contains five major subsections: Message Box, Chat Room, Report Box, Update Box and Project Centre. Message Box is the section loaded by default. From this section, messages can be sent to as well as received from different AICRPTC centres. Information on the messages received and sent by the centre are also listed in this page.

Chat Room is another subsection of the centre. The names of the centres present in the room will be displayed on the right side column. On the left side top, the

messages sent by the centres who are present in the chat room will be displayed. If anyone wants to send any message, it may be typed in the space provided for it and then sent using the *send* button. The message is displayed in message display section. This can be viewed by all those present in the chat room.

Another subsection of the centre is Report box. Using this facility reports can be sent to other coordinating centres as well as to the AICRPTC head quarters. All the reports received by the centre are listed on the left column and those sent from the centre are listed on the middle column.

The section Update Box helps in updating various information about the centre which will be displayed in the website. The different information that can be updated are: (1) collection of planting material available in the centres (2) sale of planting material (3) publications (4) germplasm available in the centre (5) basic information about the centre (6) staff and budget positions (7) information on the university and (8) the important events and other news items from the centre.

From the section on project centre, details of the projects operated from the centre as well as the weather data and experimental data recorded from the field can be updated.

Special rights of project coordinator

Project Coordinator (PC) is the custodian of this e-networking facility. Hence he is given some special rights for the overall monitoring and smooth functioning of this facility. The sections Update centre and Project centre are different from that of the coordinating centres.

Planting material request received by all the centres can be viewed by PC and this helps him to monitor the action taken by the centre in this regard.

Project centre of PC is also different and it contains a lot of special provisions for managing the projects of AICRPTC. In this section, multicentre projects and centre wise projects are listed. Under the multicentre project section, new project can be added. In this section there are provisions to view and edit the general aspects of the project.

Under each centre, the list of projects being operated in the centre are listed. In addition to view and edit, there is a provision to delete the project also.

Http://www.aicrptc.in is an interactive web site, which has lot of information and tools for exchange of ideas, documents and messages, interaction among the centres and with public, information regarding sales etc. Through this facility all the centres of AICRPTC are connected well with the HQ as well as among themselves. All the communications, data transfer, document transfer are being done through this facility easily and cheaply. This facility is helpful to the clienteles of AICRPTC like farmers, extension workers etc. They are getting information about the planting material availability at different centres and accordingly many requests are frequently posted to the centres through this website. They can even directly chat with PC through this facility. E-networking has been proved to be a success since the data transmission and communication from the far off centres like Imphal, Port Blair etc. can be done very effectively. Another significance of this facility is that the expertise available at any centre located in any part of the country can be used for the benefit of others in the system easily.

References

AICRPTC. 2012. *Annual Report* 2011-2012. All India Coordinated Research Project on Tuber Crops, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala, India.

Hall, L., Dunkelberger, J., Ferreira, W., Prevatt, J. and Martin, N. 2003. Diffusion—Adoption of Personal Computers and the Internet in Farm Business Decisions: Southeastern Beef and Peanut Farmers. *J. Extension*, **41**(3): Available at http://www.joe.org/joe/2003june/a6.shtml (accessed March 4, 2009).

Hamel, G. and Sampler, J. 1998. The e-corporation: More than just Web-based, it's building a new industrial order. *Fortune*, **138** (11): 80-92.

Mithra, V.S.S. 2012. *E-Networking of AICRP Tuber Crops-User Manual*, Project Coordinator, All India Coordinated Research Project on Tuber Crops, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala, India.

Rolfe, J., Gregor, S. and Menzies, D. 2003. Reasons Why Farmers in Australia Adopt the Internet. *Electronic Commerce Res. Applications*, **2**(1): 27–41.