Technical Report of MART Research Planning, Management, and Marketing Group to Quetta

Observations

Issues

Recommendations

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PARC . USAID . MART . WINROCK

Executive Summary

The Arid Zone Research Institute's (AZRI) mandate encompasses about half of Pakistan or 40 million hectare of dry land. This area is very sparsely populated, and its inhabitants are amongst the poorest in the country. AZRI has made a sustained effort to collect the information necessary for devising an appropriate research policy. Extensive surveys of farmer practices and of household agricultural production systems were conducted for the generation of community profiles.

The group observed that the most appropriate and successful way to improve Balochistan's range area is the establishment of Range Management Authority under provincial set up for management and rehabilitation of huge rangelands of the country. Chairman PARC may discuss the idea with provincial authorities.

Practical recommendations were made during discussion and in writing to the scientists working in MART funded programs. These recommendations should be considered as suggestions for trial rather than guarantees for success. The process of adoption of these recommendations/suggestions involves administrative decisions, collaboration and training of scientists/extension workers and farmers participation.

There is a dire need for close collaboration between Range management section AZRI and Range Management Institute (RMI), NARC. The same holds true for livestock component at AZRI and, sheep and wool program at NARC. These two programs can better perform at AZRI, because agro-ecologically Balochistan is best suited to the objectives of these sections.

The group was highly impressed with the work done by AZRI scientists within limited resources. Large scale dissemination of four-wing-saltbush and water-harvest technology to the end users needs a prompt consideration. Linkages with other provincial agencies like extension, Forest dept., communication support cell and FSR need to be strengthened for transfer of these technologies. Extension advisor was recruited and extension group was organized when no technology was developed by AZRI, but now only one Scientist is working for technology transfer.

Farming Systems Research Program had already begun encouraging pilot production program. These activities should be further encouraged. There is a need of introducing the improved poultry breed and kitchen gardening scheme through women component. This will provide an opportunity for economic uplift of rural families.

Provincial Audio Visual Communication Support Cell (PACSC), Quetta has recently received the new audio-visual equipment, and the AV staff at PACSC is capable to make best use of it. It is suggested that only by enhancing the coordination between PACSC and other related institutes/programs in Balochistan, the PACSC could play a vital role in boosting agricultural extension and education in the province.

Strategy to deliver the technologies to the end users would require careful planning firstly to involve entrepreneurs from private sector in the basic ground work and secondly to increase the participation of farmers in the process. Demand for the product is to be created first and then private

sector can be motivated to undertake the required production. Fattening of lambs, leather tanning, and fruit processing are the potential agribusiness opportunities for private sector to start with.

The Management group found this visit to the Balochistan province very useful and a productive experience. It is of the opinion that such exercises may be carried out to other provinces to improve the MART-PARC/Provincial working relationship.

Technical Report of MART Research Planning, Management and Marketing Group to Quetta from November 15-20, 1992.

Research Planning, Management & Marketing Group

As per decision of the Chairman, PARC a group of young scientists from different MART project components was established with an objective to provide management and planning support to their respective units. The group was sent to Balochistan on a training exercise to carry out an evaluation of AZRI, prepare recommendations and present an action plan to PARC for the implementation of these recommendations. The group consisted of:

1. Dr. Abdus Sattar Alvi, Secretary MART, Pakistan Agricultural Research Council.

2. Dr. Aman Ullah Cheema, Associate Coordinator (Animal Sciences), Farming Systems Research Unit, National Agricultural Research Center.

3. Mr. Sultan Mehmood Khan, Dy. Director Agri-business, PARC.

4. Mr. Sheikh M. Kamal. Scientific Officer, PIU, MART, PARC.

5. Mr. Anwar-ul-Hassan, Producer, Audio Visual Communications, NARC.

The group conducted this visit to Quetta during November 15-20, 1992. A copy of the itinerary is attached as Annexure-I. The end product of this training exercise is not only this report, but the improved confidence and the linkage established between PARC and the provincial institutions that will ensure a continuous exchange of information necessarily required to improve the agricultural Research System.

AZRI Mandate

1. To plan and conduct agricultural research in order to generate appropriate technologies for improving small ruminant production and dryland cropping in the arid and semi-arid zones where the potential for irrigation is either undeveloped or non-existent.

2. To develop solutions to problems in the arid and semi-arid zones, while improving the sensibility of the biological systems and lessening the dangers of further environmental degradation of the fragile ecologies of these dry areas.

3. To establish strong linkages between federal, provincial and international agencies, so that Pakistan can develop and integrate research efforts to tackle the problems in these zones.

4. To generate and acquire information related to dryland agriculture and disseminate it to potential users.

Introductory Meeting with Director AZRI

An introductory meeting of group was held with Director AZRI on 16.11.1992 In this meeting Director AZRI briefed the group about the different research programs of AZRI, their achievements and constraints. The focus of discussion was on following aspects.

Balochistan province consists of five different ecological zones with most difficult terrains of the country having a very harsh climate. Under the MART/AZR component, AZRI is working with five sections namely:

1. Range Management
2. Livestock management
3. Agronomy & extension.
4. Germ-plasm evaluation.
5. Agri. economic & farming system.

1. These sections are working well with ICARDA/MART operational funds which are now shrinking as the ICARDA/MART/AZR component is at the winding up stage. Currently the BOSTID, World Bank and PEP funds are being made available to continue its research programs. However, the group felt that the funds provided presently are insufficient to cover the great volume of work assigned to AZRI.

2. Almost 50% of sheep & goat population and biggest range lands of the country are situated in the Balochistan province. Despite these factors, the Sheep & Wool Coordinated Program and Range Management Institute are located at Islamabad. These establishments need to be shifted to AZRI once for all to cater the needs of that area.

3. The AZRI campus is located at a land completely unfit for agronomic trials and is devoid of essential layer of soil rather most of available land has gravel and stones. Therefore, the trials are being conducted at the far-flung sites which makes the research exercise very expensive and requires additional cost and man hours.

4. The AZRI research stations are located at a distance of 250-300 miles from Quetta which involves lot of travelling and adds to the difficulties of AZRI scientists but it does provide them the opportunity to establish linkages with the farmers and work on the real problems which farmer are facing.

5. There are three substations of AZRI i.e Bahawalpur (Punjab), D.I. Khan(NWFP) and Umerkot (Sindh). This token presence of AZRI in the provinces has become a major concern for AZRI headquarters as it is becoming increasingly difficult to manage in the given conditions. So strengthening program of AZRI in the provinces requires to be considered very seriously. The severe funds shortage has given birth to a dilemma that it is hard to windup from the provinces, this will create resentment of provincial Govts. Presently it has become difficult to pay even the salaries to the AZRI staff hence additional funds need to be provided to substations to make them fully functional.

There is a shortage of manpower in AZRI, a general observation of the visiting group. The scientists/staff transferred to AZRI are not given incentives to keep them active in their work in such a hard area.

Meeting with COP ICARDA/AZRI (Dr. Thomson)

ICARDA/AZRI working relationship was established under the objective of strengthening AZRI's capabilities through collaborative research work. Scientists have developed leadership and capabilities of working independently.

Extension advisor had been there in AZRI when non of the technology was developed and now when institute has got technologies there is no extension advisor. This group is in dire need to be strengthened. Developing Agribusiness in Balochistan is very difficult as market is very small for seed and farm implements and industry is not growing.

Technologies evolved by AZRI need visual documentaries prepared and displayed in the rural Balochistan to create awareness which may consequently lead to the adoptions of technologies by the farming community.

Meeting with AZRI's Research Program Teams

i) Germ Plasm Evaluation Section:

Achievements:

Germ plasm evaluation group has identified two wheat lines which have genetic resistance to yellow rust and tolerance to cold and drought stress. These lines have entered into seed multiplication stage and quality improvement process.These two wheat lines will be introduced to farmers by 1993.

Five barley genotypes have been selected for upland dry areas that are more tolerant to cold, drought and heat stress. These are under seed multiplication stage. In addition two bold seeded lentil lines have been selected for cold resistance, drought tolerance, wilt resistance and are suitable for winter plantation. Seed is being multiplied and will be introduced next year. Selection of an annual forage legume, wooly-pod vetch, has been made. This produces high yields of very nutritious herbage when rainfall is adequate.

Constraints:

(i) Lack of green house facility for quick testing of germ plasm. Inoculation apparatus and training in this technology is also not available.

(ii) Lack of experimental fields at AZRI due to stony land, which involves lot of travelling of scientist and hence lack of proper supervision of fields.

(iii) Shortage of funds for large scale seed multiplication.

(iv) Some equipment is defective and some other items like small thresher, seed counter and electronic digital balances etc. are needed.

Recommendations/action plan:

USAID and ICARDA should be asked to provide the inoculation apparatus, green house and other small equipment.

Defective equipment need to be repaired, MART project is doing this exercise and the case was discussed with the AZRI scientists to provide a complete list of these equipment to Secretary MART project.

Training of two scientists of the group could be arranged in inoculation technology at soil microbiology and CDRI NARC for 1-2 months one by one.

Possibility of getting land for experimental trials on lease basis in the vicinity of Quetta from provincial agencies may be explored. Chairman PARC and Director AZRI may discuss this idea with provincial Secretary Agriculture and other related officials (land revenue etc.)

Funds from PEP or Agricultural Research Fund may be allocated to AZRI for large scale multiplication of seed of tested varieties ready for introduction.

Range Management Section

Achievements.

Major achievement of this section is selection and testing of four-wing slat bush (Atriplex) having good forage value around the year. This technology is ready for large scale dissemination. Livestock feeding/grazing and rehabilitation of range land through this bush is successful but have some allied problems like hard seed with some growth inhibitors, processing before sowing, and embryoless seed, therefore it requires intensive research to address these problems. If this technology is successfully adopted on large scale, it will provide extra grazing for 50% of the sheep & goat population in the country during long dry spell and requires large collaborative efforts with provincial agencies and forest department.

Constraints:

Range Management Institute (RMI) is established at NARC where as the largest range land of the country is in the Balochistan province, it needs urgent attention of PARC Headquarters. All the benefits in term of training and germ plasm literature goes to RMI, NARC, but very limited to AZRI scientists. Institutional linkage is restricted to forest department but not with Agri. extension or RMI, NARC.

Recommendation/action plan.

1. There is an urgent need for shifting the Range Management Institute to AZRI with staff and resources to address the range management needs of the country's largest range lands.

2. As long as the RMI is at NARC, there is need for developing linkages with range management section AZRI and Range Management Institute, NARC in terms of mutual exchange of germ

2. As long as the RMI is at NARC, there is need for developing linkages with range management section AZRI and Range Management Institute, NARC in terms of mutual exchange of germ plasm, sharing of training facilities, transfer of staff, exchange of current literature and visit of senior scientists from RMI, NARC Range Management Section AZRI for their guidance in developing their research plans etc.

3. There is a strong need to establish a Range Management Authority under provincial set up to cover the management and rehabilitation of huge rangelands of the country. Chairman PARC may discuss the idea with the provincial authorities. This authority is needed because there are some 18.00 million heads of sheep & goat which are under nourished as the range lands can hardly feed four million heads.

4. There is a need to open a faculty of Range Management at AZRI for scientists, students & extension workers. This could be discussed with UAF for helping in this regard.

Livestock Management Section.

This section is concerned with fattening, grazing and management studies using different levels of salt bush and other available grasses, during different periods of the year.

Constraints:

AZRI does not have its own grazing land therefore, grazing experiments are being conducted at distant places in the far flung areas of Balochistan.

Recommendations/action plan

0. There is a need to start collaborative research studies at the farms of Livestock Department (Yatabad) which are in the vicinity of Quetta valley. Director, AZRI should explore such opportunities with the provincial livestock department.

0. There is a big scope for developing feed lots and feed mills in Balochistan. Some private agribusiness firms should be persuaded to enter in such a business.

0. There is a need to prepare documentaries on livestock health, disease, and management practices. Audio Visual Communication NARC staff, in collaboration with PACSC can help to prepare such documentaries on livestock management etc.

0. AZRI had purchased a feed mixer and grinder out of the ICARDA resources in 1980. This is still lying idle. ICARDA should take immediate action for its installation. USAID, COP-ICARDA and Director AZRI may take decision to facilitate the Livestock Section of AZRI as this activity has to be completed with ICARDA/MART/AZRI support.

Agronomy/Extension Communication:

This group is involved in the research on water harvesting techniques, which have been found successful in dry lands of Balochistan. But its economics has not been worked out as yet to assess its

feasibility in context of availability of levelling equipment, labor, and farmer's investment capacity etc. Apparently it seems very expensive practice and farmers are unable to invest in leveling, compaction, and ploughing. The group has also conducted very useful meteorological studies.

Camel drawn drill designed by the AZRI scientists is still under the process of refinement to reduce its weight and improve efficiency. It is presently being manufactured at Faisalabad due to unavailability of manufacturing facilities in Balochistan. None of the agribusiness firm is prepared to enter into manufacturing of this drill due to uncertain demand.

Constraints:

(i) Lack of staff.

(ii) Poor linkages with other provincial agencies like extension etc. Only one scientist is working who is already sick and frustrated due to long stay at AZRI. Extension advisor was recruited and extension group was organized at the time when no technology was evolved by AZRI.

Recommendation/Action Plan:

(i) Extension group needs strengthening in term of staff.

(ii) Close collaboration with provincial extension department, ARI and FSR for transfer of technology needs to be established. More frequent visits of provincial extension staff to the AZRI experiments should be arranged to familiarize them with AZRI technologies so that the same are taken to the farmers through extension department.

(iii) Preparation of video documentaries of tested technologies by AZRI and FSR Scientists if prepared will definitely educate the farmers.

Economics and Farming Systems sections:

This group is working on different surveys and reports preparation. The group seems stronger than any other discipline. Most of the surveys are of diagnostic type. Need to work in close collaboration with other disciplines to evaluate the technologies developed by other groups. Studies are also needed in market research for various technologies and agri. products of the area.

Constraints and Recommendation:

Group needs some software packages like SAS and CARE for analysis of data. These can be arranged out of ICARDA or Winrock funding. Also needs training in econometrics. USAID may consider to arrange funds for the training in this area which can be managed at PIDE, Islamabad. In addition, the group requires training in computer hardware maintenance and trouble shooting. One person from AZRI can be invited in computer hardware course being planned by MART at NARC Training Institute.

The group has very poor linkages with SSD, PARC and SSI, NARC. Member (S.S)/DAE, PARC may be requested to support this group and give guidance in planning their studies and consider AZRI social scientists for in country and foreign training opportunities as it is part of PARC like our AERU's in the provinces.

Provincial Agri-Communication Support Cell (PACSC).

Balochistan is a multi lingual province and combined with the multiplicity of sub cultures makes the task of ventures dealing in mass communication specially difficult.

Recently PACSC received the new equipment, Mr. Samad with his three junior colleagues are intelligent and capable enough to make best use of it. All they need is on the job training. There is no coordination between PACSC, FSR and AZRI. There are very few people in provincial agriculture departments who know about the audio visual facility created in Balochistan. The coordination between PACSC and local media (i.e TV, Radio and press) is also not up to the standards. The operation of AV equipment is a highly technical job, and we believe that they do need proper training for both operations and day to day maintenance. The training courses conducted at Training Institute NARC, are not the answer for AV personnel's training, what they need is a person who could provide them on the job training in their own working environment.

Recommendations:

a. AVC, NARC has media professionals who are able to carry out AV production work from script writing to video editing. One person can go and work with them in coordination on some identified and needed video production. By this way they could get on the job training with a sense of participation, in result they would not only learn in actual action but also get a good production to be included in their progress report.

b. The subject of above mentioned production should be selected from AZRI and FSR research activities, this will help in establishing coordination between FSR, AZRI and PACSC.

c. There should be more coordination between AVC, and PACSC in order to share professional capabilities with each other.

d. A seminar or workshop on Agricultural Communication in Balochistan is advisable. The participants should come from every concerned field like, agri-extension, FSR, AVC, TV, radio, press. This will also help to know each other, in order to work for a common cause.

Agri-Business and AZRI:

Establishment of four wing Saltbush nurseries, its extension to the barren lands for grazing purpose to feed the starving population of sheep and goats in Balochistan is a single promising technology which requires to be transferred form AZRI to the farmers. Technology transfer would of course require a coordinated effort that need greater collaboration among the relevant agencies in the province.

Camel drawn drill has gone successful with the 50% confidence level and it would require some more time to improve its design, efficiency and weight to reduce the cost. There is no entrepreneur in Balochistan who may initiate the production of camel drawn drill under the technical supervision of AZRI scientists. Strategy to deliver this good to the user would require careful planning firstly to involve private party in the basic ground work and secondly to increase the participation of farmers in the process. Demand for the product is to be created and after ascertaining, private sector can be motivated to undertake the required production.

Discussion with Chamber of Commerce and Industry

Group held discussion with the President of the Chamber about the general situation of industrialization in Balochistan and the chances to promote agribusiness in the province. It was observed during discussion that:

Balochistan has a very low rate of economic growth and specifically industrial growth compared to the rest of the country despite the fact that there is considerable scope for industrial activity based on natural resources like mineral, fisheries, livestock and agricultural products. According to the President of the Chamber following are the main factors for low growth.

i) Lack of Infrastructure
ii) Absence of entrepreneurial base
iii) Smaller market size hence low demand
iv) Non availability of power
v) Non availability of skilled manpower

Chamber of commerce and industry, Quetta had requested the IDBP to develop feasibility about the industrial and agrobased projects that can be started by the members of the chamber.

Project profiles by the IDBP for the chamber include:

Biscuit Manufacturing, Bone Crushing Unit, Coal Mining, Dal Milling, Dates Processing, Dry Fruit Processing, Fruit Processing, Gas Appliances, Ice Cream, Marble Products, Plastic Household Product, Plastic shoe Manufacturing, Poultry Feed, RCC Pipes, Stone Crushing, Leather Tanning and Wooden Furniture.

Farming System Research Program, Quetta:

The team visited the Farming System Research Program activities in Kanak valley started in 1988-89, and pilot to production phase in Khud Koocha area started in 1991-92. The scientists from Agriculture Research Institute, Agriculture Extension, Forest, Livestock and Arid Zone Research Institute are collaborating in the FSR activities. The farming community is relatively poor in resources and sustaining stressed farming environment exists. The complex farming enterprise demands system oriented approach to help not only increase farm income but also to sustain their resource base. The FSR is considered a systematic procedure to identify and solve farmers problems as an aggregate system comprising of soil water, crop, forestry and livestock. It encourages direct communication among scientists from various disciplines, input agencies and farmers. FSR also has fun. feed back system to scientists of various disciplines who can better appreciate the problems of farmers and devise appropriate measures for their control. To increase the farm household income following technologies were introduced.

Introduction of improved onion variety dark purple and recommended dose of fertilizer at a rate of 4 bags urea 3.5 bags DAP and 2.25 SOP. This intervention improved the farmers net income by 58% . High yielding potato variety Diamant increased the net benefit of farmer over 100% on an average.

- Use of pesticides on peak emergence of codling moth i.e. five mite population per leaf stage, resulted in 51% increase in income as compared to untreated orchards.

- Proper time of pruning reduced the insects and diseases pressure and improved the quality of fruit.

- The cut or surgery method of application of fungicide was more effective in controlling the bark splitting disease as compared to pasting and spraying of fungicides on affected portions of apple plants.

- Vaccination, deworming and flushing of ewes resulted in higher birth weight, increased lambing percentage and decreased mortality rate. The economic return due to these interventions was three fold higher as compared to farmers own practices.

Recommendations:

1. Linkages between provincial Agri Communication Support Cell and FSR Scientists are weak and need to be strengthened. Audio visual documentaries of FSR validated technologies may be prepared for further dissemination.

2. Pilot to production phase may be extended to some more villages within the similar agroecological zones.

3. FSR women component need to be strengthened and introduction of kitchen gardening and improved poultry breeds will lead to economic uplift of the rural farmers.

General Recommendations:

1. Balochistan is dryland and rain fall is very low, so water is the major concern for the life of people, livestock, vegetation and wild life. The available ground water is the most precious commodity in Balochistan but is being wasted as result of more frequent and flood irrigation system. This is being practiced due to fixed electricity charges for tube wells. Every year water table is depleting at a rate of 6-8 feet and after 20 years their will be an alarming situation for drinking water. This situation requires immediate attention in more than one discipline both at AZRI and provincial agricultural setup. Few recommendations on this aspect are given below:

i) There is a strong need to build small reservoirs and check dams to make water stay for a longer time in the valleys to improve the ground water table.

ii) Agri. communication support cell is the most important one to educate the water users in conservation of available water and to disseminate research/technology by any agency in Pakistan.

iii) AZRI should embark on water resources research. This could be a potential field for AZRI's research programs in future.

2) Some incentives like yearly air ticket for self and family, and one month salary for visit to home towns, if possible should be given to scientists/staff transferred to AZRI to ease their problems.

3) A term based transfer to AZRI system in every field should be introduced so that every body gets a chance of serving this national level institute and no one will feel punished when transferred to AZRI.

4) An ultimate coordination and support from PARC/NARC to be provided to AZRI in the form of training, funding visits of scientists, exchange of material and germ plasm.

5) There should be combined research ventures started in collaboration with provincial agri. departments to improve coordination and to strengthen the linkages.

6) ICARDA should hire more local consultants instead of foreign experts this will be more economical and the saving made in this head should be diverted to research support. ICARDA should also phase out their staff and channel the resources to research operations.

7) USAID and other donor agencies are required to start new projects for improving the funding status at AZRI and for the continuity of various research programs to capitalize the full benefits of these programs.

8) PARC should consider alternate funding sources after the completion of MART project for continuation of its important research activities started under MART at AZRI.

9) Range management Research Institute should be shifted to AZRI, Quetta with its staff and budget where this can serve best in national interest.

10. Sheep and wool program has more potential to work in Quetta because of suitable agroecological conditions and location of 50% of the sheep population of the country in this area.The program should also be shifted to AZRI, Quetta with all of its staff and budget. Some bold steps would be required to be taken for the implementation of recommendations at serial Nine and Ten.

11. Director AZRI is least consulted while transferring people to and from AZRI, in issues related to training of AZRI staff, making nominations for training slots related to AZRI, and other administrative and technical matters. This indicates bad coordination of PARC HQ officials with Director (AZRI) and as a result this puts Director AZRI in a bad position to his team which ultimately creates many problems for management at PARC generally and for Director AZRI particularly. This situation can be improved by just issuing one order by Chairman to all Directors and Divisions of PARC/NARC that while dealing/deciding any issue related to AZRI the views/opinion of Director AZRI must be sought and given due weighage. Such an arrangement would be great service to the whole establishment of AZRI.

12. The visit of the MART research planning management and marketing group was considered as a very useful exercise and was given very positive response by AZRI and provincial agencies. The group also gained a good experience and learned a lot through this exercise. The group recommends that such visits should also be made to other provinces on the same pattern and the group should plan its next visit to Sindh province. Such visits will also improve MART-PARC and provincial working relationships.

Annexure-I

Itinerary for Visit to Arid Zone Research Institute, Quetta

Purpose: **Study tour of AZRI and Provincial Agricultural Research Institutes.**

Program:

November, 1992

15 Sunday: Leave for Quetta
Introduction of Group to Dr. Bakht Roidar Khan

Visit to:

ICARDA office
Rangeland Section
Livestock Section (Yetabad sheep farm)
Agronomy Section

16 Mon:

Visit to: Germplasm Section
Agricultural Economics Section
Extension Section

17 Tues: Visit Agriculture Research Institute, Sariab
FSR & PACSC

18 Wed: Visit Chamber of Agriculture and Industry
Mr. Taj Naeem, Secretary Agri. & Cooperative
Mr. Anwar Zaman Khan, Secretary Livestock
Chief P&DD Baluchistan

19 Thurs: Back to Islamabad