

92502
IDRC - Lib

**ANNEXES OF
FOURTH YEAR EVALUATION
OF THE
IDRC/CIDA CO-FINANCED
BAIF RESEARCH FOUNDATION - RURAL RESEARCH PROJECT
PROJECT NO. 468/15018
FOR
CIDA, IDRC & BAIF
BY**

MRS VIJI SRINIVASAN, WOMEN IN DEVELOPMENT SPECIALIST

MR SINHA, INFORMATION SPECIALIST

DR SONI, ANIMAL SCIENCE SPECIALIST

DR RAM TAKWALE, TRAINING SPECIALIST



ARCHIV

711.3:080(540)

56

FOURTH YEAR EVALUATION
OF
WOMEN IN DEVELOPMENT ASPECTS
OF THE
IDRC/CIDA CO-FINANCED
BAIF RESEARCH FOUNDATION - RURAL RESEARCH PROJECT
PROJECT NO. 468/15018
FOR
CIDA, IDRC & BAIF
BY
MRS VIJI SRINIVASAN
WOMEN IN DEVELOPMENT SPECIALIST

"I've worked with the greatest social scientist"
(A review of BAIF's women's development programme)

Viji Srinivasan
C/o Adithi
2/30 State Bank Colony II
Bailey Road
Patna 800 014

November 1991

Preface

When Gandhiji was shot, I was a seven year old child. I vividly remember that day. We were watching a BharatNatyam performance of Anandi and Radha...Radha was dancing to Bharatiyar's song "Let us all dance ... let us all sing ... we have achieved the bliss of independence.." with so much gaiety and abandon .. in the audience, in the front row, Vyjayantimala was also watching... she came in our way... we quarrelled with her .. the music stopped abruptly .. Radha stopped dancing in astonishment.. an official came to the stage and said "we have just received the news that Mahatma Gandhi has been assassinated"...first a stunned disbelief..then a large part of the audience began crying. I cried too...

And shortly after, a gramophone record of M S Subbalakshmi's new song "Karamchand Mohandas Gandhi" and "Let peace prevail" in her plaintive haunting style was released. I would have heard this 10000 times.

As I grew up I often thought about Gandhiji.. but I found a lot of voluntary agencies based on Gandhiji's philosophy to be stultified and fossilised.. insistence on workers wearing khadi and looking miserable in ill-fitting khadi garments.

In my school days I read about Karve, Tilak, Gokhale, Phule and I longed to visit Poona to see for myself what they have done.

I also grew up with an ideology of independence, the colours of the national flag; "flag" songs "Our flag should fly high.. the beloved tricolour should be victorious.." As a thousand of us, young girls, sang in unison, the raintree blossoms fell on us in benediction.

Consequently, as Manibhaiji unfolds the story of his association with Mahatma Gandhi, I find it very moving. As he shows us the Nature Cure Centre he says, simply, with no theatrics "Gandhiji walked here. He said-build up your programme. Provide gainful self-employment in the villages. Take the preventive health message to the villages..." Yet when I hear Manibhaiji say "I've worked with the greatest social scientist, Mahatma Gandhi", I am still sceptical, as I am sceptical about some writings of Gandhiji on women.

But Manibhaiji has made Gandhiji come alive, without the fossilised rigidities, without the oppressive khadi ideology which presses women into a housewifisation process...

When talking in meetings he is non-patronising, simple, egalitarian...

I had hesitated before taking up this assignment. Susan Bernesford has mentioned to me "can BAIF integrate women into rural development?" after her visit to BAIF in 1980, and several Gandhian organisations I visited during the 1980s have "blinkers" where women are concerned.

I felt sure that women would not have been integrated into development at BAIF, I came with a prejudice. I leave with humility.

This question has been troubling several of us in the Indian women's movement "Which is easier to do?" "A technical organisation to reach out to disadvantaged rural women or a rural women's organisation reaching out to technical knowledge?" We had all assumed it would be the latter. But now we have a good model for the former.

Viji Srinivasan

Introduction/Objectives and Methodology

I was given the task of reviewing the women's development programme of BAIF, with special reference to IDRC Research Projects. I was part of a multi-disciplinary team.

The objectives were to assess the involvement of women in the definition and formulation of research projects, effects of the research on daily lives of women; to review the 'voice' of women in programme planning, delivery and evaluation and the mechanisms for feedback from women; to assess whether the concerned technologies are consistent with the needs of women; to assess the economic impact on women; women's control over income; impact on women's role-models and self-esteem; women's participation in extension activities and empowerment of women and men.

The programme was as follows :

November 10, 11, 12	Travel from Patna to Vansda
November 13 to 17	Field tour
November 18	Reading
November 19 }]	Maval area, sericulture
20 }] Field	Urulikanchan villages, community
] visits	based research
21 }]	Karad area, buffalo-breeding
22 }	Interviews
23 }	} Report writing
24 }	}
25 }	Interviews
26 }	} Report writing
27 }	}

Thus the methodology consisted of observation, group interviews of grassroots women's groups, men's groups; interviews of grassroots women; interviews of field-level staff, middle-level staff, scientists, top management of BAIF.

The report of the field tour is not yet ready. It will be written later and included here.

Village Profile 1

Navlakh Umbre

Maval area, Poona district,
November 19, 1991.

Visited by Ms Viji Srinivasan
Accompanied By Mr. A.V.Karandikar, Mr.I.A.Kamte,
Mr. J.K.Belose, Mr. R.R.Pisal

Title of Research :

Development And Standardisation of Sericulture Technology

Snuggling against the barren, eroded Sahyadri and Western Ghats, Navlakh Umbre is a poor village. The black cotton soil is interspersed with bright green jowar plants, here and there..the hills are full of dark grey rocks, the top soil is gone...the thorny babul is the only remaining tree. Its foliage is a delicate tracery against the grey, cloudy sky. The dirt track leads to a brightly painted temple of Pandurangan and Rokhamayi in Bhadalwadi (a hamlet of Navlakh Umbre).

We go to one of the houses opposite the temple. The family has a mulberry plantation. The young wife is at home. Her name is Shanta Bai Jaiwant Bhadale. She wears a thin cheap cotton sari, a tiny black bead necklace and dark green glass bangles. "What were you growing before mulberry?" I ask. The men of the village who are present chime "She won't know, she won't know." Mr. Karandikar says "This is not an examination, let her answer." "Where is your husband?" I ask. It is translated as yajman (meaning master), but I let it pass. He has taken milk to Talegaon by cycle and then to Pune by train. They have one hectare of land.

"What work do you do?" I ask. "When rural women are not educated, can't write, can't sign their names, what else to do except agriculture?"

"I do weeding, harvesting, transplanting of paddy; same for jowar. Sometimes in peak season I employ labourers. Men are paid Rs. 15 per day, women Rs. 10. I too work on other people's land for these rates."

"We have four buffaloes, one cow (desi). My husband does the milking. I don't know milking. When he is away I call someone to do the milking. You won't find any women in this village knowing milking. I do all other work related to dairying - cleaning of shed, cow-dung cakes, feeding, bathing...etc."

"We get Rs. 5 to 6 per litre of milk. It is given monthly. I don't know how much he gets. He buys everything. If something is needed I ask him."

"In general in this village you won't find women having any money. Women are expected only to work."

I ask "Why did you take up mulberry?"
She says, pointing to Mr. Belose "he came, held a meeting, some farmers decided to plant it."
"Your husband didn't ask you?" I ask.
"No ! Many (all) rural husbands are like this. They won't ask the wives.." she says.
"What operations will you be doing after the mulberry grows?" I ask her.
"I don't know."

"What is mulberry for?"
"I don't know."
"Do you do any work in the mulberry field?"
"Watering, weeding..."
"Have you seen a silkworm?"
"No, never..."
"You already have agriculture, dairying. How can you do sericulture also?"
"To survive, we must"

Mr. Pisal says "In meetings only men gather. The husbands will tell their wives. When we actually begin rearing, women will learn practically."

"What are women's problems?" I ask.
"Drinking water, I have to bring from two kilometres...fuelwood...in my 'free' time I bring from the nearby hill. We had biogas, now it is not working. It is 9 years old, has to be cleaned."
"Now we burn dung cakes...we get 10 litres of milk a day...we keep one or two litres."

"I have three sets of clothing (saris)" she says. Here all the men who have been watching so far interject "tell the truth, you have only two."
One says "You make sure you are writing everything properly, otherwise her husband will return and scold her."

On social issues she says
"There is TV in the temple, women don't go."
"I think that in the village there are no dowry problems but I have heard of two cases of dowry deaths."
"There is no widow remarriage. Girls are married at 15 years, boys at 17."
"The Gram Panchayat has two women, but from other villages..."
On my asking "A Mahila Mandal is a good idea, feasible also."
Mr. Pisal says her husband will go to Urulikanchan for training in sericulture "How many?" I ask. "22"... "Women?" "No."

As we leave I see another woman in the house. A shadow. I ask "Who is she?" The men laugh. She is the second wife.

We then meet with a group of men including the sarpanch, in the temple. The deities are Pandurangan and Rokhamayi...dark and beautiful. There is a stone slab floor. There are delicate flower decorations, mostly of bright orange marigolds..There are huge leather and brass/copper drums...called tashas and cymbals hung on the walls. Women pass by, laden with three big pots-brass/copper-of water, mostly in traditional saris and blouses - the gorgeous 'Poona' handloom.

The sarpanch, Mr. Bhadale, tells us about his work. He was elected three years ago. "The main problems of the area are lack of water for irrigation and for drinking." "When Mr. Belose came here and talked of sericulture at a panchayat meeting we decided to try. Twenty began. Four mulberry - plot owners are here. The meeting was held here."

"Did the twenty consult their wives before planting mulberry?"

"No" "There is no such paddhati (system)" "The meeting was held here, the decision was made here ! Women don't come to meetings!"

"Who will do the work of rearing silkworms?" Two men say "Women."

"Both men and women" say two other men.

"Overall who does more work?" I ask. "We admit, women do much more work than men."

"What other income-generating activities are suitable for this area?" "Poultry for women, Jersey cows for men."

"Is there a Dairy Cooperative Society in the village?"

"We have just sent the papers"; "all are Maratha, 15 per cent illiterate."

"51 men members." "Why no women?"

"Men do the milking."

"Land is not in women's names."

"What is the use of having women?" "The Government will ask for men only, because of the assets. Loans can be given only to men members. IRDP loan is given only to men."

I say "30 per cent of IRDP beneficiaries have to be women."

The sarpanch says emphatically, "there is no such rule." (This has been in force for the past 10 years)!

"What do the SCs do?"

"They are head loaders. They bring fuelwood from the hillsides and sell them"...no wonder the hillsides are barren.

"Mahila Mandals?"

"Good idea"

"Suitable activities?"

"Drinking water, poultry."

I ask about widow remarriage "It is somewhat common."

I ask about polygamy. "It is somewhat common too."

We leave. I am troubled.

We next go to the plot of three brothers. There their three wives meet us (Surekha, Meera, Farvati). One is dressed in a pure Varanasi silk sari. "What is the mulberry for?" I ask. Two blink. One says tentatively "to prepare silk." I press her "How?" "We have never seen it, so how can we know?" "Even if our husbands know they will not tell us." "That is taken for granted that we will do the work." "We have never seen a silkworm or a cocoon." "Cuttings were brought from outside. We did everything, and the planting. We can tell only what we have done!"

"Men went to the meeting, not women."
"We have two Jersey cows, two desi cows, two buffaloes. We do most of the work. Men do the milking. But we also milk."
"Who sells the milk?" "My husband"

"How much land does the family have?"
"We don't know. May be 15 or 16 acres!"
"Who does the work?" "We do ! Sometimes we employ labourers."

"How much are the labourers paid?"
"Rs. 15 for women, Rs. 25 for men."
"Why this difference?"
"Women actually do all the work, but in the ultimate analysis she gets recognised through the man only!"

"Would you like to have training in sericulture?" "Yes."
"Can you go to Urulikanchan with your husband?" "Yes."

"What other work do you do ?" "Collect and make cow dung cakes." "We don't have bio-gas."

The next plot. Two other brothers.
"Did you consult your wives before planting mulberry?"
"No. Why?"
"What if she refuses to do the additional work?"
"I have an obedient wife."

The next plot is at some distance. It is a nice tiled house, with a picturesque back-drop of the Western Ghats. I meet mother and daughter (Thanu and Subhadra). She has five children.
"Who decided to plant mulberry?"
"My husband. But he wanted to plant all of our land (8 acres). I said, let us try on a part of the land - he agreed to that."
"I don't know what use mulberry is. Whatever work was needed I did, how can women ask such questions?"

"We have no animals. But we have eight acres of land. We grow paddy, jowar, onion, garlic; we do all the work! The man only starts the engine and provides water!"

I ask the mother "How have women's lives changed?"
"They have not changed for the better. Work has increased. Earlier we did all work 'inside' the house only. Now women have to do 'outside' work also. Work load has increased."

I ask about social issues.
The mother says "There is dowry now. It was not so earlier."
"Widow re-marriage? No! No!... how can we say?"
"Girls are married at thirteen or fourteen, boys seventeen or eighteen."

"Mahila Mandal?" "Good idea." "What would you do?"
"Don't know ... we'll think." Her husband also says "Good idea."
"What should they do?" "Poultry."

The next plot - this is completely dried up (all the earlier plots had bright green thriving mulberry). Changuna Bai - she is so dynamic! She shows us her dried up mulberry plants. "No water" she repeats in mock anger. "Did your husband consult you before planting mulberry?" "He was not here, he had gone out of the village. My son went to the meeting. He come home and told me about it. So we decided to try." "Please help us with water...we'll try again." She is free and happy even though she is the only women in the entire group of men. The men laugh at her, she laughs back. Her husband is also here.

"Our lives are worse now. Men drink constantly. They go to the temple, put on a tulsī-mala and swear to stop. But they return and begin again. Dowry has spread to the village from urban areas. Inflation is a big problem.. we are much worse off..."

I ask Mr. Kamte "Why should women be involved in sericulture?"
"Sericulture is light work. It is a silkworm nourishing job, which women will do well. She will nourish each worm. She will rear them like her children. Hygiene is very necessary. There is need for humidity and temperature control. In all this she will be better. Then women will get a cash crop after every two months, and an income; she will gain prominence after some years."

I ask him about the IDRC - supported research on sericulture.
"We are trying out different races of silkworms and different races of mulberry." "We are also trying out different types of mountages."
"What about the impact on women?"
"With the new leaf preservation methods, her labour could decrease. She need not go often to the field. But with different types of mountages her work may increase, she will have to wash the gunny sacks and store them. With certain races of silkworm her work may increase. Indigenous races spin cocoons in 22 days; other races in 30 days."

Village Profile 2

Koregaon

Karad area, Satara district,
November 21, 1991

Visited by Ms Viji Srinivasan, Dr Marcel Zollingner
Accompanied by Dr. B.R.Mangurkar, Dr. Y.P.Phadnis.

Title of Research :

Upgrading of Frozen Semen Technology for the Development of Buffaloes

We travel to Karad to see the buffalo breeding programme (this is one of the IDRC-supported research projects). Dr.Mangurkar and Dr. Phadnis travel with us. Once more the drive is through barren hill-sides of the Western Ghats, rocky, full of agave and the thorny prosopis... though there are some green plantations here and there..

Our village visit is to Koregaon in Karad taluka of Satara district. The veterinarian Dr. Deshpande meets us. We go to the Panchayat Bhavan. It is an all-male audience. "The village has around 350 buffaloes and 11 cows. The buffalo frozen semen we have developed under the IDRC programme is being tested here. The local nondescript buffaloes are called Pandharpur buffaloes. The heat synchronisation is also being tested. The Cooperative gets around 160 litres of milk a day. All members are men." In response to a question from me "More than 60 per cent of the work is done by women." "We have done training programmes for men and women. 30/80 were women", says Dr.Deshpande.

At this point, one woman arrives. Her name is Sushila Pawar. She is a Kotwal (a functionary). I make her sit next to me.

We go to see the buffaloes. Five buffaloes are tied next to each other. Their "owners" arrive (women). "Often I meet only women," says Dr. Deshpande. Slowly more and more arrive, out of curiosity; their AI cards (BAIF's) are all in the names of men. So I suggest that we sit in one of the houses and an informal meeting of women takes place."

"What work in buffalo rearing do women do?" "Cleaning, feeding, bathing, grazing, milking." I check up again on the grazing. "Yes we do it." I check up on the milking "Yes, we do it." The male link person and Dr. Mangurkar also confirm this. "What do men do?" I ask. The women laugh. "Bringing sugarcane tops." "How about taking the milk to the cooperatives?" "Oh we women do it." "Who gets the money?"

"Men...they are the members." I suddenly see a man carrying sugarcane tops and run to take a photograph. This creates mirth and merriment for the women.

"What else do men do?"

"When the buffalo is in heat, if natural service is to be done, he takes it to the bull." "AI?" "Oh the doctor comes here, we take care of that."

"Which is better?" Only one woman says "both should be tried." The others all say 'doctor.'

Even a doddering old lady says "Now that there is a doctor here, we should use him!"

"This (AI) is easier for (women), we only need to leave a message in the Cattle Development Centre! That we can do ourselves - not like the natural service."

I ask if all the women present have been there.

An overwhelming "Yes."

"Are you all giving milk to the Dairy Cooperative Society?"

"Yes."

"Not to the cycle milkman?" "No No!"

"Is the Cooperative better?" "Yes"

"Why?" "Lumpsum payment (monthly)." "Payment is guaranteed."

"But from the cycle milkman you were getting the money...from the Cooperative your husband will get the money.."

"No No, our husbands give us the money.." "They collect the money in the Cooperative but give it us. Traditionally the milk money has always belonged to women. It is a long tradition."

"But why are women not members?"

"Women are shy of going to the Panchayat Bhavan, they have never been there!"

Then we go to the office of one of the Cattle Development Centres of BAIF.

Dr. Mangurkar and Dr. Phadnis tell us about it.

"There were a lot of problems regarding AI in the area. It didn't reach the doorstep of the farmers. The Sugar Factory approached us and supported three Cattle Development Centres."

"Anyone can come. We don't discriminate. People leave chits here when their animals come on heat." We are shown some of the chits. "We are popularising buffalo insemination."

The three veterinarians and three technicians of the three Cattle Development Centres are here. We discuss matters with these six men in an informal meeting.

"Women take more interest than men."

"80 per cent of times, men are not there."

"Women are always with the animals, they take care of them."

"AI work can be done by women also. It is only transport that would be a problem. Young women driving motor cycles would be a curiosity. But the skill can certainly be transmitted and women can do it."

I ask why women are not members of the Dairy Cooperative Societies.

"There is no restriction, no bar."

"Women do everything in dairying. Even in agriculture, he does only ploughing, begins the sowing and leaves. The women do everything else."

"We keep aloof from local affairs."

"When we were popularising the heat synchronisation in buffaloes, women were also there. Four or five women had brought buffaloes. Women asked us - why didn't you think of this before? To our training programmes, many couples had come."

"One lady has a milking machine and a big herd. She manages it all with one labourer."

I ask them "Why involve women?"

Dr. Bhide says "For better results."

Interview with Dr. A.L. Joshi on November 22, 1991

Title of Research :

Development of economic feeding systems for ruminants from locally available byproducts.

The Reference Note does not mention women.

Interview

"Feeding is usually done by women, she has a major role in the whole affair."

"In animal husbandry there is lot of potential to involve women....women progressive farmers also."

"There are many different ways of feeding - technical and economic factors should be researched and least-cost ration should be evolved.. maybe there is a produce which they already have, but don't use."

"It might mean additional workload to women - to increase intake, feeding thrice a day may be better than twice a day. But it is worth it in terms of additional milk yield, additional income; concentrate may be reduced so reduction in cost of milk production. So there will be realisation of benefits."

"The genesis of this research was that volumes of animal nutrition research exist, but adoption is not seen in the field. Why? Sustainability in the field situation has not been studied. Research has been away from the field. We need a study of village systems, so that there is better likelihood of success."

"I look at it as a family, not woman or man - I may be called biased !"

I ask "Why should women be involved?"

"BAIF has defined the unit as a family. If a family has to improve, there cannot be discrimination."

"How?"

"Wives of field staff in Gujarat have collected data on urea treatment. They found that women complained - men do it all in one day, we have to store it and take it out every day..."

"Joint membership in Dairy Cooperative Societies could be one way."

Please Note : In this and other interviews, only answers are recorded, except where necessary.

Title of Research :

Upgrading of frozen semen technology for the development of buffaloes.

The Reference Note says "In majority of the places buffaloes are looked after by women and children. The income through sale of milk normally goes to women of the farmer families. Through improvement in buffalo breed and breeding procedures more calvings and more milk is expected in given time which will help increasing the income of the women folk of the families."

Interview

"Buffaloes are being looked after by women, children, they do feeding, milking, even selling. Earnings from the sale of milk go to women - traditionally, the 'ratib' is a custom by which she carries the milk on her head and goes house to house....she gets the monthly payment."

"So if the milk yield is increased, she will earn more for the family."

"Some buffaloes were being synchronised by us - out of 20 three were brought by women, one by a child. I have a photograph of the child"... "Not of the woman?" "No!"

I ask "Can you make a special effort that women participate in training programmes?"

"For AI, difficult...she will feel shy ...in Sweden ladies collect semen. Here it will be difficult. But generalised training and in heat detection process can be given. It can be given to couples."

"The idea for the research came from farmers; they always keep one or two buffaloes to mix with cow's milk, to increase the fat content, for supplying milk to the Dairy Cooperative Society. They wanted us to develop frozen semen technology for buffaloes."

"Social scientists can study the impact on women. 60 to 70 per cent of the work is done by ladies, in addition to household work, a lot of farm work, and taking food to the husband. If buffaloes have long inter-calving periods, she has to shell out!"

"In Gujarat women run Dairy Cooperatives Societies. It is not the system here. But in Maharashtra some panchayats are run by women."

"Women should be involved in BAIF's programmes. Women want to work. They don't take credit for the work."

"In field programmes, women functionaries can make better liaison with families, can talk to ladies."

Interview with Dr. S.N. Singh on November 25, 1991

Title of Research :

Standardisation of micro-carrier culture technique using Marek's disease as a model.

"Our understanding is very very clear. The families is to be economically rehabilitated. She manages the family, its economy, its labour, food for husband. She has so many pressures. If she is not playing a pivotal role, if she is not given such a role, our programme will be a flop. She is very professional. If she understands, she will take care. She is very professional. She has to have total acceptance. The husband will forget, or he has only understanding of politics. She will communicate with children also."

"She will remove the bottlenecks of research. The needs of women in local conditions vary. This should be considered in conceptualisation, designing of research and in implementation."

"Women will take care of cows, buffaloes, sheep, goats just like babies. She will relate immunisations to cattle and to children. When rural doctors don't know, she will give hot water and new needles."

"What planners and intellectuals don't know, she will tell us."

Interview with Ms. H. Kothari on November 22, 1991

Title of Research :

Standardisation of micro-carrier culture technique using Marek's disease as a model.

"We want to uplift rural areas. Women have a close touch with the family. If the husband has gone out, if she is aware of the cold chain, then when the doctor comes, she can understand about complete immunity. She is taking care of animals within the home." "I have not visited BAIF villages."

"Rural women have no problems as such. Maharashtrian women are free, they are ready to work. There is no 'burka' or 'ghungat' (veil)." "In my class we were only 7 women out of 120."

Interview with Dr. Meera Pimplaskar on November 25, 1991

Title of Research :

Development of Mushroom Production Technology.

"BAIF's philosophy is good. The objective of social work appeals, it is not money-making." "Overall objective of BAIF is to uplift families. Unless she is aware, how can she do anything?"

"Mushroom cultivation holds promise. It is scientists' top and latest technology. We are not going backwards."

"This was identified at brainstorming sessions."
"I tested this at Akola project. I couldn't believe that it is possible for women to participate like this. That too, uneducated."
"BAIF is interested in field programmes with downtrodden families. In farmers' families women are one component. The agriculture labourer women force is idle sometimes. BAIF wants to give justice to women labourers with technology to the doorsteps."

Interviews with women balwadi-cum-field guides

Title of Research :

Community based research

As part of the Community-Based Research, there are eight women balwadi-cum-field guides in villages near Urulikanchan. We interview (as a group) all of them.

Interviews

Rajani and Nanda

The first two are Rajani and Nanda. Nanda is a beautiful young smiling woman, Rajani older, mature, respected in the community. Rajani says "My husband is a primary school teacher in Bharatgaon (my place of work now). I was brought up in Poona, had difficulties in mixing with the rural community, initially. But my husband helped me to integrate. Gradually women began to come to me and ask how to improve the village facilities. Women said - your husband is not letting small children sit with their older brothers and sisters in the school; so you start a balwadi! Also working mothers had problems. So when BAIF workers came, I said that I want to start a balwadi. So BAIF arranged a training course at Urulikanchan (six month). My relatives said to me - this job will not pay, this job is low-status - etc. But I persevered. Then I did a survey with Nanda's help, identified 70 children, 40 come."

"Then I asked the sarpanch for a place. He was very reluctant as the panchayat's TV was kept in the room. After one and a half months of persuasion he agreed. I and Nanda began together. Now there is no complaint about the TV. In fact the room is cleaner! People offer us prizes for Independence Day, Republic Day's cultural programmes."

"I always liked social work. I was more motivated by BAIF, now I like it very much, I got 'directions' from BAIF. I handed over this balwadi to Nanda. She runs it by herself now. Then I began another balwadi in a village called Kasurdi. I handed that over to another girl. Then I started another balwadi in the 'shepherds' village (Dhangar basti). They, after a lot of work, see it as their balwadi and support it completely. They rear sheep, goats, men and women migrate for 8 months in the year."

Children are left with grandparents". "Even if she has delivered a baby a day earlier, she goes!" "They grow pearl millet in the rainy season. They sell goats, wool, carpets."

Nanda talks of her balwadi. "Women's problem are that of no hospital, no immunisations, no employment in village, lack of minimum wage, less wages than men, work burden."

"In cities men are understanding that they should help in housework, but in villages not at all." "We are trying to change this in the balwadi."

Madhumalati "She is not independent in decision-making. Men remarry if the wife doesn't have a son. It is a son-preferred society."

"Now people like my balwadi. The panchayat pays me Rs. 50 a month." "I've developed a lot of programmes-nursery, mini kit (I did not choose men who were drinking."

"20 women are in my self-help group. When I am with the balwadi children, I forget all my worries!"

"My husband is schizophrenic. I had lot of problems. Aruna supported me."

Aruna and Chhabutai have been Resource Persons in other projects. They liked it. Aruna and Rajani, went to a workshop on 'women's labour' in Nasik. "The bride-price was a good idea! Household chores are never thought of as work, nor recognized. This is the same in my village!"

Surekha

"Rajani helped me a lot. Most of the children are Harijans. After gynaecological camp, I took 20 women to Poona, as referrals. I've got congratulations from the medical social worker. I've done all other programmes also".

Swati

"After my elder sister got married, I began running the balwadi. Parents were surprised. I've introduced weaning foods, discouraged bottle feeding; chlorination demonstration, school health checkup, library, arogyapatrika and nutrition education are some of the programmes I have introduced. Women's main problem is alcoholism. Each women should talk to her husband and the men should take out a morcha!"

Rekha

"Sheela suffered since she was a Harijan and the sarpanch objected. I have no problems. Parents pay Rs. 5 per month as fees. I've done a lot of work with crossbred cows and Artificial Insemination and I like the cattle development programme."

The Block Programme Officer, N P Chandgude said that he contacts the Balwadi-cum-field guides all the time, he also contacts women. He felt that they (who are Matric) can certainly do Diploma in Agriculture.

Pushpa, one of the balwadi teachers, has now got a job as an anwanwadi worker (ICDS) and elected to the panchayat.

I then tell them about my experience with women in sericulture development in Maval.

"The women are doing it not out of obedience, but fear, other extraneous factors, pressures, even if she doesn't want to do it."

"Both men and women should be consulted. Both have to be sharing responsibility."

I then tell them about buffalo breeding in Karad.

"Women should be members of the Dairy Cooperative Societies - at least 50 per cent."

"Men should not be paid without telling the wife."

"Animal should be jointly owned."

"Land should be jointly owned."

On testing of research findings

"We can do it very well in our village. We are aware of people's assets, we are familiar with people, they won't think we will be snatching their assets, we can select a sample."

The above-mentioned record is bland. It does not communicate the courage, the commitment, the maturity, the capability of developing creative responses to women's needs and aspirations, the understanding of the complexities, nuances and subtleties of women's development.

PROJECT FINDINGS

1. Integration of rural women into mainstream national development

BAIF is very sincere and committed in its keen interest in integrating rural women into mainstream national development. Women's contribution is warmly and openly acknowledged, women have high visibility. This is in spite of the fact that gender issues have not formed part of the IDRC-BAIF agreement and that IDRC has not pushed women-in-development. Therefore, it all the more reflects BAIF's genuine commitment. The organisation is clearly pro-women; it is not a superficial phenomenon.

2. IDRC Research Projects - General finding

The IDRC Research Projects may not be formally and specifically linked to women at the present stage; but certain processes have been set in motion and these can be easily built upon and mechanisms put in place wherever needed. Informal linkages exist to a very great extent. These can easily be strengthened.

3. Initiatives for integration of women

On the ground, there are five initiatives for the integration of women and for linkages with women.

- there are women health guides (37) in the Community Based Research (CBR) at Vansda Project,
- CBR near Urulikanchan has a group of women balwadi-cum-field guides in 12 villages,
- in Gujarat, Dr. and Mrs. Rangnekar are working with a women's team of wives of field guides,
- in all Cattle Development Centres, the staff are informally reaching out to women cattle-keepers,
- in the Vansda Project, an entire women's programme has been based on a traditional concept called wavli over which women have full control.

4. Policy document

There is no policy document on women. However, the kernel of the policy is already there "rural women are at the forefront of development programmes" and "once we decide on an activity for women, it is kept exclusively for women" - in certain documents. There is a document - Women In Development-which is a bit too general but can be used as a base; another problem with this document is that it does not clearly differentiate between women's economic, social, political, day-to-day situation.

Also certain ambiguities remain. For example several people said, "We don't want to get into areas of social conflict". But then, whether it likes it or not, BAIF has got into "social conflicts". It did it the day it decided to make 'drinking' and its abdication a condition for the WADI programme (incidentally, initially this strategy appeared moralistic; later events suggested that this strategy should be extended to non-tribal areas). It did it the day it decided to support balwadi-cum-field guides since some of them were getting out of intolerable family situations.

Other women's issues such as biogas have not been articulated as women's issues - women are the main (or only) users of the kitchen, the vessels don't get black, so it relieves their drudgery, they don't inhale smoke-the present note on 'energy' doesn't mention women.

5. Social science research

Some of the present social science research is somewhat general. Its focus is not sharp - for example the study on the status of rural women does not reflect the complexities, nuances and subtleties of women's specific situations - see diagram below. The study of the wavli practice is dynamic, well-documented.

VANSDA PROJECT

lack of infrastructure,
remote areas

land not productive,
lack of irrigation

lack of inputs in
agriculture, forestry

lack of basic needs,
food, clothing,
alcoholism

deforestation,
soil erosion

POVERTY

women's lack of
confidence

domestic violence

poor health

low wages

polygamy

migration

cultural alienation

poor status of woman

heavy work burden

The status of rural women study does not reflect this type of complexity.

6. Inside - outside dichotomy

Rural Maharashtra seems to retain strong inside-outside (private/public sphere) dichotomies, specially in Departments like Sericulture and Federations like the Dairy Federations. In this context, it is important that BAIF guards against this dichotomy dribbling into BAIF functionaries' development strategies and takes measures to counter this dichotomy. One fears another dichotomy (perhaps unnecessarily) - women are to be addressed by health and education issues/strategies and men by land-based strategies.

An example of the private/public sphere dichotomy is that every single person/group we talked to during this visit said that women do 60 to 70 percent (sometimes 80 percent) of dairying operations. Yet according to 1989-90 statistics, of the members of Dairy Cooperative Societies in Maharashtra 5.6 percent are women. And there was not a single woman member in any of the Dairy Cooperative Societies we visited. What are the processes causing this anomaly? This has not been studied.

BAIF is not using the influence it has, to its full capacity! As a leading cattle development organisation in Maharashtra, based on such a study, it can easily promote women's (joint) membership in all Dairy Cooperative Societies in Maharashtra!

7. Self - reliance

Self-reliance may be difficult in certain projects. There will be some dependence on BAIF, for example, in marketing. Also a lot of subsidies are there in some projects. But given this, BAIF works wonderfully!

8. IDRC Research Projects - Specific Findings

Overall, there is a definite 'hidden' participation of women, behind the scenes; there may not be complete decision-making by women; but there is a strong undercurrent of faith and trust in BAIF.

In the definition and formulation of research projects, it is doubtful if women were involved in any of them. Most seem to be defined and formulated by the scientists. Some projects might have originated in the field (upgrading of frozen semen technology of buffaloes). It is also doubtful if data was gathered from women or if the 'voice' of the ordinary woman has been heard in programme planning, delivery and evaluation (but then many projects are not so far ahead).

Development of mushroom production technology	- Very positive, high income, less drudgery.
Standardisation of micro-carrier culture technique	- Positive, higher immunity, less cost.
Development of economic feeding system for ruminants	- Not sure of positive, could lead to more work.
Community based research	- Very positive.
Upgrading of frozen semen technology for buffaloes	- Positive but need women's membership of Dairy Cooperative Societies.
Post production technology	- Not sure if positive, could lead to more work.
Germplasm collection and adaptability study of bamboo species	- Positive, need to find mechanism for control by women of income - women's bamboo cooperatives etc.
Mycorrhiza inocula	- Positive, will increase income from nursery-raising etc.
Rural polytechnology	- Positive, women should definitely be included in non-traditional courses like carpentry, topography.
Information resource centre; social science cell	- Very positive, (should social science be included here ?)

As mentioned above, technology alone is not the answer. It is important to develop women's membership in producer-organisations.

The economic impact on women of results / potential results is likely to be very positive in the cases of mycorrhiza inocula, rural polytechnology, bamboo, post-production technology, upgradation of buffalo frozen semen, community based research, economic feeding systems, micro-carrier, mushroom. But in the case of sericulture, the additional work burden has to be carefully studied. And women's membership in producer organisations is crucial.

The term 'producer organisation' has constantly been used for two reasons,

- not for the control of money alone, but for women's decision - making,
- the wavli programme is for 'temporary' projects (e.g. water-melon), what to do about permanent projects like bamboo is not clear.

Women's confidence and self-esteem has certainly been already enhanced and is certain to be enhanced still further when the new technologies are developed and introduced. Women are certainly more appreciated in the community now. Men have not yet been encouraged to question assumptions. This is a much larger task, will take a long time.

Conclusions and Recommendations

1. Preparing a policy document on women-in-dairying (with special reference to Maharashtra)

BAIF is large. It also has potential to influence policy in favour of women.

One example is that as a large cattle development organisation, it is uniquely situated in Maharashtra to do time budget-studies of dairying operations done by rural women. And then studying how there are barriers to rural women's participation in producer organisations (even though she is the main producer) - Dairy Cooperative Societies. I asked this question of a lot of people "Why are women not members of Dairy Cooperative Societies?"

"The land is in the name of men."

"Men are the heads of households."

"It is not the system."

"Women cannot get loans for animals; they have no security (land)."

"The Dairy Cooperative Society is in the Panchayat Bhavan. Women will feel shy to come out to the Panchayat Bhavan."

"She wants to work, does not want credit for her work."

"There is no other place for women to meet."

There are some of the answers.

But none of these are valid arguments!

IRDP loans for animals don't need security. Land can be held in joint names. Both husband and wife are joint heads of the household. The Panchayat Bhavan can be given once or twice a month to exclusive women's meetings, if need be. There can be a Government Resolution to have men and women as joint members (husband and wife) in the Dairy Cooperative Societies or there can be a few women's Dairy Cooperative Societies in every block. In Maharashtra women's membership in Dairy Cooperative Societies is 5.6 per cent - absurd considering their work participation in dairying.

As it is, I was told that there is a Government Resolution (GR) that 30 per cent of Directors of every cooperative have to be female. BAIF can lobby with the Government to send a circular to this effect for Dairy Cooperative Societies if the study shows that this GR is not implemented.

The point is that BAIF has the legitimacy to do a study of women-in-dairying in Maharashtra as a policy document.

Recommendation 1 :

BAIF is to initiate a study focussing on areas of influence on policy changes in favour of women in the dairying sector (for example, in women's membership of Dairy Cooperative Societies in Maharashtra). Based on the findings of this study, BAIF should be involved in influencing policy promoting the membership of women.

2. Sectoral studies

By 'sector' I am referring to various production groupings of an economy - agriculture, dairying, sericulture etc. In India, it was a guesstimate in 1985 that 75 million women were engaged in dairying, 8,00,000 in sericulture, 2 million women in khadi and village industries, 3 million in handlooms etc. So sectors hold promise as the unit of analysis and intervention, to be applied in projects designed to support the livelihoods of poor women.

Mainstream development programmes coexist in India with anti-poverty programmes. Mainstream development programmes are along sector lines, critical activities of the economy are assigned to these Ministries, there are significant budget appropriations, there are specialised Ministries or Departments for support and development (e.g. Ministry of Agriculture).

Anti-poverty programmes like IRDP are assigned to Rural Development Departments, women's programmes to Human Resources Development Ministries, which are unspecialised Ministries.

Most women we saw on our visit to BAIF were working in several production sectors - agriculture, sericulture, dairying, (agriculture including vegetable cultivation, horticulture, sugarcane production, jowar cultivation).

But they are likely to get left out of mainstream sectoral plans and programmes because Government planners (mostly men) do not view women as producers in major sectors of the economy.

Therefore BAIF could build on present experience and develop sectoral case-studies with sector-specific analyses.

Some examples are :

- women in dairying, sericulture, agriculture (women in vegetable, sugarcane, jowar cultivation).

The study on the wavli programme is an excellent example of a prototype.

This sectoral approach could benefit BAIF women's programme in several ways

- it will link women to sector-specific Ministries
- it will make their work visible
- it will present a case for women as economic agents and legitimate clients for mainstream programmes and policies of the Government
- it will enable, through developing pilot interventions to meet the needs of specific sectoral women's groups, large numbers of women in these sectors to benefit

- it will, by organising women around problems in each sector, promote empowerment and economic goals
- if various systems of production and distribution of women's and men's roles in each sector are documented, it would assist sectoral Ministries to apply a gender perspective to their planning.

Recommendation 2 :

In the process of strengthening existing and introducing new livelihood and income-generating activities for women in key sectors of the economy, clear understanding of the economic, social and political context is necessary. BAIF is to carefully design these projects bearing in mind women's workload, women's capabilities and training needs, women's access to income, women's access to decision-making, producer organisations, etc. ~~As a basis for such a project design, BAIF is to carry out sectoral studies.~~

3. Pilot action projects

In order to 'ground' the sectoral studies, BAIF should develop some pilot action projects over a fairly wide geographical area. Some of BAIF's projects can be expanded and tested out in a large area.

- women in dairying
- women in vegetable cultivation, horticulture (wavli)
- women in sericulture
- women in buffalo upgradation
- women in sugarcane production etc

For example, some components of the project in the dairying sector can be

- women as extension staff
- women as supervisors and managers
- women as paraveterinarians
- decentralised veterinary care
- changes in cooperative membership rules
- changes in technologies
- improved techniques of food production
- milk processing
- linkage with IRDP, loans and subsidies
- cadre of veterinary doctors
- extension of milk collection centres etc.

These pilot projects for women in the critical sectors of the economy, will have the explicit objective of mainstreaming women into the major sectoral plans and programmes of the Government. The pilot projects will be documented through a series of case-studies. Then, dialogues with Ministries will follow, and the pilot projects can lead directly to changes in macro-policies. The pilot projects together, will lead to a "pilot movement" and form a strong platform for seeking broader legal, social and political gains for disadvantaged women and women will get the benefit of a wide range of interventions and support.

Recommendation 3 :

With the experience gained in involving women specifically in livelihood and income-generating activities, pilot action projects can be set up in different sectors to act as demonstrations for wider application by Government parastatal and non-Government bodies.

Outreach

4. Terminology

Eliminate use of words 'mankind', 'manpower'; it may not be important in itself, but for newcomers it immediately will give a message.

Don't use the term "head of the household". If we are arguing that the family is the unit, the next obvious statement is that - we consider men and women to be equal within the family - otherwise it is not consistent with our goals. Then the term "head of the household" applied to men is misleading. There can be some statement like "The Government uses the term "head of the household" generally for men (or the husband); we consider that both the husband and wife are heads of their households."

Cards for AI are in men's names. These can be in joint names, husband and wife.

In talking about 'husband' the words yajman and malik should be avoided. Some more neutral term should be found.

Recommendation 4

Terminology has to be in tune with egalitarian attitudes towards women.

5. Women's policy document

What is BAIF's policy on women? Is it to see and design projects for women as economic producers in key sectors of the economy? Is it to see and design projects for women as wives and mothers? Why is BAIF wanting to integrate women into development? National welfare reasons? Productivity resources? Family welfare reasons? Result oriented reasons? Human rights arguments? Greater need? These questions should be addressed and articulated.

Recommendation 5 :

A comprehensive BAIF women's policy document should be written, which will lay out the framework and paradigm within which BAIF's entire women's development programme would be situated.

6. Social issues

Again and again in the course of our visit, several social issues were raised as problems of women. Social issues have an important role. Generation of income is of no use if earnings are dissipated. For the programme to reach its goal of improving the quality of life, it is essential to go beyond gainful self-employment. The project has to generate a clear understanding of negative/destructive "customs" or "habits" such as alcoholism, ploygamy, dowry and bride-price.

Recommendation 6 :

BAIF is to initiate locale-specific and sensitive studies on social issues like polygamy, dowry, bride-price etc. The studies should be taken back to the community to develop interventions through a participatory methodology.

Energy

Women cook, women collect cow dung, make cow dung cakes. Women bring fuelwood from long distances, which is adversely affecting the environment. Therefore well-knit energy systems should be developed for women, energy should be perceived as a women's issue. Some possible interventions are improved, locale-specific chulhas; biogas for smaller number of cattle; fuelwood plantations etc.

Recommendation 7 :

Action projects on energy use should be designed in consultation with women and tested in the field through women's groups at village level with special reference to reducing womens drudgery.

8. Capability development for women-in-development and gender issues

In order to carry out these policy studies, sectoral studies and sectoral action projects, there should be concerted efforts at all levels

Top-level - women's policy document-preparation and presentation to an Advisory Committee consisting of women's studies specialists, women researchers, women with experience of grassroots action projects etc.

- a person to go to the three-month course "Women, men and Development" at IDS-Sussex.

Middle level - gender sensitivity programmes developed for all staff.

- field visits to key women's development organisations in the country.
 - a collection of important documents pertaining to women's policy development.
- Field level - study tours to women's organisations in the country related to their sectors, followed by sector specific workshops.
- Grassroots women
- study tours to women's organisations in Maharashtra/Gujarat followed by sector specific workshops.

Recommendation 8 :

BAIF should invest in providing the necessary capabilities for women-in-development and gender analysis to all levels of BAIF staff. Research, documentation and implementation skills consonant with women-in-development and a gender sensitive approach should be systematically built up at all levels for both women and men.

9. IDRC Research Projects

Having said all this, it is obvious that IDRC Research Projects should be located within the framework of the women's policy document, and are linked to each component. For example, the sericulture research project is linked to women's work, the agricultural sectoral study is related to the mushroom research project (agriculture waste), the buffalo frozen semen upgradation project is related to the women's membership of Dairy Cooperative Societies etc. And yet these linkages are not adequately understood. So a workshop should be held for each Research Project.

Future research projects should begin with these types of workshops. A Spear Head Team of women should be formed with technically trained women, women social scientists, village-level women field staff (like the balwadi-cum-field guides) who can travel to all BAIF projects and provide necessary women-in-development and gender analysis inputs.

Recommendation 9 :

To begin the process of understanding these linkages, BAIF is to initiate a series of periodic workshops bringing together scientists, extension staff, field staff and grassroots women, in order to generate more understanding of the specific social and economic environment in which the project will be implemented.

Appendix 1:

Field tour

November 13, 1991

Brown dust swirls everywhere...falling on huge teak trees in brown-green flower...the thick-stemmed thor in interesting thorned-swollen-fleshy-cacti-specific shapes... dust... grey-brown hillsides.. eroded...again swirls of dust masking low brown-red tiled, bamboo-fenced houses...women in dusty saris tucked in at the back,..pulled up to the knees...she walks in poverty...a torn blouse, wrinkled skin due to years and years of hard drudgery..a dirty towel over a shoulder, sometimes the sari is worn around the blouse in deference to middle-class Hindu value- systems ..dirty streams..thin cows nibbling at the dried grass, closely grazed by now...what are they eating? Only for the satisfaction of chewing...

In pockets all this is changed..there are wadis ... orchards .. of healthy bright-green mango trees, fenced by thor... acacia, and bright-green, bamboo clumps.. casuarina, eucalyptus; subabul - grass growing in plenty -- stubble of cut nagli....wavlis of vegetables, nurseries, mango graffs, women with brass trays, copper glasses...bright-red sindhur; bright orange marigolds ...scented-green-stemmed, garlands ... rice on the sindhur..while flowers...she is dressed in a bright violet blouse...yellow sari, rangoli..beautiful colours ..

Vansda

We hear that BAIF is working with 5500 families in this area, through 15 to 20 field guides (men) and 37 health guides (women), Block Programme Officers.

Chonda

The first village we visit is Chonda. Here a large group of women and men are waiting for us (more women than men)..Women participate in wavli programmes. 119 women have registered themselves. 17 women earned at least Rs. 800 each in one season (from water-melons).

307 families are in the wadi programme. We meet in a community hut (this is called a Sanskar-mandir and was erected by the community, and serves as mobile health clinic, balwadi, meeting-place). SaniBen Ikhar Bhai - she tells us about her participation in the wavli programme. From water-melons she earned Rs.1250. She used it for clothes, children's books, other household expenses, chillies, oil. alcoholism has been stopped !

We are greeted by the women with red vermillion "kumkum", flowers, rice grains applied to the forehead. The women are very colourfully dressed-bright yellow, deep pink, dark

green. The typical way of wearing the sari, with a pleated kashta (pleats tucked up behind) and the sari up to the knee is very attractive, gives them freedom of movement.

Raghu Bhai Chiman Bhai Gamat says "We were never meeting like this before ! Even five or six of us never met. The wadi programme is so popular ! We, who migrated for so many months never do so. We worked even during Holi !

Then we visit a Cattle Development Centre working in 15 to 20 villages, also in Chonda. We meet SomiBen Nagli, a beautiful Warli woman. She has taken training in cattle-rearing. 89 women and about 40 men took the training. 80 to 85 women got loans for cows and so own them. "How many women on Cooperative Board of Directors?" I ask, "None."

I ask about dairying operations. "Women do all operations, including milking !" "Out of 80 wadis, 17 are owned by women."

Ravania

The next village we visit is Ravania. We meet Amit Patel, Block Programme Officer, Raman Bhai, field guide. The traditional 'dais' show their birth kits. Fourteen women talk proudly about their wavli programme - they got about Rs. 3000 each from water-melons. We also meet Chetna Ben, Chanda Ben, Amba Ben, health guides, they talk about their work.

AmbaBen also shows her mango grafts. she has seen the mango processing plant (IDRC Research Project).

We see the individual dairy of Shanta Ben. She has five cows, all crossbred. She is so beautiful in her green sari and carries herself with so much poise. Her house and life has been transformed due to the crossbred cows !

We talk over a delicious lunch under a shamiana. We hear about the problem of polygamy. "In tribal areas, women can marry again. But that is not the point. When a tribal man brings home another wife, it hurts. And when he tries to send away the first wife, and gives her some money, it hurts more,"

Godhmal

Here also we are greeted with red kumkum, rice grain, garlands. Beautiful rice flour and coloured powder rangoli (patterns) on the ground. A lot of tribal women meet with us. Ramti Ben "All our children go to school. I used to migrate to Navasari to do harvesting for Rs. 3 a day. Now I never go. I earned Rs. 2000 from mango grafting; from watermelon I and 13 other women got Rs. 18000. We also grew vegetables, teak nurseries. I put new tiles on my house, I

bought new vessels. My two daughters go to college." I ask about marriage customs. "Bride price still remains." I say with fervour "Don't change your bride-price system, ever."

Sangamner

November 14, 1991

"In 1978, the prosperous Sugar Cooperative sponsored BAIF to run five Cattle Development Centres. These were started by us. Today there are ten." "Today the milk collection has gone up to 90,000 litres a day, from 5000 litres in 1978; to 30,000 animals from 11000 animals. Some crossbred animals (Holstein) give 2600 litres per lactation, as opposed to the earlier 250 litres per lactation. Today there are no scrub cows. All are crossbred cows. Even farm labourers have crossbred cows now. In 1978-80, we tape-recorded words of experts on dairy management and played it every morning. Women in the kitchen also heard it."

At a nice function, every male guest is presented with a red turban and I with a Maharashtrian blouse piece. But there are no women in the audience, and no women on the Board of Directors (this is the Dairy Union).

It is a sugarcane economy. Bullock carts carry loads of sugarcane with poverty-stricken migrant workers to sugar factories...

We go to a Dairy Union (Akole taluka, Ahmednagar district) in a tribal area. Here the members (again all men) welcome us with coconuts, huge roses, shawls, a lot of affection, hope. There are two all women's Dairy Cooperative Societies out of 111. The sun sets in orange-red flame; the tracery of thorny babul trees against the sunset...dust swirls..then a half-moon, as it darkens the orange-red deepens and becomes purple.

Manibhai speaks "Self-reliance is important...use local resources. Ram touched the stone which was Ahalya with his toe; she became a woman once more (after 12 years of being a stone) and worshipped him..'it is not I' Ram said, 'it is your capacity.' Like that, it is not I, it is your capacity. You may worship Khalsu Bai (a local deity). But the work has to be yours."

Black crossbred cows watch us from over the fence, with a tinkling of bells around their necks. And as I listen to Manibhai it is as if poverty-alleviation in India is possible.

Chitsondi, Akole taluk, Ahmednagar district, November 15, 1991

Again we meet many tribal women - Usha Bai, Gopa Bai, Mira Bai...they had grown mushrooms - the village testing end of the Mushroom Research Project. The women are very excited. The mushrooms are thriving.

"What is the main problem of women in your village?" I ask "Water, fuelwood, ...irrigation"...We are in a hurry. I could have talked to them for hours.

Mahnere

There are mango grafts, brilliant-yellow sunflowers, chana dal (a pulse)...growing everywhere..the prosperity is there for everyone to see. especially the bright-yellow sunflowers, against the brown barren hill-sides...

These are poor households...women wear old torn saris, yet beautiful antique handloom,..tiles of the houses are falling down...

Women tell us about their work - "sowing, weeding, harvesting", "oh everything!" "What crops?" "nagli, dhan, wheat, sunflower, legumes." "Men do only ploughing." "Do you work in the wadi also?" "ofcourse- pit-digging, filling with manure, watering, grafting..." "Women here grew six lakh saplings."

Water storages...orange marigolds... Bagha Bai, Budha Bai...beautiful women, living in poverty...yet with dignity.

Kadus

This is an agro-forestry day (afternoon) the success of curry leaves, sweet neem...

Again women gather.."Which plants do you like?" I ask "We like whatever is planted." "We work in the fields; we do all work ! We grow onions, potatoes, tomatoes;"

"What are women's problems ?"

"Fuelwood, to collect it takes one hour ! Earlier there was not so much population, not so much barrenness. Lots of trees were there, specially on the hills around. There is only one borewell; bringing water takes a lot of time."

"The lift irrigation-not getting enough water from the river..."

"The land ownership is small. We have only two acres, one acre, 1/2 acre...in the husband's name or the father-in-law's name."

"Whatever husbands give, we have to eat, whatever they bring, we have to wear!"

"Would it be good to have land in joint names of husband and wife?" I ask.

"It would be very good! Those who drink, he cannot sell off the land!"

"Earlier there was no dowry. The 'girls' were getting oil, jaggery, paddy, Rs.100. But now there is a lot of dowry demand."

"Earlier both were uneducated; now only boy is getting educated."

"Boy's father and mother are not agreeing to marriage without dowry."

"Five or six girls have been burnt for dowry, in the surrounding villages."

"The husbands of these unfortunate girls pretend they didn't agree to the burning, but actually they knew and agreed."

We are called to the meeting. Several women come with me.

We sit under the big thorny babul tree.

Once again I am very impressed by Manibhai's speech. He has sincerity, honesty, conviction, simplicity.

"This is our team of friends. They have seen our mango, mushrooms, milk and now agro-forestry.

This is a daughter of Madras, working in Patna. She says - women are treated unjustly. We have special programmes for women.

In the wavli programme, women get the complete share; but in our male-dominating society, women are neglected. She should have equal importance in decision-making and share of income. BAIF has this approach of involving women in all programmes."

Once more, in the golden evening sunlight, it seems to me that the lives of rural poor women can still change.

APPENDIX 2

Individual responses to my question: Why involve women
(in BAIF's Programmes) (asked when alone)

Dr.S.B.Khadilkar (Joint Programme Co-ordinator)

"She is part of the family. To improve families, how to involve her, in all spheres".

Dr.D.V.Rangnekar (Research Programme Organiser, Gujarat)

"There is no debate on this anymore ! When we involved wives of our field guides, so women's groups have been formed. This can grow to 100 groups. Women have to be involved in livestock development, in agriculture". He also talks of Mahila Samakhya.

Dr.Bhide (Veterinarian in Karad)

"Better results !"

Dr.B.R.Mangurkar (Research Programme Organiser)

"No. 1 aspect is that of employment (Maharashtra). Opportunities - these are less for women. Giving her employment opportunities will improve her status in the community.

Mr.G.G.Sohani (Research Programme Organiser)

"There is an inequity which is unjustifiable".

Manibhaiji

"We have to make democracy dynamic, viable for rural women, rural children. She cannot be under the domination of men". "Quality of living of rural families should be improved. Women in a family control over 70 per cent of the family (including children). We must enter the family either by the front door or the back door.

Mr.Karandikar

"Within the family, the woman is poorer, discriminated against. We can remove this. Also she is the change agent in the family.

FOURTH YEAR EVALUATION
OF
INFORMATION ASPECTS
OF THE
IDRC/CIDA CO-FINANCED
BAIF RESEARCH FOUNDATION - RURAL RESEARCH PROJECT
PROJECT NO. 468/15018
FOR
CIDA, IDRC & BAIF
BY
MR SINHA
INFORMATION SPECIALIST

Table of Contents

	Page
1. Introduction	1
1.1 Purpose and terms of Reference	1
1.2 Evaluation Methodology	2
2. Objectives and structural setup of BIRC	2
3. Evaluation	4
3.1 Operational Evaluation	5
3.1.1 Library and Information Services cell	5
3.1.2 Computer Services Cell	10
3.1.3 Communication Cell	20
3.2 User Evaluation	21
3.3 Economic Evaluation	23
4. Conclusion and Recommendations	23
Appendices	
1. Work schedule for Evaluation	26
2. List of files and documents examined	27
3. Equipments with Computer Services Cell	28
4. Equipment with Communication Cell	33
5. Persons Interviewed	34

**EVALUATION OF THE IDRC-CIDA SUPPORTED BAIF
INFORMATION RESOURCE CENTER (BIRC) AT THE BAIF
DEVELOPMENT RESEARCH FOUNDATION, PUNE, INDIA.**

Report of Mission 12-28 November 1991

I Introduction

1.1 Purpose and Terms of reference

The Report presents the work done in a 17 days mission between 12 - 28 November 1991 at the BAIF Development and Research Foundation (BDRF) at Poona, its campuses at Urulikanchan, Wagholi, Vansda and various field stations in Gujarat and Maharashtra. The work schedule for evaluation is presented in Annexure 1.

The terms of reference of this mission, provided in the document entitled " Workplan for the fourth year evaluation of the IDRC/CIDA co-financed BAIF Research Foundation - Rural Research Project No. 468/15018 for CIDA, IDRC and BAIF" dated November 1991, are to :

- (i) assist in the technical and administrative assessment of BAIF's research projects and in the assessment of the efficiency and effectiveness of the delivery and support to BAIF by IDRC;
- (ii) review and assess BAIF Information Resource Center (BIRC) as to its functioning, resource material and output of information;
- (iii) review and assess the role played by BIRC in meeting the needs and requests of the extension field staff and the research staff;
- (vi) review and assess BIRC as to its meeting BAIF's programme management needs;
- (v) review and assess the level of acceptance and use of BIRC by field staff, research and scientific staff, scientists and organizations outside of BAIF, farmers and other members of the target groups;
- (vi) review and assess the degree of impact of BIRC on the operation and development of the research and programme delivery activities; and
- (vii) document BAIF's linkage with NGO's and other organizations in the use of the scientific information and development of the delivery of development

programmes.

1.2 Evaluation Methodology

The methods used for evaluation of BIRC are as follows:

- a) study of the functioning, resource materials, and information products and services of BIRC;
- b) discussion with the staff of BIRC;
- c) examination of the databases and formats and standards used for them;
- d) interviews with user community to examine the extent of its requirements met by BIRC and to know its views on overall functioning of BIRC; and
- e) examination of relevant files and documents.

In general, an attempt has been made to determine whether BIRC is operating along the lines spelled out in the IDRC-BAIF agreement; how well the BIRC resources, facilities and services meet the needs of intended audience; whether the methods used to meet these needs are most appropriate; whether there are areas of either unmet needs or suboptimal operating conditions; and whether BAIF's activities have resulted in bringing economy in overall functioning of BAIF. Recommendations have been provided, wherever required, to bring operational improvements in the those functions which need strengthening to meet the project objectives.

2. Objectives and Structural setup of BIRC

BAIF's development research activities extend to dairy cattle production, agroforestry, socioeconomic rehabilitation of tribal people, renewable source of energy, wasteland development, women in development, health care, sericulture, rural housing and post production activity. Human resource development also form part of the core-activity of BAIF. Regular training programmes are arranged by BAIF for farmers, community functionaries, researchers, and extension staff. To provide information support to these activities, an Information Resource Center has been setup by BAIF with the financial support of IDRC, Canada.

2.1 Objectives

The objectives for setting-up BIRC are as follows:

- a) to document and create databases of BAIF's research and development achievements;

- b) to provide information services to BAIF's scientists;
- c) to identify the areas of communication within BAIF and develop applications accordingly;
- d) to impart training to BAIF staff about use and capabilities of micro-computers;
- e) to develop and procure communication material such as audio-visual and printed aids to facilitate training; and
- f) to assist in the publication of the BAIF's Annual Report, books, newsletters, and promotional materials.

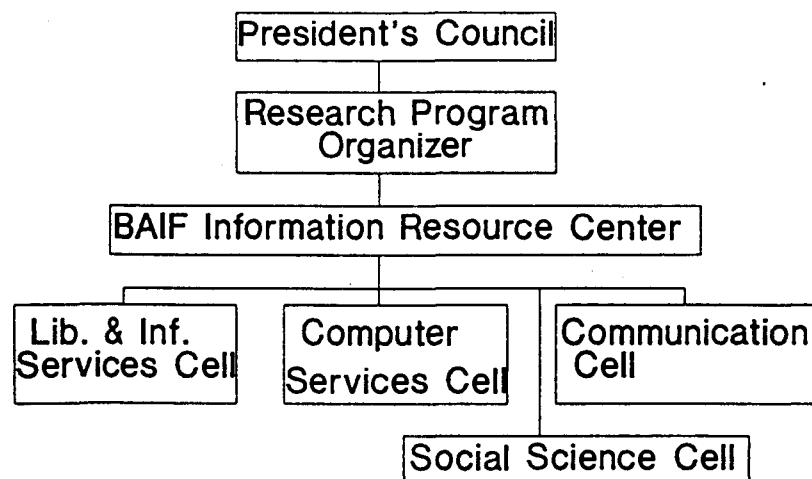
2.2 Organizational setup

BIRC is provided status coordinate to other Programmes of BAIF. Figure 2.1 provides organizational set-up of BIRC. The BAIF Information Resource Center (BIRC) has programmes in the areas of library and information services, computer services and communication. For each of these activities a separate Cell has been created and designated as:

- Library and Information Services Cell;
- Computer Services Cell; and
- Communication Cell.

A Social Science Cell also functions as a part of BIRC and is involved with social science aspects of the field programmes of BAIF.

Figure - 2.1
Organizational Setup of BIRC



These Cells are headed by Joint Programme Coordinators who report to a member of President's Council of BAIF. Figure 2.2 compares the approved and existing staffing of BIRC. All the existing staff are paid their salaries through IDRC funds.

Figure - 2.2
Staffing Pattern of BIRC

Cell	Staff		Gap
	Approved	Existing	
1. Library & Information Services Cell	4	3	1
2. Computer Services Cell	7	7	0
3. Communication Cell	2	2	0
4. Social Science Cell	2	1	1

In the Library and Documentation Services Cell, at present, there is only one person who has formal training in library and information sciences. Another staff member who has this training is away to USA for one year on a scholarship to do a course in library management. One approved position has not been filled so far. In the Social Science Cell also one of the approved positions is vacant.

3 Evaluation

As the social science aspects are covered by Mr. Marcel Zollinger and Ms. Viji Srinivasan in their evaluation reports, the present report covers the evaluation results of the following Cells:

- Library and Information Cell;
- Computer Services Cell; and

- Communication Cell.

These Cells of BIRC are functioning separately and therefore they have been evaluated individually. However, care has been taken to see that the interaction between them is not overlooked and gaps in their support to each other, if found, are highlighted. The evaluation results are presented under the headings: Operational Evaluation, User Evaluation and Economic Evaluation.

3.1 Operational Evaluation

3.1.1 Library and Information Services Cell(LISC)

3.1.1.1 Proposed Activities

The five operational areas of LISC, referred in the BAIF's documents " Performance Report, Oct. 1990 - March 1991" and " Reference Notes on Library and Information Services Cell, September 1991", are: (1) creation of a central information base; (2) setting-up in phases of regional information dissemination centers at different BAIF campuses; (3) use of computer to create and maintain useful databases; (4) dissemination of relevant information services and products to user groups within BAIF; and (5) to act as an information resource center on appropriate technologies for development.

The operation of LISC in these areas help to achieve BIRC objectives (a) and (b) listed under section 2.1.

3.1.1.2 Accomplished Activities

3.1.1.2.1 Information Resource Building

LISC's main information base is its Library at the Pradeep Chambers in Poona where BIRC is located (henceforth called as the Library). Small reference libraries also exist at the Kamdhenu, Urulikanchan, Wagholi, Akole, and Vandsa campuses of BAIF to meet specific requirements of the staff located at these places(henceforth called as the Campus Libraries). There is a slow but steady growth in library collection. These libraries together account for 4780 books, 178 journals (mostly Indian), 842 documents in microform obtained mainly from VITA, USA, 111 reprints, and 180 reports (mostly falling under gray literature category). The Library serves as a depository of reports and documents produced within BAIF. It acquires documents through purchase and membership and receives documents on gratis. Though BIRC has linkages with many institutions, both within and outside India, no exchange relationship exists with them. Figures 3.1, 3.2 and 3.3 show yearwise growth of books, journals and microfiches.

Figure - 3.1
Book Collection: Yearwise Growth

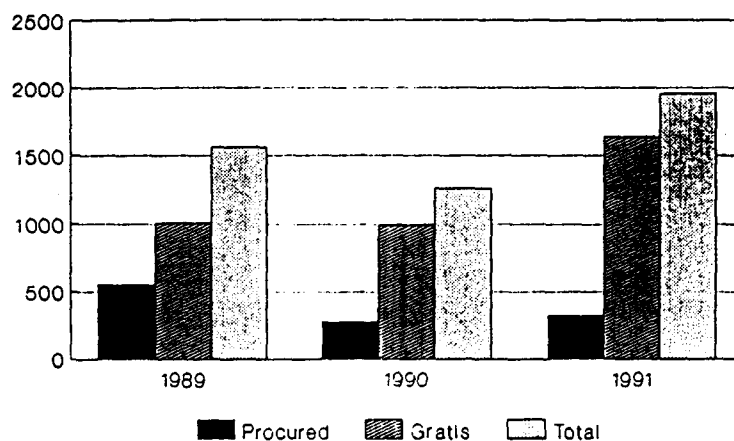


Figure - 3.2
Journals - Yearwise Growth

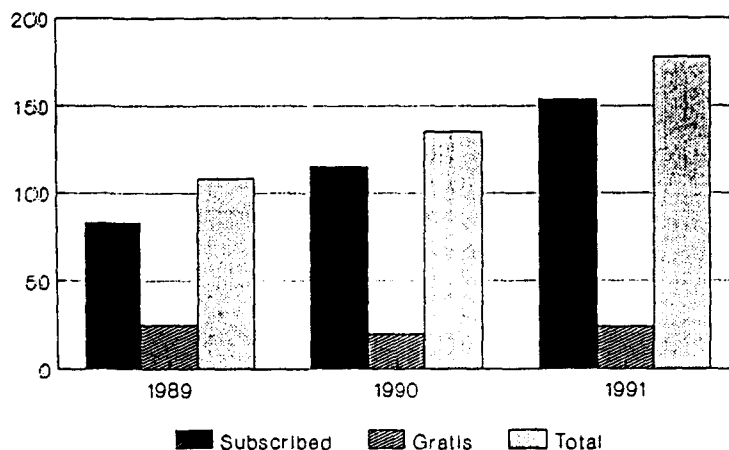
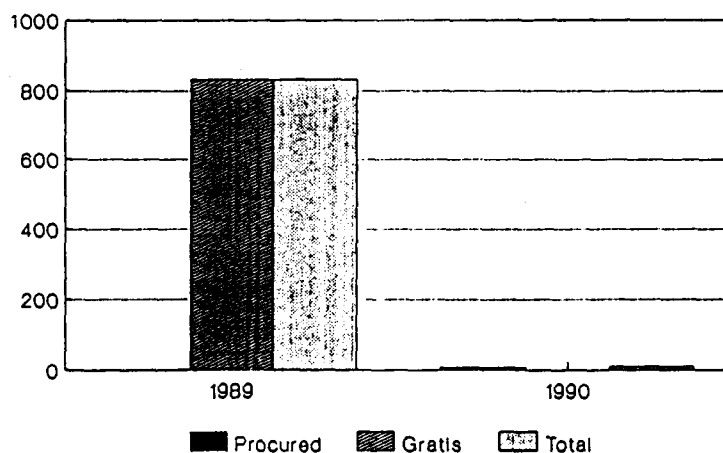


Figure - 3.3
Microfiche: Yearwise Growth



The Library accessions only those documents which are purchased. Maintenance of records of documents received on gratis has not been considered necessary even though they

form majority in the Library collection. The acquired documents are classified and cataloged centrally and input is provided for them to the centrally maintained database at the Library. Books and journals are acquired based on a well laid policy wherein every Programme Leader assesses requirements of its programme and informs the Library to acquire documents. The Library staff circulate publication catalogs obtained from publishers/ book vendors and seek recommendations for acquisition of books. The Library does not maintain a list of representatives of foreign publishers in India. Books are ordered through a few known vendors who often do not represent foreign publishers whose publications are required. This sometimes causes delay in acquiring the publications. Books are classified according to Dewey Decimal Classification (DDC) and cataloged but no printed catalog cards are produced. A schedule has been drawn with the topics and class numbers taken from DDC to classify books. A central database has been created which is provided input for the books acquired in the Library and it is used to search and locate a book. The books acquired for the Campus libraries are sent after technical processing but without catalog cards.

In case of journals, sample copies are often obtained to assess their usefulness, before they are subscribed. The records related to journal are maintained in Kardex. This system is working satisfactorily.

3.1.1.2.2 Use of Computer

LISC has utilized computer facility to develop several databases using UNESCO's Micro CDS/ISIS (Ver. 2.3) software. A library staff has received training in use of this software at a UNESCO sponsored workshop at Kiev, Russia. Three members of Computer Services Cell have also attended 5 days course on this package at the Pune University. These trainings have helped to build skill within BIRC in use of Micro CDS/ISIS. LISC has acquired a CD-ROM reader to access databases available on CD-ROM disks. A plan has already been drawn to acquire CABI database on CD-ROM and use it from the start of the next year.

3.1.1.2.2.1 Bibliographic Databases

BIRC has developed the following bibliographic databases with the use of Micro CDS/ISIS:

- CRS database;
- IRC database;
- Biogas Database; and
- Leucaena database.

CRS database has been designed and developed to keep

records of books acquired in the Library and provide access to the data through author, title, keywords, etc. Its structural design, however, is not suitable for integrated library application, e.g., automated book acquisition system, serials control, circulation etc. AS BIRC aims at automating its library operations, it should think of restructuring this database according to standards available on structural design of bibliographic databases so that it could be used for integrated library application. This could be done easily at this stage when volume of data is not large.

IRC database contains references of the articles selected from journals acquired in the Library by Team Leaders and researchers of BAIF. It is a well organized database and its structure conforms to the UNESCO's Common Communication Format (CCF). Monthly input to this database consists of about 70 journal articles. An Information Update service is provided using this database.

BIRC have two more bibliographic databases - one Biogas and other on Leuceana. These are specialized databases.

All these four bibliographic databases have different structures and there is no mechanism either for data validation or to check duplicates among them. As to why these databases have been organized differently and kept separately, the Library staff could not explain. Micro CDS/ISIS provides flexibility to design an integrated database and use it to automate Library house keeping jobs and provide information services.

3.1.1.2.2.2 Other Databases

LISC maintains two more databases which are not bibliographic in nature. These are NGOs and Maillist databases. The first database contains activity profiles of NGOs in three states of India viz. Gujarat, Karnataka, and Maharashtra. The data for each NGO covers areas of its operation, target group, geographic area covered by it, and its information infrastructure and facilities. The Maillist database has addresses of those Research and Development organizations who work in the areas common to BAIF.

LISC also maintains an user profiles database to store subject requirements of its users. It is used to provide Information and Article Alert services. This database however, is not used for automatic selection of references from the bibliographic databases as it is done in a computer based SDI service.

3.1.1.2.3 Information Services

LISC provides its information services only to BAIF staff consisting of 40 researchers and 72 fields officers. The services provided to researchers are:

- Monthly Information Update;
- Article Alert Service; and
- Journal contents Page Service.

Information Update is an output from IRC database and it contains citation details and brief abstracts of journal articles. This service is designed to keep researchers abreast of new developments taking place in their fields of interest. There is wide appreciation of this service within BAIF.

The Library receives reprints, newsletters, brochures, handouts, etc. from many individuals and organizations. The useful items are duplicated and sent to the concerned researchers in the form of a package. This service is designated as the Article Alert Service. The originals of the selected items are kept in two files. These items are neither indexed nor entered in any of the bibliographic databases so that they could be referred and used, in future, if required.

Through Journal Contents Page Service, contents pages of new issues of the journals received in the Library are photocopied and sent to the researchers. The relevant articles identified by the researchers are photocopied and supplied by LISC.

The extension staff of the level of Block Development Officers receive from LISC popular type of articles of direct relevance to their work. The topics covered are agriculture and agroforestry, horticulture and wasteland development, health, sericulture, appropriate technology, dairy cattle programme, and general development. LISC arranges for the extension staff translations of the semi-technical documents and gists of technical articles written in plain language, if they are found useful. There is appreciation of this service among extension staff but they feel that coverage is not adequate. There is a demand for more frequent supply of such materials.

3.1.1.2.4 Literature Search Service

LISC has carried out frequent searches on its in-house databases and also on AGRICOLA and CABI databases using on-line service of DIALOG. These searches have been conducted to meet demand of literature on specific topics by the researchers. LISC has conducted so far 17 on-line DIALOG Searches and 23 searches on its own databases. This service, has been found useful by the researchers.

3.1.1.2.4 Document Delivery Service

LISC's information services generate demand of documents from its users. This demand is met by: (i) photocopying the articles available in the Library; and (ii) acquiring documents from external agencies and supplying them to the requesters. No statistics exist to assess the percentage of demand met by LISC through this service. It would be a good practice if LISC starts maintaining statistics of demand and supply of photocopies to bridge gaps, if any, in its effort to supply photocopies to its users.

3.1.1.2.5 Linkages with National and International Organizations

LISC has established linkages with 13 national and 14 international organizations to use their information services and receive their publications, mostly free. These linkages have helped LISC to supplement its information resources and improve its services to a certain extent. However, a close look on these arrangements reveals a lack of definite plan on the part of LISC to properly utilize the services and facilities offered by these institutions. For example, the utilization by LISC of information services offered by FAO is restricted only to the membership of Information Exchange Network on Community Forestry. No effort has been made by LISC to use data from AGRIS database of FAO which is offered in India in the form of SDI output by the Agriculture Research Information Center (ARIC), New-Delhi. This service LISC could have utilized to build its database and also to serve it directly to its researchers. Similar services offered by institutions like ICRISAT, ILCA, ILRAD, etc., if properly utilized, might prove useful to LISC.

3.1.2. Computer Services Cell (CSC)

3.1.2.1 Proposed activities

The Computer Services Cell forms part of BIRC and provides dataprocessing support to BAIF management on its ongoing programmes. Its areas of operation, referred in the BAIF's documents "Performance Report, Oct. 1990 - March 1991" and "Reference Notes on Computer Services Cell, September 1991", are : i) building infrastructure and selection of hardware and software; ii) design and development of application programmes; iii) storage of field data and analyze them to produce analysis reports on demand; and iv) make BAIF staff Computer Conscious.

These operations of CSC fulfill BIRC's objectives (a), (b), (c), and (d) listed under section 2.1.

3.1.2.2 Accomplished Activities

The cell spent its initial years in creation of infrastructure and selection and procurement of hardware and software for use in major offices of BAIF. More computers were acquired later when applications were built up for use at major campuses and state headquarters. The equipments procured by the Computer Service Cell are listed in Annexure 3 and the software in use in Table 3.4.

Table 3.4
Software List

Sr No	SOFTWARE	DESCRIPTION	USED FOR
1.	MSDOS 4.01	Operating System	In use in all PCs, XTs and ATs
2.	UNIX 5.3.2	Operating System	AT-386+ 3 terminals currently P.F. system is working under UNIX. The UNIX environment is in use by the EDP group for systems development. Subsequent application systems will be made available for users.
3.	FOXBASE+2.1	Database Software	Applications in general and specific systems in Interpreter mode. Various application systems such as for monitoring Health programmes, Dairy Cattle Programme, Provident Fund System etc.. are already in use by various programme officers.

Table 3.4
Software List

Sr No	SOFTWARE	DESCRIPTION	USED FOR
4.	CLIPPER	Compiler for dBASE III	This is a database compiler for dBASE III and Foxbase+. Programmes written for various systems have been compiled for speedier opera- tions.
5.	AUTOCODE	Application code generator	Generates programmes in Foxbase+. Used to write pro- grammes for various application sys- tems.
6.	UBRIDGE	Screen Painter	Develops menus and screens.
7.	LOTUS 2.01	Spreadsheet	Used for spreadsheet and graphic soft- ware applications.
8.	QUATTRO-PRO	Spreadsheet	Used for spreadsheet and graphic appli- cations by Accounts Dept.
9.	SPSS/PC+	Data Analysis software	For data analysis of surveys, re- search studies. This is used by the EDP and a few programme officers.
10.	IDAMS PC	Data Analysis software	It will be used for data analysis at other campuses of BAIF. As SPSS cannot be installed at all the places because of its high cost, this software will be used for smaller data analy-

Table 3.4
Software List

Sr No	SOFTWARE	DESCRIPTION	USED FOR
			sis jobs.
11.	HARVARD GRAPHICS	Graphics package	Used for graphics, and slides making and presentation. It acts as an interface to SPSS to present data analysis results in graphic form.
12.	GRAPH-IN-THE-BOX	Graphics package	Same as in 11.
13.	MAP MASTER	Mapping package	This is the mapping module of SPSS/PC+.
14.	SLIDE MAKER	Text Slide making software	Used for making slides of text matters.
15.	ETHNOGRAPH	Ethnography	Used for qualitative data analysis. Analysis can be done using Wordstar files. This is used by Social Science Cell.
16.	TELEX	Electronic telex program	For sending and receiving telexes.
17.	ZOOMIT	E-Mail programme	For communication with IDRC & other Zoomit users.
18.	IWORD	Wordprocessing software	For wordprocessing use under UNIX O/S.
19.	FOCUS 5.5	4 GL Relational DBMS	For applications development in UNIX. Currently being used for developing applications in 4 GL.

Table 3.4
Software List

Sr No	SOFTWARE	DESCRIPTION	USED FOR
20.	XEROX VENTURA	Desktop Publishing software	Used for page layout and typesetting of Journals, News-letters etc .. Mainly used by the Communications group.
21.	WORDSTAR 3.3	Wordprocessing software	For wordprocessing use. All secretarial staff and administrative staff use this package. Training has also been given to programme officers to use this package
22.	WORDPERFECT 5.1	Wordprocessing software	For wordprocessing use. BAIF staff are receiving training in use this package. BAIF will use only Wordperfect in the future.
23.	ALLOY	Tape backup software	Used for taking backup of data on a 40 MB tape cartridge. This software is used to format tapes, copy files and erase files from tapes.
24.	SPIRS	Silver Platter	Used to read databases on CD-ROM like AGRICOLA etc.. This software came along with databases on CD-ROM.
25.	TRUE MOUSE	Mouse driver	

This cell has now 7 professionals working on different aspects of computerization. Among them are one Joint Programme Coordinator, who is also head of the Cell, one Senior Programmer, 3 Programmers and 2 Junior Programmers. They all are paid their salaries through IDRC funds.

IDRC has also contributed in other ways besides providing funds. It has provided information on software packages suitable for BAIF's specific applications and deputed a Senior Telematic Officer for finding out ways to provide communication and data transfer facility between the fields and headquarter of BAIF. IDRC has helped BAIF to be included in the Zoomit network which has a gateway to DIAL-COM users to provide Mail facility. IDRC is also helping in arranging training for BIRC staff.

Many of the professionals of the Computer Services Cell have undergone short term training after joining BIRC in system analysis and design, statistical techniques and in use of special software, such as CDS/ISIS, FOCUS etc.

3.1.2.2.1 Design and development of application systems

The Cell identifies areas for computerization in consultation with Programme officers. Help of Concerned BAIF Programmes is also obtained for system design and testing of software. The application systems developed by the cell so far are for fiscal and stores management and to provide support to various programmes in field data capture, management and analysis. The Table 3.5 summaries the major application systems developed by the Computer Services Cell.

Table 3.5
Summary of Application Systems

Application system	Software used	Year of implementation	Description
1. Payroll system	CLIPPER	1988-89	Developed for monthly payroll processing.
2. Financial Accounting system	COBOL	1988-89	It captures all expenses and grants received and generates various mandatory reports and books of Account.

Table 3.5
Summary of Application Systems

Application system	Software used	Year of implementation	Description
3. Project Monitoring system	CLIPPER	1988-89	Developed to monitor ongoing projects. It also acts as database of project proposals submitted to sponsoring agencies.
4. Personnel System	FOXBASE	1988-89	Complete personnel record of BAIF is stored.
5. WADI Monitoring System	CLIPPER	1990-91	Maintains the familywise details of the beneficiaries of the Wadi projects in Maharashtra, Gujarat and Karnataka. It generates Activity completion reports, payment lists, reports on nursery raising etc.
6. Mother and child health care Monitoring system	CLIPPER	1990-91	Designed to monitor the MCH clinics in 37 villages in Vansda. Villagewise data relate to births, ANC'S, immunization, treatment given, deaths and high risk cases.
7. Dairy Cattle reporting system	Foxbase	1990-91	Captures data related to dairy cattle Production in six states of India.
8. Provident fund System	Foxbase	1990-91	Provident Fund Accounting System

Table 3.5 (cont...)
Summary of Application Systems

Application system	Software used	Year of implementation	Description
9. Data capture & validation system for sericulture research.	Foxbase	1991-	The system development is in progress.
10. Inventory control & stores accounting	CLIPPER	1990-91	Developed for Central Research Station at Urulikanchan.

These application systems have been found working satisfactorily. The implementation of these system has helped BAIF in regular monitoring of its projects, financial analysis and in generation of timely reports.

3.1.2.2.2. Analysis of research and field data

The Computer Services Cell has helped BAIF's development and research programmes to analyze data of surveys and experiments and produce analysis reports. The collected data is organized in the form of databases. A list of data analysis works undertaken by the Cell is presented in Table 3.6.

Table 3.6

Data Analysis: Jobs Undertaken by the Computer Services Cell

Type of data	software used	Type of Work Done for analysis
1. Baseline surveys at Vansda & Urulikanchan	Foxbase, SPSS/PC+	Data from 37 villages on demography, education, occupation, land as agriculture, livestock assets, dietary pattern, morbidity were analyzed. Various summary reports were generated.
2. Nutritional status underfives & mothers in Akole	Foxbase SPSS/PC+	Data on survey conducted in 2 Underfives & mothers villages of Akole to study causes & prevalence of protein Energy malnutrition.
3. Diagnostic Camps data analysis	Foxbase, SPSS/PC+	
4. Study of Wavli practices among tribal women in Vansda	Foxbase SPSS/PC+	Analysis of data related to socioeconomic status of tribal, reasons of migration, types of trainings imparted on Wavli and their effectiveness, Wavli income and extent of participation in Wavli.
5. Agroforestry data analysis	Foxbase SPSS/PC+	Survey data on agroforestry, benefits gained by farmers/families. through participation in agroforestry etc. were analyzed and reports were generated.
6. Impact study of health education	Foxbase SPSS/PC+	Survey data includes anthropometric measurements, ENT problems, oral in School Children exam. data, skin diseases, etc.

3.1.2.3 Networking

The Computer Service Cell is establishing a Local Area Network (LAN) to connect computers located in the offices of BAIF at Pradeep Chambers, Pune. The purpose is to share expensive resources like Printer, Hard Disk and Software. All application programmes and databases will be accessible to various users from different locations. BIRC has recently procured an AT-386 to use it as a File Server for LAN. The existing PCs and PC-XTs have been connected to the LAN. Hardware installation and LAN cabling has been completed. NOVELL NETWARE is installed on trial basis and WORDSTAR, WORDPERFECT, LOTUS AND FOXBASE+ has been installed in the File Server. Wordprocessing and LOTUS applications are currently being run on the LAN. Among the application systems, the WADI Monitoring System is available on LAN.

One of the jobs which the Computer Cell has to do before LAN becomes operational, is to develop user friendly front-ends to the various systems and databases so that non-frequent users could access and use these databases without difficulty.

BIRC is also planning to connect the major campuses of BAIF through INET of P & T Department.

3.1.2.2.4 Geographic Information System (GIS)

The development of GIS by the Computer Services Cell is intended to be used in the following three diverse areas:-

(i) Watershed Development Planning which involves recording and storing of the spatial information for Watersheds and overlaying of this information to:

- demarcate land slope groups;
- develop land treatment plans for soil & water conservation;
- locate mechanical structures; and
- develop an overall watershed development plan.

(ii) Area Planning: BAIF is involved in comprehensive rural development activities in a number of contiguous areas. The activities consist of technical services (e.g. cattle breeding), infrastructure development for drinking water and irrigation, establishment of facilities (e.g. Training center) and production units e.g. (fruit processing). These activities will be developed on the basis of an area planning approach using cartographic and overlaying techniques incorporating present facilities.

(iii) Reporting and Documentation : In view of BAIF's extensive field programmes there is a need to store information on Taluka / District maps and overlay these with programme information (e.g. Impact, Survey results etc.) for reader-friendly documentation and reporting.

Though in the Work Plans of last two years the development of GIS for BAIF is included, nothing significant so far has been done in this direction except to train a staff member of the Computer Cell.

3.1.2.4. Training to BAIF Staff

The Computer Services Cell has done an excellent work in making BAIF staff Computer Conscious. A number of training programmes have been conducted on different Computer Packages. Some of these trainings have been attended by the staff of other organization in Pune, like, National Informatic Center, MEDA, DNL, etc.

3.1.3 Communication Cell

3.1.3.1 Proposed activities

Communication is an integral part of developmental activities of BAIF. The basic purpose of creating the Communication Cell as part of BIRC is to disseminate information generated through research within BAIF to the grass root level, develop materials for training to the extension staff and farmers and train the field staff so that they could convey the message of BAIF to the target audience in a more effective way. Survey of communication needs, selection of proper mode of communication, editing, bringing out publications and compilation of BAIF's Annual Report also from part of activities of the Communication Cell. Specifically the areas of operation of the Communication Cell are : (1) on-going review of the communication needs; (2) evaluation of the communication material produced and acquired, to assess their effectiveness; (3) pretesting of the communication material produced; (4) identification of the subject areas; and (5) production of audio visual communication aids, printed materials, audio programmes in cassettes and materials for broadcast through All India Radio(AIR).

These activities of the Communication Cell help to fulfill BIRC's objectives (c), (e), and (f) listed under section 2.1.

3.1.3.2 Accomplishment Activities

The activities of the Communication Cell is operated through two Program Officers and they together plan, coordinate, design, develop, pretest and conduct feedback of the communication materials. They also edit articles, books written by BAIF staff and compile Annual Report of BAIF. The staff of the Communication Cell interacts with different programmes of BAIF to assess their Communication needs and then develop Communication materials for them. During the developmental process, the interaction continues with the Programmes for specialized input wherever required. The equipments used by Communication Cell are given in Annexure 4. The Communication items produced by the Cell are first pretested to assess their effectiveness and find gaps in the information provided through these items. These items include VHS films, printed materials (such as books, references manuals, booklets etc.) slides, programmes for broadcast, audio programmes for narrowcast, posters, charts etc. Some of the praiseworthy items of the Communication Cell are: 1. Films : 'Golden Earth' on soil and water conservation, won National Award', 2. Books : 'Mother Nature' won National Award in the XXVI National Prize competition for children's literature organized by NCERT New Delhi, 3. Charts : 'Nursery Saplings' was appreciated by farmers, and 4. Radio and Audio Programmes: Two serials on Agroforestry for farmers, and on environmental awareness for children were also appreciated. The Communication Cell takes help of external agencies in design and development of its communication materials.

The printed materials of BAIF do not project a distinct style of its own. Lot of variations exist in presentation and organization of the text, tables, etc, Some publications have glaring spelling mistakes. It is suggested that the Communications Cell should develop a style guide for BAIF publications and make use of computer wordprocessing and spelling checker software for its publications. The Cell should also make use of available graphic software for design of charts, slides, posters, etc.

3.2 User Evaluation

Interviews were conducted with 18 senior staff and field workers to know their views about the facilities and services of BIRC and obtain their suggestions, if any, for operational improvement of BIRC. The names and designation are given in Annexure 5. These interviews have resulted in projection of needs common to some individuals, appreciation and criticism voiced on some facilities and services and certain recommendations. Table 3.7 group these views.

Table 3.7

Users' Views

-
1. Library resources are inadequate. Core collection should be built fast.
 2. The Campus Libraries should be provided with the catalog cards for the books kept there.
 3. Information update is a good service and operated efficiently by the Library staff.
 4. There is a mixed reaction on the Article Alert services. While some felt that it is a good service, others pointed out that it is of limited use and it often contains items of marginal interest.
 5. Information services for the field staff should be strengthened. More information relevant to their work should be provided in languages understandable to them. More number of reference materials handbooks, and manuals should be prepared and provided.
 6. Bibliographic databases should be expanded to contain data from international sources. Help of international institutes and database producers should be taken to build these databases. Researchers should be provided access to these databases so that they could do their own searchings.
 7. The Computer services Cell consists of competent people and provides efficient service. The databases are managed well and data analysis results are provided in time.
 8. There is a need to interlink computers kept at various campuses of BAIF and BIRC so that data could be shared. LAN should be fully operational as early as possible.
 9. Databases handled by a project should be handed over to it to update and operate. This recommendation was given in view of the fact that LAN was being made operational.
 10. The Computer Cell is helping BAIF staff to become computer literate.
 11. Some delay is felt in getting materials from the Communication Cell. This may be due to shortage of manpower.
 12. More number of audio-visual materials should be prepared for the field staff on relevant topics.

13. The social science cell should be involved right from the project planning stage.
-

3.3. Economic Evaluation

It is difficult to evaluate in quantitative terms the economy enforced by BIRC through its activities on functioning of BAIF. However, if we consider the saving of researchers time as a measure of effectiveness, we find very positive savings related to browsing time to find relevant literature, getting the data analyzed, production of printed and audio-visual materials etc. In absence of BIRC, a lot of precious time of researchers would have been wasted.

BIRC helps researchers to avoid duplicating the works done elsewhere. By providing timely access to the literature, through information services, BIRC alerts researchers of the new developments and also tells them what has already been done.

BIRC, by providing information to the field staff and farmers has helped to improve production of crops, utilization of wasteland, increase in production of milk and dairy products etc. All these factors have added to boost income of the farmers.

4 Conclusion and Recommendations

i) Review of the available data and interviews with a representative cross-section of BIRC users indicate that BIRC is, for the most part, providing the services and meeting the objectives set forth in the agreement between IDRC and BAIF.

ii) The capacity of BIRC seems remarkably high in absorbing new technologies. Within a short span of three and half years, BIRC has been able to automate various routines, create databases, provide computer based information services, analyze data and produce reports of various kinds on demand.

iii) As the project is already in its fourth year of operation, it is important to delineate those areas where its performance requires either improvement or modification. Some such areas are identified and listed below. Recommendations are provided wherever possible to bring improvement in these areas.

iii) The Library collection of BIRC is unable to cope up with the increasing demand of information by BAIF researchers. As a result, many researchers have to depend on the resources of other libraries in the Pune and other places to fulfill their information needs. One reason due to which the Library is unable to meet the information requirements of its users is the non-availability of documents in sufficient number in core areas of BAIF. The Library, therefore, may do well if it identifies core areas and starts building its collection in these areas with slightly greater pace. For identifying documents in its core areas, the Library may consult Accession Lists of libraries which have collections relevant to its subjects and consult Books-in-Print database and serials lists of international database producers, such as, CABI, AGRICOLA, etc.

iv) The Library must also look for non-conventional literature and acquire them as many as possible. It must have a list of organizations which should be contacted regularly to acquire such materials.

v) BIRC must attempt to create a composite bibliographic database of its own so that it could be used for integrated library application e.g. automated acquisition system for books, serials control, circulation control, etc.

vi) Since LAN is being made operational, BIRC is advised to plan for decentralized maintenance and use of databases. The requirements for this would be development of suitable front-ends and training of concerned staff in various operations associated with maintenance and use of these databases.

vii) Computers kept in different campuses of BAIF also need to be inter-linked so that the available resources, databases and software could be shared and used profitably. I have been told that INET of P & T Dept. has been inaugurated. BIRC may plan to avail this facility and make itself ready to utilize it.

viii) There is a feeling among the researchers that the bibliographic databases of BIRC do not have adequate coverage of world literature in relevant areas. BIRC can strengthen its database further in a cost effective way by acquiring data from organizations like ILCA, ILRAD, ICRISAT, ICRAF, WHO, FAO, etc. and incorporating them in its database. The computer services Cell may help to load this data by developing conversion programmes. Micro CDS/ISIS has a provision to import data if it in ISO 2709 format. CABI operates a SDI service through which it provides data tailored to the requirements of an organization every month on diskettes. This data could also be obtained by BIRC to load in its database by paying annual charges to CABI. It will prove economical than acquiring CABI CD-ROM.

ix) By operating computer based SDI service, BIRC could provide information tailored to the requirements to BAIF researchers. A SDI software developed by ICRISAT is already available with BIRC. It could be interfaced with Micro CDS/ISIS and used. UNESCO has also developed a programme for SDI service which BIRC may acquire and use.

x) The development of GIS though included in work plans of last two years, no significant progress has been achieved in its implementation except for the training of a staff member on the use of microcomputer for GIS. Since this area is of importance to BAIF, Work should start after drawing realistic work plan to implement it.

xi) In order to achieve operational efficiency, it is necessary for the Library to automate those routines which it performs frequently. Computer programmes written in CDS PASCAL for automating house keeping jobs of a library have been developed by several organizations in India and abroad. For example, DESIDOC, New-Delhi has recently announced availability of such programmes. BIRC is advised to acquire such programmes and use them for its own benefit.

xii) There is no consistency of style in the publications of BAIF. Each publication look different and there is no uniformity in presentation of text, figures, tables, bibliographies, etc. BIRC is, therefore, advised to develop a style guide and train BAIF staff in use of it. The style guide, once developed, should be followed rigorously,

xiii) Years of operation has helped BAIF to collect very valuable information and some of it is stored in the form of databases maintained by BIRC. It becomes, therefore, imperative for BIRC to take proper precautions so that this data is not lost. It has been observed that at some places backups are not created regularly and wherever they are created, the backups are not stored at a safe place to protect them from fire and other hazards. A proper system therefore, need to be evolved and followed so that data remain safe.

Appendix - 1

Evaluation Schedule

10 - 28 November 1991

- | | | | |
|-------|------|---|---|
| 10 | Nov. | - | Arrival at New-Delhi |
| 11 | Nov. | - | Briefings in IDRC Office at New-Delhi with IDRC-CIDA officials |
| 12-15 | Nov. | - | Visits to Vapi, Vansda. Sangamer, Akole and Kodus organized by BAIF |
| 16 | Nov. | - | Visit to Urulikanchan, Nature Cure Ashram, MAGIL and Wagholi organized by BAIF |
| 17 | Nov. | - | Visit to BIRC organized by BAIF |
| 18 | Nov. | - | Visit to the Library and Information Services Cell for study of operations and discussions with the staff |
| 19 | Nov. | - | Visit to the Computer Services Cell to know the existing facilities and operations and discuss with staff |
| 20 | Nov. | - | Meeting with the staff of Communication Services Cell |
| 21-23 | Nov. | - | Interviewing users of BIRC |
| 25-26 | Nov. | - | Study of concerned files and documents |
| 27 | Nov. | - | Preparation of draft conclusion and recommendations and debriefing with BAIF Officials |
| 28- | Nov. | - | Preparation of the Evaluation Report |

Appendix - 2

Files and documents scanned

1. Minutes of Liaison Committee Meetings between BAIF and IDRC
2. IDRC-BAIF Programme: Workplans and Budget details for the years 1991-92, 1990-91, 1989-1990
3. IDRC-BIS Projects: Performance reports, April 1988 - March 1991 (6 reports)
4. Minutes of Meetings with IDRC officials (DRP/M:4)
5. Activity profile of the proposal for Institutional Support
6. IDRC - Institutional support to BAIF: Additional Budget Notes
7. IDRC-BIS: Information Resource Center - Technical Report, April 1988 - Nov. 1990 (3 reports)
8. IRC: Monthly Progress Report (IRC.COM, IRC.EDP, IRC.LIB)

Appendix - 3
LIST OF CAPITAL EQUIPMENT
(BAIF Administered)

SR. NO	DETAILS OF EQUIPMENT PROCURED	LOCATION OF EQUIPMENT	QTY.	VALUE (Rs.)
YEAR : 88-89				
1	EPSON EX-1000 Printer 300 cps Dot Matrix Printer	Pradeep Chamber	1	23,192.40
2	WIPRO FC/AT-286 with 40 MB HDD, 1.2 MB FDD MONOCHROME MONITOR	Predeep Chamber	1	66,968.40
3	FLOPPY DISK DRIVE 360 KB Drive	PRADEEP CHAMBER	1	4,160.00
4	WIPRO PC/XT with 40 MB HDD 1X360 KB FDD MONOCHROME MONITOR	PRADEEP CHAMBER	1	42,224.00
5	SERVO STABILIZER 2KVA Rating	PRADEEP CHAMBER	1	5,350.00
6	Electronic Typewriter NETWORK PS 232C-TYPE SERIAL I/F MODEL MW22	PRADEEP CHAMBER	1	17,800.00
7	Calculators 12 digit LCD Disk SR60407, 10 digit Solar Cum Batter Calculator	Pradeep Chambers	2	1,401.25
8	WIPRO PC/XT with Colour Monitor, 40 MB HDD	Pradeep Chambers	1	59,438.00
9	WIPRO PC with 2x360 KB FDD	Pradeep Chambers	1	32,630.00
10	EPSON LQ-1050 24 pin Letter Quality Printer	PRADEEP CHAMBERS	1	29,500.00
11	Printer Spooler with 256 KB Memory, 3 computers and 1 printer	Pradeep Chambers	1	6,500.00
12	IDM PC/XT with 20 MB HDD, Monochrome monitor	Kamdhenu	1	35,676.00
13	Electronic Telex Box with 80 Coloumn Printer	Kamdhenu	1	29,514.00
14	Kinderman Slide Projector with Circular Tray and Screen on Tripod Stand	Pradeep Chambers	1	7,808.00
15	WIPRO PC/XT with 40 MB HDD, 1X360 KB FDD	Urulikanchan	1	43,442.00
16	EPSON FX-105 Printer FX-105 132, 180 cps	Urulikanchan	1	17,420.00

LIST OF CAPITAL EQUIPMENT
(BAIF Administered)

Appendix 3

SR. NO	DETAILS OF EQUIPMENT PROCURED	LOCATION OF EQUIPMENT	QTY.	VALUE (Rs.)
				4,23,022.05
YEAR : 89-90				
17	Hand held terminal of Oriole MT2150A with 8KB RAM	Pradeep Chambers	1	11,585.80
18	Transcript Script Card PC Plug in Card	Pradeep Chambers	1	12,223.20
19	TVSE Printer 300 cps Dot Matrix Printer	Pradeep Chambers	2	22,500.02
20	Uninterruptible P/S unit 2KVA, 1KVA and 0.5 KVa, with Batteries	Pradeep Chambers	3	1,10,802.90
21	Wipro AT-386 16MHZ, 4MB (RAM)/40MB WDD, & four serial port card.	Pradeep Chambers	1	1,54,289.90
22	WT-100 Terminals	Pradeep Chambers	3	44,742.29
23	TVSE MSP 55 Printer Dot Matrix 132 COL /300 CPS	Kandhenu	1	20,250.00
24	Uninterruptible P/S Unit 0.5KVA with wet batteries	Kandhenu	1	19,000.00
25	Transcript Card Indian Scripts PC Plug-In-Card	Uruli-Kanchan	1	12,223.20
26	SIVA PC/XT with 640 KB (RAM), Softwhite Monitor, 1.2 MB Drive	Pradeep Chambers	1	37,500.00
27	40MB Winchester Additional for AT-386	Pradeep Chamber	1	20,200.00
28	SIVA PC make with 8088, Monochrome Monitor, 2X360 KB FDD	Kandhenu	1	21,150.00
29	Computer Operator Chair	Pradeep Chamebr	1	1,261.00
30	Transcript Card Indian Scripts PC Plug-In-Card	Vansda	1	9,630.00
31	Zenith PC/XT with EX-1000 DMP with 2x20 MB HDD, 1X360 KB FDD and EX-1000 300 cps Printer	Vansda	1	87,253.76

LIST OF CAPITAL EQUIPMENT
(BAIF Administered)

Appendix 3

SR. NO	DETAILS OF EQUIPMENT PROCURED	LOCATION OF EQUIPMENT	QTY.	VALUE (Rs.)
				5,84,612.07
YEAR : 90-91				
32	Hard Disk Drive Seagate 40 MB ST215	Pradeep Chamber	1	12,000.00
33	Hard Disk 20 MB Hard Disk with Controller Card	Kandhenu	1	9,500.00
34	Trump Online 500 VA UPS Sin-Wave Online UPS	Vansda	1	16,848.00
35	Trump Online 1KVA UPS sinewave UPS System, Batteries	Kandhenu	1	25,698.88
36	IDM AT/286 and PC/XT AT/286 with Co-pro, 40 MB HDD and XT with 40 MB, 360 KB FDD	Pradeep Chamber	2	1,09,380.00
37	Printer Table with Tray	Pradeep Chamber	1	1,700.00
38	EX-1000 Dot Matrix Printer 132 Coloumn/300 CPS	Pradeep Chamber	1	26,000.00
39	40 MB CTD with Controller Card QIC-100) CTD for AT-386	Pradeep Chamber	1	26,054.00
40	EPSON FX-1050 DMP 132 Column 300 CPS	Pradeep Chamber	1	26,000.00
41	CTD (External) TVSE TD-4040 CTD for MSDOS based machines	Pradeep Chambers	1	18,000.00
42	Controller Cards for TD 4040	Pradeep Chambers	2	6,000.00
43	Printer Data Switch 3 Computer to Print with Cable	Pradeep Chambers	2	4,000.00
44	SIVA PC with 2 x 360KB Floppy Drive MGA Monitor	Kandhenu	1	20,100.00
45	Air Conditioner 1 Ton Fedder Llyod Make	Kandhenu	1	25,950.00
46	PC/AT-286 Siva Make 16 MBZ with 40 MB HDD	Urulikanchan	1	35,500.00

contd.....

LIST OF CAPITAL EQUIPMENT
(BAIF Administered)

Appendix 3

SR. NO	DETAILS OF EQUIPMENT PROCURED	LOCATION OF EQUIPMENT	QTY.	VALUE (Rs.)
47	Telequip Data Switch For Using Common Printer	Urulikanchan	1	1,000.00
				3,63,730.88
 YEAR : 91-92				
48	TVSEMSP 55 300 CPS, 132 Column Dot Matrix Printer	Kandhenu	1	16,000.00
49	Online Sinewave 1 KVA UPS	Pradeep Chambers	1	20,332.00
50	Floppy drive 360 KB 5.1/4	Pradeep Chamber	3	10,500.00
51	Arcnet LAN Card	Pradeep Chamber	9	36,000.00
52	8 Port Active Hub	Pradeep Chamber	1	9,000.00
53	4Port Passive Hub	Predeep Chamber	3	840.00
54	Mouse	Predeep Chamber	1	2,000.00
55	Floppy Drive 360 KB	Pradeep Chamber	1	2,500.00
56	Siva/PC with 360 KB FDD	Pradeep Chamber	1	16,750.00
57	Siva PC AT-386 File Server AT 386 25 MHZ, 4MB RAM, 155 MB HDD	Pradeep Chamber	1	1,23,000.00
58	Siva Diskless PC with LAN cards	Predeep Chamber	3	43,500.00
				2,80,422.00
				16,51,787.00

contd....

LIST OF CAPITAL EQUIPMENT
(IDRC Administered)

Appendix 3

SR. NO	DETAILS OF EQUIPMENT PROCURED	LOCATION OF EQUIPMENT	QTY. VALUE (Rs.)
YEAR : 89-90			
	1 Laser Jet Printer Model 33440 AU 1.5 RAM	Pradeep Chambers	1 46,658.00
			<hr/> 46,658.00 <hr/>
			<hr/> <hr/> 46,658.00 <hr/> <hr/>

Appendix - 4
LIST OF CAPITAL EQUIPMENT
(BAIF Administered)

SR. NO	DETAILS OF EQUIPMENT PROCURED	LOCATION OF EQUIPMENT	QTY.	VALUE (Rs.)
YEAR : 88-89				
1	Calculators	Pradeep Chambers	9	2,190.00
2	Typewriter Godrej Prima	Pradeep Chambers	1	7,284.68
3	Philips Dictation System with 3 cassettes	Pradeep Chambers	2	15,835.00
4	Philips Conference System	Pradeep Chambers	1	15,288.00
5	Electornic System PAEX System ECL Make	Pradeep Chambers	1	1,26,179.00
6	Philips Mini Cassettes	Pradeep Chambers	1	1,400.00
7	BPL Colour TV TV Model 8701	Pradeep Chambers	1	13,150.00
8	BPL Sanyo VCR VCR Model VIIR 110 with Remote	Pradeep Chambers	1	15,975.00
9	Philips Tape Recorder Model 15 AM 354 Sr.No.034921	Pradeep Chambers	1	1,350.00
10	Kodak 35 mm Camera	Pradeep Chambers	1	2,100.00
11	Photophone Projector with Screen on Tripod Stand AND sound box	Pradeep Chambers	1	16,149.00
				<u>2,16,900.68</u>
YEAR : 89-90				
12	Swan Micro Water Filter	Pradeep Chambers	1	1,700.00
13	Microphone Unit Phillips make D-113	Pradeep Chambers	1	6,806.00
14	Voltage Stabiliser Volt Guard Make	Pradeep Chamber	1	525.00
15	Calculator FX82 Scientific Calculator	Pradeep Chambers	1	425.00
				<u>9,456.00</u>
YEAR : 91-92				
16	Philips Make Double Cassette Recorder 2 in 1 Model DR878 Sr.No.13015	Pradeep Chambers	1	4,180.00
				<u>4,180.00</u>
				<u><u>2,30,536.68</u></u>

Appendix - 5

PERSONS INTERVIEWED

1. Dr. N.G. Hegde, Vice- President
2. Mr. G.G. Sohani, Research Programme Organiser
3. Mr. S.N. Singh, Manager
4. Dr. Deepti Chirmulay, Programme Coordinator
5. Dr. P.N. Kelkar, Programme Coordinator
6. Smt. Ashwini Ghorpade, Research Programme Coordinator
7. Mr.Arvind Karandikar, Addnl.Programme Coordinator
8. Mr. Sachin Kanekar, Jt.Programme Coordinator
9. Mr. D.M. Desai, Block Programme Officer
10. Mr. Rajendra Mahida, Agronomist
11. Mr. Amrut Patel, Block Programme Officer
12. Mr. N.B. Kumar, Rural Health Officer
13. Mr. S.R. Prajapati, Block Programme Officer
14. Dr. S.M. Desai, Regional Programme Coordinator
15. Mr. Kamal Arya, Engineer
16. Mr. Manu Chawada, Training Officer
17. Mr. Phool Singh, Field Guide
18. Ms. Somabhen, Field Guide

**FOURTH YEAR EVALUATION
OF
ANIMAL SCIENCE ASPECTS
OF THE
IDRC/CIDA CO-FINANCED
BAIF RESEARCH FOUNDATION - RURAL RESEARCH PROJECT
PROJECT NO. 468/15018
FOR
CIDA, IDRC & BAIF
BY
DR SONI
ANIMAL SCIENCE SPECIALIST**

THE FOURTH YEAR EVALUATION
OF THE
IDRC/CIDA CO-FINANCED
BAIF DEVELOPMENT RESEARCH FOUNDATION - RURAL RESEARCH PROJECT
PROJECT NO. 468/15018
FOR
CIDA, IDRC & BAIF

BY
B.K. SONI
VETERINARY AND ANIMAL SCIENCE SPECIALIST
OF

THE EVALUATION TEAM

DECEMBER 1991

ACRONYMS AND ABBREVIATIONS

CIDA	Canadian International Development Agency
IDRC	International Development research Centre
BAIF	BAIF Development Research Foundation
AI	Artificial Insemination
IAF	Institute Armand-Frappier, Quebec Canada
MOET	Multiple Ovulation & Embryo Transfer
ICAR	Indian Council of Agricultural Research
OIE	Office International des Epizooties, Paris France
NGO	Non Government Organization

TABLE OF CONTENTS

EXECUTIVE SUMMARY

- Purpose of study
- Methodology
- Conclusions
- Recommendations

1.0 INTRODUCTION

- 1.1 Background
- 1.2 Purpose of study
- 1.3 Methodology

2.0 UPGRADING OF FROZEN SEMEN TECHNOLOGY FOR THE DEVELOPMENT OF BUFFALOES

- 2.1 Background
- 2.2 Progress and Results
- 2.3 Conclusions
- 2.4 Impact
- 2.5 Research Team
- 2.6 Recommendations

3.0 DEVELOPMENT OF ECONOMIC FEEDING SYSTEMS FOR RUMINANTS FROM LOCALLY AVAILABLE AGRICULTURAL BY-PRODUCTS.

- 3.1 Background
- 3.2 Progress and Results
- 3.3 Conclusions
- 3.4 Impact
- 3.5 Research Team
- 3.6 Recommendations

4.0 STANDARDISATION OF MICRO-CARRIER CULTURE TECHNIQUE FOR IMPROVING QUALITY AND DEVELOPMENT OF IMMUNOBIOLOGICALS USING MAREK'S DISEASE VACCINE AS A MODEL.

- 4.1 Background
- 4.2 Progress and Results
- 4.3 Conclusions
- 4.4 Impact
- 4.5 Research Team
- 4.6 Recommendations

APPENDICES

- APPENDIX A TERMS OF REFERENCE FOR VETERINARY AND ANIMAL
SCIENCE SPECIALIST.
- APPENDIX B ITINERARY
- APPENDIX C RESEARCH TEAMS
- APPENDIX D SELECTED BIBLIOGRAPHY

EXECUTIVE SUMMARY

1. PURPOSE OF STUDY :

The purpose of this report is to evaluate the efficiency, effectiveness and impact of following three projects.

1. Upgradation of frozen semen technology for the development of buffaloes.
2. Development of economic feeding system for ruminants from locally available agricultural by-products.
3. Standardisation and development of micro-carrier culture technology for improving quality and development of immunobiologicals using Marek's Disease Vaccine as a model.

2. METHODOLOGY :

In order to evaluate the efficiency, effectiveness and impact of the three animal science project the methodology used was as follow :

1. Visits to project areas and BAIF institutions and discussions with farmers and scientists in order to ascertain the progress made in terms of objectives of the projects.
2. Field visits to study the impact of the projects on the small farmers.
3. Analysis of the information collected in order to draw the conclusion and make recommendations;
4. The capacity of the research teams to undertake the project activities was also assessed for each project.

3. CONCLUSIONS :

The frozen semen technology project has made excellent progress and the technology has been upgraded to a level that it can be used for development of buffaloes by BAIF.

The economic feeding systems project has made very good progress in surveying the feeding practices and assessing the nutritive value of locally available agricultural by-products. Differences in nutritive value of straw from different varieties of pearl millet observed through limited feeding trials indicate that more work need to be done on this problem. Feeding systems based on available feed resources are being developed.

The project on microcarrier culture technology has made excellent progress in developing and standardisation of cell culture at small scale of production. The technology at this scale however is not cost effective and scaling up process requires additional equipment and knowhow. The technology even at the present scale of production can be used for producing monoclonal antibodies for the development of disease diagnostic kits.

4.0 RECOMMENDATIONS

4.1 UPGRADATION OF FROZEN SEMEN TECHNOLOGY FOR THE DEVELOPMENT OF BUFFALOES

- BAIF should expand its programme to create awareness amongst farmers for adoption of A.I so that genetic potential of these animals could be improved.
- Microorganisms including viruses may be present in bull semen and transmitted to susceptible animals at insemination. IDRC may consider providing additional support for establishing a laboratory at Uruli Kanchan so that individual batches of semen could be examined in accordance with diagnostic techniques and requirements laid down by Office International des Epizooties (O.I.E) for the presence of pathogenic microorganisms. This activity can be initiated in the last year of the project (1992-93) and expanded during the second phase of the project.
- Variation in freezability of buffalo semen due to season has been confirmed in this project. To know more about the causes of this variation, IDRC may consider the possibility of supporting the study of hormonal profile of the buffalo bulls of Murrah and Surti breeds during different seasons.
- Poor reproductive performance in buffaloes is also due to the problems associated with difficulty in detection of heat, resulting in low conception rate by artificial insemination. BAIF need to be supported in upgrading the oestrous synchronisation techniques being developed by them under an I.C.A.R. project on this subject.
- BAIF has been recognized as the organization which has been most successful in popularizing A.I. in cattle. This has resulted in better utilisation of genetically superior bulls. In order to make full use of genetic potential of high producing cows, BAIF should now equip itself, so that it can play similar role in making multiple ovulation and embryo transfer (MOET) a success in cattle. IDRC support will be required for this purpose.

4.2 DEVELOPMENT OF ECONOMIC FEEDING SYSTEM FOR RUMINANTS FROM LOCALLY AVAILABLE AGRICULTURAL BY-PRODUCTS

- The feeding practices and availability of feed resources need to be surveyed in all the areas where BAIF undertakes cattle development work. Without proper availability of nutritive feed, the genetic potential of cattle or buffaloes will not be expressed.
- Non-cash inputs like chopping of straws and sugarcane tops need to be introduced while developing feeding systems.
- Studies on nutritive value of straws from different varieties of pearl millet need to be expanded.
- Urea molasses blocks already developed by National And International Agencies may be tried in Rajasthan where the survey of feeding practices has been completed.
- The socio-economic impact on the woman of improved dairy farming practices including economic feeding system need to be studied and properly documented.

4.3 STANDARDIZATION AND DEVELOPMENT OF MICRO-CARRIER CULTURE TECHNOLOGY FOR IMPROVING QUALITY AND DEVELOPMENT OF IMMUNOBIOLOGICALS USING MAREK'S DISEASE VACCINE AS A MODEL.

- Production of monoclonal antibodies for diagnostic purposes by microcarrier technology should be taken up so that diagnostic kits could be developed.
- IDRC may like to consider providing necessary equipment so that BAIF Laboratory could scale up the technology to at least five litres from 250 ml as at present. At this scale not only the quality of the vaccine will be superior but its production will also be cost effective.
- Efforts should be made to establish bilateral technology transfer programme between Institute Armand Frappier (IAF) Canada and BAIF. IAF seems to have the technology of large scale production of vaccines by microcarrier system. If for some reason IAF can not transfer this technology, M.I.T. Boston which has perfected this technology may directly be approached.

1.0 INTRODUCTION

1.1 BACKGROUND

BAIF Development Research Foundation a voluntary, non-profit, non-government professionally managed organization with objective to create opportunities of gainful self - employment for rural families, initiated cattle development activity as one of its first programmes. It was realised that cattle development could ensure sustainable livelihood and improve quality of life of disadvantaged sections of rural poor and in 1970, five centres were established in the state of Maharashtra, where artificial insemination service for cattle by the use of frozen semen technology was provided at the doorstep of the farmer. In 1991 there were 546 centers in five states and artificial inseminations were carried out on local as well as crossbred cows.

During its close association with livestock farmers, BAIF identified following areas in which it needed international support :

1. Upgradation of frozen semen technology.
2. Improvement of locally available livestock feed.
3. Animal health.

A large number of international aid agencies, church organisations, NGOs have assisted BAIF in this regard. The three projects supported by IDRC-CIDA and evaluated in this report come under these broad areas.

1.2 PURPOSE OF STUDY

The purpose of study is to review the efficiency, effectiveness and impact of the following three projects :

1. Upgrading of frozen semen technology for development of buffaloes;
2. Development of economic feeding systems for ruminants from locally available agricultural by-products;
3. Standardization of micro-carrier culture technology for improving quality and development of immunobiologicals using Marek's disease vaccine as a model.

1.3 METHODOLOGY

The evaluation team consisting of six members was divided into two groups. Two other members of my group

were Mr. Marcel Zollinger, Agricultural and Rural Development specialist and Mrs. Viji Srinivasan, Women in Development specialist. I independently assessed the projects concerned with micro-carrier culture technique and economic feeding systems. I and Mr. Zollinger together evaluated the projects dealing with frozen semen technology. The team leader Dr. James Bunell was regularly briefed on the findings, conclusions and recommendations. The inputs from other members of the team were taken into account while preparing the report.

The first week was spent in being briefed by IDRC, CIDA and BAIF. During this period, the project areas and BAIF institutions were visited and discussions were held with farmers and scientist in order to ascertain the progress made in terms of objectives of the projects.

During the remaining period the BAIF executives and scientists were revisited in order to study the progress of research and development activities of the specific animal science projects, field visits were made to study the impact of frozen semen technology and cattle feeding systems on the small farmers. The information collected was analyzed in order to draw the conclusions and make recommendations. The facilities of BIRC and the institute staff were extensively used for this purpose.

The principal findings, conclusions and recommendations have been presented as follows :

- 2.0 Upgrading of frozen technology for the development of buffaloes.
- 3.0 Development of economic feeding systems for ruminants from locally available agricultural by-products.
- 4.0 Standardization and development of microcarrier culture technology for improving quality and development of immunobiologicals using Marek's disease vaccine as a model.

The progress and results have been presented according to the objectives of each of the project.

The capacity of the research team to undertake the project activities has also been assessed and presented in relevant chapters.

The achievements and the impact of the projects along with weaknesses if any have been identified and discussed.

Recommendations suggest the potential improvements and future directions for the projects.

2.0 UPGRADING OF FROZEN SEMEN TECHNOLOGY FOR DEVELOPMENT OF BUFFALOES.

2.1 BACKGROUND

BAIF has been associated with crossbreeding of cattle for the last twenty years but was not doing any buffalo development work. It was observed that to meet the needs of rural poor, buffaloes could not be left out. Large numbers of small farmers and landless labourers raise one or two buffaloes for milk production and supplement their income by its sale. The farmers had to depend on local non-descript bulls for the service of their female buffaloes. BAIF was approached by farmers to provide artificial insemination service for the buffaloes. BAIF Scientists realised that buffalo semen preservation and freezing was much more difficult than that of cattle and made a request for IDRC support in order to upgrade frozen semen technology.

2.2 PROGRESS AND RESULTS

Project Objective	Progress and Results
1. To evolve appropriate technology for deep freezing of buffalo semen for improved conception rate.	The scientists have made excellent progress in evolving this technology. Two step dilution at 5 degree celsius produced much superior frozen semen as compared to single step dilution.
2. To compare different procedures of deep freezing	It was found that 3 hours equilibration period was significantly superior to 6 hours in terms of post thaw motility, intact acrosome maintenance, live count and aspartate amino transferase (AAT) leakage. Most effective freezing rate was also determined and standardised.
3. To test fertility of frozen buffalo semen produced using different procedures.	1560 doses of frozen semen of Murrah bulls in three different packaging (French medium, French mini and German mini tubes) have been distributed for buffalo AI in eight centers in South Maharashtra. It is reported that 609 doses have been utilised upto the end of October 1991.

Project Objective	Progress and Results
	2805 semen doses of Surti bulls have also been distributed in 10 centers in Karnataka state during September 1991. The reports in respect of the conception rates achieved with the use of different packaging systems are likely to be available by the end of December 1991.
4. To produce frozen buffalo semen doses adopting most appropriate technique and distribute the semen for wider use in the field for upgrading of buffaloes.	After receipt of results of conception rates, the frozen semen technology will be standardized by the end of March 1992. The large scale production and distribution for wider use, and upgrading buffaloes will be taken up after that.

2.3 CONCLUSIONS

The project has made excellent progress during the period 1988-91.

The technology of freezing buffalo semen has been upgraded to a level that it can be used for development of buffaloes by BAIF.

2.4 IMPACT

The upgradation of frozen semen technology will improve the rate of success of A.I. in buffaloes. This will make this practice popular among the buffalo owners and thus they will be able to get about 67% higher milk production in females produced by A.I.

Higher milk production from buffaloes will get their owners more money. As buffaloes are generally managed by woman and they handle the money received from milk sale, the socio-economic condition of the women is likely to improve.

2.5 RESEARCH TEAM

Dr. M.R. Bhosrekar is the overall in-charge of the team working on this project. He has long and varied experience of semen freezing and has been recipient of the Rafi Ahmad Kidwai Memorial Award for his work. Dr. J.R. Purohit is the scientist devoting full time to this project. The other members of the team are listed in Appendix C.

The team is fully qualified to undertake the activities of the project and achieve the objectives.

2.6 RECOMMENDATIONS

- 2.6.1 BAIF should expand its programme to create awareness amongst farmers for adoption of A.I so that genetic potential of these animals could be improved.
- 2.6.2 Microorganisms including viruses may be present in bull semen and transmitted to susceptible animals at insemination. IDRC may consider providing additional support for establishing a laboratory at Uruli Kanchan so that individual batches of semen could be examined in accordance with diagnostic techniques and requirements laid down by Office International des Epizooties (O.I.E) for the presence of pathogenic microorganisms. This activity can be initiated in the last year of the project (1992-93) and expanded during the second phase of the project.
- 2.6.3 Variation in freezability of buffalo semen due to season has been confirmed in this project. To know more about the causes of this variation, IDRC may consider the possibility of supporting the study of hormonal profile of the buffalo bulls of Murrah and Surti breeds during different seasons.
- 2.6.4 Poor reproductive performance in buffaloes is also due to problems associated with difficulties in detection of heat. This results in low conception rate by artificial insemination. BAIF need to be supported in upgrading the oestrous synchronisation techniques being developed by them under an I.C.A.R. project on this subject.
- 2.6.5 BAIF has been recognized as the organization which has been most successful in popularizing A.I. in cattle. This has resulted in better utilisation of genetically superior bulls. In order to make full use of high producing cows, BAIF should now equip itself, so that it can play similar role in making multiple ovulation and embryo transfer (MOET) a success. IDRC support will be required for this purpose.

3.0 DEVELOPMENT OF ECONOMIC FEEDING SYSTEMS FOR RUMINANTS FROM LOCALLY AVAILABLE AGRICULTURAL BY-PRODUCTS

3.1 BACKGROUND

The project was started in 1988 with the title "Development of cheap cattle feeds and feed supplements from locally available by products". At the third Liaison Committee meeting of IDRC-BAIF held in January 1990, the title, work plan and objectives were modified resulting in emphasis on developing economic feeding systems rather than one or more cheap cattle feeds. This was a distinct improvement over the earlier work plan and objectives.

3.2 PROGRESS AND RESULTS

Objectives	Progress and Results
1. To survey the feeding practices and availability of feed resources.	Detailed survey of farmers with regard to year round availability of feeds has been completed in two cattle development areas of Rajasthan state. Very useful information regarding land use pattern, principal crops cultivated, feeding practices and availability of nutrients as compared to requirements have been collected for different category of farmers. This information has been put in the central data bank and this will be available for development of strategies in similar conditions.
2. To analyze and assess the nutritive value of locally available by-products.	<p>The analysis of feed /fodder samples collected during survey consisting mainly of crop residues and other by-products has been done and their nutritive value assessed by in vitro techniques.</p> <p>Evaluation of pearl millet straw and pigeon pea residue was undertaken through feeding trials. The results revealed differences in feed intake and digestibility due to difference in pearl millet.</p>

Objectives

Progress and Results

- The pigeon pea crop residue studies indicated that it could be considered as a medium quality forage with moderate protein content and useful as supplement to straw diets.
3. To study the effect of treatment on improvement in digestibility of crop residues.
- Studies have been completed to measure effect of urea treatment on digestibility, intake and nutritive value of maize straw.
- For proper evaluation, long term studies with growing animals are in progress.
4. To develop a feeding system based on available feed resources and to devise suitable interventions in feeding for improvement in performance.
- The information collected during feeding practices survey has been used to identify the limiting nutrients and seasonal variations in their supply and requirements. This information will be used for developing feeding systems.
5. To undertake field trials with suggested feeding to assess their acceptance by farmers.
- This programme was initiated by providing 1500 kg of crop systems residue treated with urea to five farmers. Results of acceptance or otherwise are awaited.

3.3 CONCLUSIONS

The project has made very good progress in surveying the feeding practices and assessing the nutritive value of locally available by-products. Differences in nutritive value of straw from different varieties of pearl millet observed through limited feeding trials indicates that more work need to be done on this problem.

Feeding systems based on available feed resources are being developed.

3.4 IMPACT

It is too early to assess the impact of this project. The awareness created by the survey of feed resources is likely to increase the utilization of agricultural by-products by the farmers.

As and when the project develops feeding system based on available feed resources, the income of the farmers will increase due to decrease in feed cost. As most of the dairy animals are managed by women, their socio-economic condition may show some improvement.

3.5 RESEARCH TEAM

Dr. A.L. Joshi, Research Programme Coordinator is the Principal Investigator for this project. He has been working on utilization of agricultural by-products since 1976 and has been scientist in-charge of the I.C.A.R. project on this subject since then. Mr. V.C. Badve is the scientist devoting full time to the project. He had also worked earlier in the I.C.A.R. project on agricultural by-products. The other members of the team are listed in Appendix C.

The team has the qualification and experience to achieve the objectives of the project.

3.6 RECOMMENDATIONS

- 3.6.1 The feeding practices and availability of feed resources need to be surveyed in all the areas where BAIF undertakes cattle development work. Without proper availability of nutritive feed, the genetic potential of cattle or buffaloes will not be expressed.
- 3.6.2 Non-cash inputs like chopping of straws and sugarcane tops need to be introduced while developing feeding systems.
- 3.6.3 Studies on nutritive value of straws from different varieties of pearl millet need to be expanded.
- 3.6.4 Urea molasses blocks already developed by National And International Agencies may be tried in Rajasthan where the survey of feeding practices has been completed.
- 3.6.5 The socio-economic impact on the woman of improved dairy farming practices including economic feeding system need to be studied and properly documented.

4.0 STANDARDISATION OF MICROCARRIER CULTURE TECHNOLOGY FOR IMPROVING QUALITY AND DEVELOPMENT OF IMMUNOBIOLOGICALS USING MAREK'S DISEASE VACCINE AS A MODEL.

4.1 BACKGROUND

The project was started in 1988 with the title "Development of Improved Marek's Disease Vaccine." The main objective was to establish conditions for large scale production of Marek Disease Vaccine using Roller bottles and Micro-carrier cell culture (Cytodex) systems.

At the third Liaison Committee meeting of IDRC-BAIF held in January 1990, the title, the work plan and objectives were modified so as to incorporate work on other viruses like Foot and Mouth disease, Rinderpest and poultry diseases.

The original project as proposed by BAIF, had envisaged that Institute Armand-Frappier, Qubec (IAF) will technically collaborate with its laboratory at Wagholi in this project. In the project as finalized there was no role for IAF. It seems IAF during the period had obtained the technology for large scale production of Polio, Measles, Rabies and Marek's Disease Vaccine by microcarrier technique from M.I.T. Boston with the support provided by the Rockefeller Foundation.

4.2. PROGRESS AND RESULTS

Objectives

Progress and Results

To develop and standardise cell culture technology using new generation Roller Bottle and Microcarrier Culture systems.

1. For cell culture work, Specific Pathogen Free (SPF) Poultry flock was necessary and it has been established. Proper monitoring of the SPF status of this poultry flock is being done.

Several laboratory techniques as a prerequisite to cell culture technique have been standardised.

It has been observed that in roller bottles, higher cell densities can be achieved and in microcarrier systems using Cytodex I, the cell densities and cell yields are significantly higher than even roller bottle and other systems.

Objectives	Progress and Results
To adopt and study growth kinetics of Herpes Virus Turkey (HVT) on to Chicken Embryo Cells using the above cell culture system.	The HVT FC-126 virus has been adopted on Chicken Embryo of Fibroblast (CEF) cultures and growth kinetics of HVT virus is being investigated for further improvements in virus yields.
To develop and standardise quality assay procedures for Disease vaccine preparations/ use employing improved culture systems.	<p>Techniques for quality assay procedures for Marek's Vaccine as per British Pharmacopoeia (Veterinary) have been standardised.</p> <p>Quality of Marek's Disease Vaccine is judged in terms of plaque forming units (PFU) of HVT virus present in the vaccine.</p> <p>Higher pfu/ml are produced in microcarrier system as follows : Microcarrier system : 0.30 million pfu/ml</p> <p>Conventional monolayer system: 0.16 million pfu/ml.</p>
To establish conditions for scale of MD vaccine Production.	Work is in progress for large scaling up of the production HVT FC 126 virus in CEF cell cultures from 250 ml to 500 ml.
To establish this techniques of cell/virus propagation to anchorage dependent preparation of other immunobiologicals live stock and poultry.	<p>The microcarrier technique was tried for cultivation of BHK cell, Vero cells, Newcastle Disease virus, Infectious Bursal Disease Virus, FMD virus.</p> <p>On an average 2 fold increase in cell and virus yields were achieved through the intervention of microcarrier technique in the aforesaid cell and virus cultures, upto 250 ml.</p>

4.2.1. COST ANALYSIS

The cost accounting section of BAIF Laboratory has undertaken comparative cost analysis of conventional and microcarrier technology. The material consumption and resulting cost of producing 1 million doses of Marek's Disease Vaccine are as follows :

Sr. No.	Particular	Conventional Technology	Microcarrier Technology
01	Material Consumption		
1.1.	Media and stabilizers in litres.	70	47
1.2.	Cytodex 1 in g	0	141
02.	Cost of material consumed		
2.1.	Media and stabilizer in Rs.	9923.80	7049.20
2.2.	Cytodex 1 in Rs.	0.00	13874.40
2.3.	Total cost	9923.80	20923.60
2.4.	Total saving by microcarrier technology		-10999.80

* Cytodex 1 in 5 kg packing priced at Rs.98.4 per g as on 18 Nov.1991. Using microcarriers for more than one culture/harvest cycle is NOT recommended.

The cost of labour, energy, packaging and transportation are same in two technologies and hence not included in this analysis.

At the current scale of microcarrier technology available to BAIF and the cost of microcarrier (Cytodex I), the technology is not economical. If the scale of production is increased, the cost may be reduced to such a level that the technology becomes viable.

4.2.2. Large-Scale Production :

The restraints to large scale cultivation of cells include

1. pH change and accumulation of metabolic by-products.
2. Sensitivity of cells to physical and physiological constraints to growth.
3. Maintaining cultures at an optimum cell density and productivity by limiting excessive cell growth.
4. Process analysis and control.

These restraints can however be resolved with additional equipment and know-how.

4.2.3. Development of Diagnostic kits

The microcarrier technology even at the present scale of production can be used for developing diagnostic kits by producing monoclonal antibodies by in-vitro cell culture systems. These antibodies are at present produced by growing hybridoma cells in the peritoneal cavity of mice. For the production of only 100 mg of antibodies, on an average one mice has to be sacrificed. The microcarrier technique can produce large quantities of antibodies without destroying any laboratory animal. This will support the IDRC policy regarding care and use of philosophy on use of laboratory animals for biological studies.

4.3. CONCLUSIONS

The project has made excellent progress in developing and standardisation of cell culture technology at small scale of production using microcarrier culture system. The technology at this scale however is not cost effective. The scaling up of process requires additional equipment and knowhow.

The microcarrier technology even at the present scale of production can be used for producing monoclonal antibodies for the development of diagnostic kits.

4.4 IMPACT

Although the project has made very good progress, it is too early to assess its impact. Diagnostic kits as and when developed from monoclonal antibodies produced by microcarrier technology will meet the felt need of animal health personnel and thus support the cattle development programmes.

4.5. RESEARCH TEAM

The research team handling this project is headed by Mr.P.U.Baxi, Manager Research & Development at BAIF Laboratories, Wagholi. He has more than 15 years experience of viral immuno-biological development. Ms.H.N.Kothari is the project leader and devotes her full time to project. She has about 10 years experience of viral vaccine development and production. Dr.S.N.Singh, Manager Immunobiological is closely associated with the project and provides general technical guidance. The other members of the team are listed in Appendix 'C'. The team has the necessary qualification and experience to undertake the project activities.

4.6 RECOMMENDATIONS

- 4.6.1 Production of monoclonal antibodies for diagnostic purposes by microcarrier technology should be taken up so that diagnostic kits could be developed.
- 4.6.2 IDRC may like to consider providing necessary equipment so that BAIF Laboratory could scale up the technology to at least five litres from 250 ml as at present . At this scale not only the quality of the vaccine will be superior but its production will also be cost effective.
- 4.6.3 Efforts should be made to establish bilateral technology transfer programme between Institute Armand Frappier (IAF) Canada and BAIF. IAF seems to have the technology of large scale production of vaccines by microcarrier system. If for some reason IAF can not transfer this technology, M.I.T. Boston which has perfected this technology may directly be approached.

APPENDIX "A"

TERMS OF REFERENCE
OF
VETERINARY AND ANIMAL SCIENCE SPECIALIST

1. Critically review the progress, implementation and results of the animal science projects.
2. Assess the capacity of the research team to undertake the project activities.
3. Comment on any weaknesses, relevance of the achievements and their impact.
4. Suggest potential improvements and future direction.
5. Provide any other professional services as required by the responsible officer of the Canadian High Commission.

APPENDIX "B"

ITINERARY

Date	Activity
November 10	Travel to Delhi by air
11	Briefing by IDRC and CIDA.
12	Travel to Bombay by air and to Navsari by train.
13	Travel to Vansada by car, visit the tribal project area in Chondha and Ravania and meet participants in Ghodmal. Travel to Vrindavan campus of BAIF, visit training institute and have discussions with teachers.
14	Travel to Sangamner, meeting with chairman and Board members of Sangamner Taluka Co-operative Milk Union. Visit small dairy farmer families in and around Sangamner. Travel to Akole and meet Chairman and Board Members of Amritsagar Co-operative Milk Union. Travel to Bhandardara Dam Site.
15	Visit Akole Tribal Rehabilitation Project area, and travel to Kadus and visit Agroforestry project there, travel to Pune by Car.
16	Travel to Uruli Kanchan campus of BAIF and visit Agro-forestry and Agriculture projects, Biogas plant, Central Cattle Breeding Farm, Bull Station, Frozen Semen, Animal Genetics and Nutrition Laboratories. Travel to Wagholi and visit Microcarrier, Mushroom, Mycorrhiza laboratories and vaccine production facilities of BAIF.
17	Visit the computer cell, communication cell, library and information cell of BAIF Information Resource Centre (BIRC)
18	Evaluation team meeting and visit BIRC to collect reports and other information regarding different projects.
19	Visit BAIF Central Research Station Uruli-Kanchan and have detailed discussion with the scientists and others involved in the frozen semen technology and the economic feeding systems projects.
20	Visit Wagholi and have detailed discussions with scientists and others involved in the microcarrier project.
21	Preparation of report and discussions with BAIF executives.
22	Preparation of report and discussions with BAIF scientists.
23	Visit the headquarters of BAIF for discussion with senior executives. Visit Wagholi to obtain additional information on microcarrier project.
24	Evaluation Team Meeting.
25	Report preparation and discussions with scientists from Uruli-Kanchan.
26	Report preparation and discussions with visit

with livestock farmers.

27 Report Preparation and visit to Wagholi.

Date	Activity
November 28	Debriefing at BIRC.
29	Travel to Bangalore.
December 01	Report Preparation
02	Report Preparation
03	Report Preparation
04	Report Preparation
05	Report Preparation

APPENDIX "C"

RESEARCH TEAMS

Project : UPGRADING OF FROZEN SEMEN TECHNOLOGY FOR THE
DEVELOPMENT OF BUFFALOES

Sr.No.	Name	Qualificatins	Percent time devoted to IDRC Project
01.	Dr.M.R.Bhosrekar Research Programme Coordinator.	MVSC Ph.D. FRVCS (Sweden)	25%
02.	Dr.J.R.Purohit Jt.Programme Coordinator.	BVSC and AH(Bom)	100%
03.	Mr.S.P.Mokashi Research Officer	B.Sc(Micro)M.Sc. (Biophysics)DMLT	50%
04.	Dr.Y.P.Phadnis Divisional programme coordinator.	B.V.Sc. and AH Field programme	25%
05.	Dr.Y.V.Choudhary Farm Manager	BVSC and AH	15%
06.	Mr.S.B.Kamble Technician	S.S.C. Pass Trained for Lab work	100%
07.	Mr.H.D.Hirtot Technician	9th Std. Trained for lab work	100%
08.	Mr.S.T.Darekar Technician	S.S.C. Trained for lab work	100%

RESEARCH TEAM

Project : DEVELOPMENT OF ECONOMIC FEEDING SYSTEMS FOR RUMINANTS FROM LOCALLY AVAILABLE AGRICULTURAL BY-PRODUCTS.

Sr.No.	Name	Qualification	Time devoted to IDRC project
01.	Dr.A. L. Joshi	M.Sc.Ph.D.	25%
02.	Mr.V. C. Badve	M.Sc.(Biochem)	100%
03.	Dr.M. S. Sharma	B.V.Sc. A.H.	15%
04.	Dr.A. S. Jape	B.V.Sc.& A.H.	15%
05.	Mr.S. D. Kumbhar	B.Sc.	100%
06.	Mr.N. L. Phadke	B.Sc.	100%

RESEARCH TEAM

Project : STANDARDISATION OF MICRO-CARRIER CULTURE TECHNOLOGY FOR IMPROVING QUALITY AND DEVELOPMENT OF IMMUNOBIOLOGICALS USING MAREK'S DISEASE AS A MODEL.

Sr.No.	Name	Qualification	Time devoted to IDRC project
01.	Mr. P. U. Baxi Manager R & D.	M.Sc. (Biochem)	25%
02.	Ms.H.N.Kothari Project leader	B.Sc. (Chemistry)	100%
03.	Dr.S. N. Singh Manager Animal Immunobiologicals	M.V.Sc.	20%
04.	Mrs.W. S. Bhosale Technician	B.Sc. Microbiology	100%
05.	Mrs.V.S. Lagu Technician,	B.Sc. Chemistry	100%

APPENDIX "D"

SELECTED BIBLIOGRAPHY

IDRC-BIS Technical Reports 1989, 1990 and 1988-91 for following projects.

1. UPGRADING OF FROZEN SEMEN TECHNOLOGY FOR THE DEVELOPMENT OF BUFFALOES
2. DEVELOPMENT OF ECONOMIC FEEDING SYSTEMS FOR RUMINANTS FROM LOCALLY AVAILABLE AGRICULTURAL BY-PRODUCTS.
3. STANDARDISATION OF MICRO-CARRIER CULTURE TECHNOLOGY FOR IMPROVING QUALITY AND DEVELOPMENT OF IMMUNOBIOLOGICALS USING MAREK'S DISEASE VACCINE AS A MODEL.

BAIF Annual Report 1990-91

Viruses Associated with Bovine Semen Veterinary Bulletin
February 1990.

Monoclonal Antibodies Production and Application 1989
Minutes IDRC-BAIF Third Liaison Committee Meeting 1990.

International Animal Health Code : OIE Paris

Diseases Transmitted by Semen and Embryo Transfer Techniques :
OIE Paris

Semen Production and Artificial Insemination by M R Bhosarekar,
BAIF

FOURTH YEAR EVALUATION
OF
TRAINING ASPECTS
OF THE
IDRC/CIDA CO-FINANCED
BAIF RESEARCH FOUNDATION - RURAL RESEARCH PROJECT
PROJECT NO. 468/15018
FOR
CIDA, IDRC & BAIF
BY
DR RAM TAKWALE
TRAINING SPECIALIST

DRAFT REPORT ON

TRAINING COMPONENT OF BAIF

~~Report written~~ by Dr. Ram Takwale

0 EXECUTIVE SUMMARY.

1. CONTENTS

2. BACKGROUND

- 2.1 Introduction
- 2.2 Purpose of Evaluation
- 2.3 Evaluation Scope
- 2.4 Methodology

3. TRAINING PROGRAMMES AND PROJECT PROFILES

- 3.1 Training Programmes in BAIF
- 3.2 BAIF Staff Training
- 3.3 Extension Staff Training
- 3.4 Training Under BAIF
- 3.5 Training Under IDRC
- 3.6 Training Methodologies Used
- 3.7 Project Participants Training
- 3.8 Community Training
- 3.9 Training to Outside Agencies
- 3.10 Rural Polytechnic Institute
- 3.11 BAIF Management Training Institute

4. FINDINGS AND CONCLUSIONS

- 4.1 On Training
- 4.2 On RPI
- 4.3 On BMTI
- 4.4 General

5. RECOMMENDATIONS

ENCLOSURES

Information Tables 1 to 6

APPENDICES

- I. Information Sources
- II. Persons Met and Interviewed
- III. Programme of Visit and Work

2. BACKGROUND :

2.1 INTRODUCTION :

BAIF is one of the leading non-government organisation engaged in developmental Research and Rural Development in ~~six~~ States of India. Through its long experience and visionary leadership of Shri Manibhai Desai the BAIF has developed its own philosophy and approach to the rural development. By considering successes, capacity and potential of the BAIF, IDRC gave BAIF Institutional Support (BIS) to its various programmes for strengthening, re-enforcing, diversifying both in technologies and activities.

As a part of the BIS programme evaluation during its fourth year, this paper reviews the training component of the BAIF activities.

2.2 PURPOSE OF EVALUATION :

1. To conduct and review the training component of the BAIF Project.
2. *Document and critically assess :*
 - internal training of BAIF staff
 - training provided by BAIF in its programmes to farmers and other programme participants.

2.3 EVALUATION SCOPE :

2.3.1 Target Groups : Four Categories :

The BAIF training given in various projects can be grouped in four categories of trainees :

- * BAIF staff working at the Head Quarters and Stations.
- * Extension staff in the field.
- * Project participant families
- * Community

2.3.2 Scope :

1. Training provided by the BAIF to the four categories is conveniently grouped in the following areas :
 - . Agriculture
 - . Health
 - . Social Sciences
 - . General
2. Project on Rural Polytechnic Institute (RPI) and the proposed BAIF Management Training Centre (BMTIC)

2.4 METHODOLOGY :

- . Visit to BAIF institutions at Pune, Urulikan-
chan and field areas at Vansda.

- . Discussions with staff, functionaries and participants of programmes (List enclosed)
- . Individual research.

LIMITATIONS :

Training is an important component in all projects. Since the beneficiaries from rural areas are all scattered, it was difficult to meet them and assess the impact through extensive visits/meetings in all project areas. Information was, therefore, obtained from field functionaries, BAIF staff, and reports from the BAIF staff at field level and through personal meetings with project participants and community members ^{at} ^{and Vansda} _{Urulikanchan} during our field visit.

in different states

3. TRAINING PROGRAMMES AND PROJECTS PROFILES

3.1 TRAINING PROGRAMMES IN BAIF :

Training is a very important component in BAIF activities as well as BIS programmes. Many training programmes are conducted in BAIF as a regular activity. Under BAIF Institutional Support, the training is substantially increased, particularly under the projects of

1. BAIF Information Resource Centre (BIRC)
2. Community Based Research
3. Projects linked with agriculture and related development such as
 - . Forzen Semen Technology
 - . Sericulture, Bamboo, Mushroom Production etc.
 - . Post Production Systems
 - . Rural Polytechnic Institute

Training needs in management for the project participants and field functionaries is also identified and establishment of BAIF Management Training Centre (BMTC) is proposed.

3.1.1 Training description and objectives

The BAIF is conducting Human Resource Development Activities through :

- 1) BAIF staff training in Management
- 2) Training to extension staff in programme activities
- 3) Training to programme participants in livelihood and health activities
- 4) Community training

3.1.2. Trainee Groups :

The target group and objectives of the training programmes are obviously different.

3.1.2.1 BAIF Staff Training is mainly for the staff working at the Head Quarters and stations and is aimed at strengthening technical, managerial and professional capacity and competencies of the staff for effective development and implementation of the programmes undertaken at the field level.

3.1.2.2 Extension staff training is for the field level staff in different programmes undertaken in various developmental areas such as agriculture, agro-technologies, health, social development etc. and is aimed at

- 1) proper orientation in organizational philosophy and approaches to the rural development.
- 2) playing appropriate roles competently and carrying out responsibilities in the successful programme implementation in the field.

/m

3.1.2.3 Programme participants training for the farmers and families from the geographical areas is for specific development such as Wadi, Wavali, sericulture, dairy etc. and is aimed at

↳ adopted

↳ activities

- 1) obtaining gainful self-employment in the village/rural area where the family lives.
- 2) imparting knowledge and functional skills for better utilization and development of land, livestock, water etc.
- 3) acquiring newer techniques and skills based on modern science and technology for upgradation of farming practices/for adopting new ways and methods for economic development (i.e. sericulture, mushroom technologies)
- 4) self-sustained development.

↳ and

3.1.2.4 The Community Training is for all the villagers, teachers, health workers, students, women, etc/ belonging to the area adopted for development and is aimed at developing awareness and participation in better health, hygiene, environment, non-formal education, community living and over-all enrichment of community.

/-

↳ the

With the participation of farmers and the community in various programmes linked with land, water, livestock, community health and education, the BAIF is aiming at integrated rural development. Training at various levels obviously plays vital role in the projects undertaken.

3.2 BAIF STAFF TRAINING :

3.2.1 Training for the staff is provided by :

1. Deputing BAIF staff to attend training/workshops organised by other institutions.
2. Organizing in-house training programmes/workshops for BAIF staff.
3. Regular training programmes for the extension staff and community functionaries.

3.2.2 During 1988-91, 64 training programmes were organised mostly in the areas of computer applications/technology, information management, orientation and training in research methodologies, organization and management, and acquisition of expert ^eis_h in new areas such as ferrotechnology, mushroom production,

etc. Out of these, 16 programmes were related to computer application and information management, in which 28 participants and newly recruited staff was trained. In the other 48 training programmes 113 persons participated. In some general training programmes entire BAIF staff participated.

3.2.3 The BAIF has also organised eight national and international level workshops/seminars during 1988-91 in the areas of forestry, agroforestry, dairy and rural development.

3.3. EXTENSION STAFF TRAINING :

3.3.1 This is the vital component of training for the field success of the projects and programmes of the BAIF. The training programme is an ongoing activity of the BAIF and can be grouped as

1. Under BAIF
2. Under IDRC

3.3.2 The training is mainly carried out at CRS, Urulikanchan, Vrindavan (Vansda) and at the places/villages where project is implemented. Various activities of training are classified for simplicity in the following areas :

- A - Agriculture
- B - Health
- C - Social Sciences
- D - General

3.3.3 Under these areas following subjects/topics of training are broadly covered.

(A) Agriculture :

- . cultivation of watermelon, vegetables, nursery, (mango, teak, etc) fruit trees and their after-care, forestry
- . grafting (mango, etc), livehedge, sericulture,
- . land development, intercropping, fertilisers, A-frame, Wadi, Wavli, farm ponds, silkworm, rearing, artificial insemination, dairy, live-stock

(B) Health :

Health camps, water, nutrition, Anemia & immunization, medicinal vegetables, Bhagats' training, VHW training, Malaria, Scabbies.

(c) Social Sciences :

Kinder graden, Balmela, wider role of teachers (KG & School) & VHW, Child development, Non-formal education, School children, personal hygiene, general health. Bal-mahotsav, youth clubs, self-help groups, parents education, women, community/rural development - general.

(D) General :

Stone block making, oil & gasifier engine operation, mango processing, fruit preservation, wood carving, furniture making.

3.4 TRAINING UNDER BAIF :

3.4.1 At CRS, Urulikanchan, the following programmes have been carried out (Details in Table No. 1)

For Extension Workers during 1988-89 - 1991-92

Programmes	Participants	Training days	Trainee x days
15	473	170	4952

Village

In areas of Health for Health workers and other participants during 1989-90 - 1991-92

Participants

Male	Female	Total	Participant x days
801	553	1354	5956

3.4.2 Training programmes under BAIF conducted for community, project participants (like Wadi, Wavli, etc) are given in Table No. 2 and 3. Brief for 1989-91 period is :

No. of programmes	Participants			Participants x days
	Male	Female	Total	

For Community				
14	10	244	986	1006
For Project				
participants				
212	5123	6625	13489	14450
Out of these for Walvi women				
14	-	3141	3141	3141

3.5 TRAINING UNDER IDRC :

3.5.1 Following training programmes are conducted under
- IDRC for Extension staff and community during
1989-1991 (Table Nos. 4 & 5)

No. of programmes	Participants			Participants
	M	F	Total	x days

Extension staff				
19	141	2	143	3510
Community				
42	358	935	1689	7085

3.5.2 Comparison of figures in sections ^{3.4} 4 and ^{3.5} 5 clearly reveals

- 1) comparable training activities introduced under IDRC (BIS) support for extension staff and community training.
- 2) Women participation is equal in most programmes and exclusive in Wavli programmes. It is more in community and project participation activities and very much less in extension staff.
- 3) No. of participants over the last three years has increased considerably.

3.6 TRAINING METHODOLOGIES USED :

1. Formal and classroom training at training centres.
2. Practical and on the job training.
3. By using audio-visual aids and models.
4. Non-formal education of teachers, students and other functionaries in community.
5. Farmer-to-farmer training for exchanging knowledge and confidence.
6. Study tours and visits for widening their vision.
7. By demonstrations.

The BAIF has quite effectively and successfully used these methods in various training programmes.

The field worker as a routine part of his duties guides and helps project participants, organisers training of farmers and plays an important role in the development. In Vansda 35 field guides are functioning.

3.7 PROJECT PARTICIPANTS TRAINING :

The details of the project participant's training is given in the tables referred above. At present 8016 families are participating in WADI programme:

Vansda - 5350, Akole - 1213, Naswadi (Gujarath) - 503, Mawal (Pune) - 200, H.D.Kote (Karnataka) - 750.

Important features:

1. Tube-well handpump are well maintained by trained tribal boys and girls.
2. Watermelon production through Wavli has helped 63 women earn about Rs.60,000/-. 53 groups of 347 tribal women have demanded participation in this (Vansda).
3. Tribal boys trained to operate and maintain engines are maintaining their engines.
4. In Wadi programme 2794 women under Wavli earned Rs.17.50 lakhs during 3 years through fruits, forestry nursery etc.
5. In Akole 100 ladies raised one million seedlings and earned Rs.2.5 lakhs. In Akole area 25,000 plants are grafted by tribal grafting technicians.

In general income generation through various efforts is quite substantial and is attracting more persons to learn and develop their agriculture for better income.

3.8 COMMUNITY TRAINING :

1. Community Health programme in BAIF is one of the major activity in the development and is integrally related to improvement of quality of life. Income generation forms the basis of health care as improved income will lead to improved nutrition and hence improved general health. For this purpose, family is taken as the Unit and emphasis is on 'prevention' rather than 'cure'. The community health activities, therefore, concentrate on health education, involvement of women and students, and include immunization, improved sanitation, routine ante-natal and under-five check-ups and growth monitoring of infants.

Community health activities are taken-up in a group of 37 villages (65000 population) at Vansda, 14 villages (10,000 population) in Akole and 12 villages (15,000 population) around Urali-kanchan.

Health consciousness is enhanced by training local traditional birth attendants (Dai's), KG and School Teachers, Students, by organising village meetings, involving people in the planning and implementation of the programmes in the community.

The RAIF health programme is designed on holistic approach and is based on participation of the people for improving economic and social quality of life.

2. Quite a variety of programmes have been organised under community training. Some of these in the area of community health are:

1. Camps for treatment for scabbies were extensively organised at Vansda (10 camps, 2187 participants) School children along with their families were treated and educated, with the result that prevalence of scabbies was reduced from 16.2% to 4.2% in one year. 47 General health camps were organised in which 911 male and 582 females participated. With the help of school children chlorination of wells is done regularly. 700 persons also participated in this programme at Vansda.
2. Teachers in Uralikanchan and Akola were trained in primary health care and rural development. At Uralikanchan 81 male and 79 female teachers and at Akole 48

teachers participated. 239 students were checked and 41 cases of various disabilities were detected and treated.

3. Kitchen gardens in all the 4 project areas were encouraged and 578 persons developed kitchen gardens.
4. Health check-up, MCH care at the project areas were carried out in which around 2700 persons were examined.
5. MCH care at Vansda has shown that the Infant Mortality Rate (IMR) has been reduced from 62 in 1988 to 44 in 1996.
6. Traditional Birth attendants (Dai) were trained in MCH care, and during 88-91, nearly 1000 ladies were trained. This has developed to grow antenatal treatment and HCH care. Similar programmes are being carried out at Uralikanchan and Akole.
7. Sericulture is a new development. 44 tribal boys and girls from Vansda have undergone sericulture training of 45 days and 16 families have started silk-

worm rearing. 42 families have started mulberry plantation. Additional 67 families have come forward for this activity.

3.9 TRAINING TO OUTSIDE AGENCIES :

The BAIF has shared its experience and expertise with outside agencies State Government Departments of Maharashtra, Gujarath, Bihar etc. and Khadi Village Industries Board have sent their officials, linkmen and farmers for training at CRS, Uralikanchan. During 1984-90, six agencies sent 1044 participants and 7264 participants x days of training was imparted (Ref. Table No. 6)

3.10 RURAL POLYTECHNIC INSTITUTE (RPI) :

(also named as Mahatma Gandhi Institute of Learning (MAGIL))

3.10.1 Background : Major problems of rural india are unemployment ~~or~~ underemployment, migration to cities, lack of training facilities in the recent developments of agriculture and agro-technology. The need of such training near their villages is particulary more for women. The rural development programmes of the BAIF

/ and

have a strong component of scientific and appropriate technology development that would give gainful livelihood to rural persons. Besides, the training forms an integral part of most of the rural and human resource development programmes. To strengthen this function and to integrate it with other activities, multilocal and multi-disciplinary polytechnic has been established. The RPI started functioning from 1989.

3.10.2 RPI Objectives :

1. Identification of training needs of rural youth and artisans leading to sustainable and gainful self employment.
2. Development of appropriate training courses in relevant areas.
3. Impart training to beneficiaries.
4. Provide post training guidance and support for gainful livelihood activities.

3.10.3 Work done

1. Four persons are employed fully to carry on the activities of the RPI.
2. Survey was conducted in 12 villages around Urulikanchan to identify possible employment areas and

training needs of the young farmers and artisans, and 10 courses were identified. Meeting of artisans was organised and their input requirements were assessed.

3. Courses conducted at RPI :

Year	No. of Course	Trainees			Trainee x days
		Male	Female	Total	
1990-91	6	55	91	146	1021
1991-92	6	52	50	102	4544
=====					
TOTAL	12	107	141	248	5565
=====					

Basis : One month = 24 days

Duration of Course = 2 days (Orientation in ferrotechnology) to 6 months (Sericulture)

Trainer/experts from Highschool, BAIF staff and Outsiders.

4. The feedback of the courses conducted is :

- 1) Longer courses be split into number of short durations, each not exceeding 6/7 days to enable participants to continue to work on their farm.

- 2) More emphasis on skill training and practice on the farm.
 - 3) Demonstration be given before giving practical/field work to the participants.
 - 4) Individual working instead of team-working.
 - 5) Post-training support for acquiring equipment, materials and marketing.
5. On-farm courses are conducted at CRS, Urulikanchan and off-farm courses in RPI. At present M.G. Vidyalaya, a local high school founded by Shri. Manibhai Desai is being used for RPI activities. The technical staff of the Highschool or outside expertise, whenever necessary/is used for training. On-farm courses are taught by BAIF staff at CRS, Urulikanchan. / 1
6. Production Centre : For giving post-training support Production Centres are planned in
- i) Mango pulping and products (at Vansda, Guj-rath) (*already established*)
 - ii) Carpentry
 - iii) Bakery
 - iv) Ferrocement technology
 - v) Sericulture
 - vi) Mushroom cultivation

The production centre is expected to be self-supporting/ in operational costs/ offer facilities to trainee to gain confidence and practical experience, offer advise in setting-up individual/group production units in rural area/ and help in marketing.

7. The RPI is expected to establish backward linkages with R & D as well as needs assessment and forward linkage by setting up production centre and marketing services.
8. Training modules are prepared in 5 courses and materials ~~is~~ being developed. Multi-media materials in the forms of charts, models audio, video, booklets/notes for training is being developed but the work is small scale.
9. Some students, (3 girls) trained in Nursarry raising have established their nurseries.
10. During the last two years, the RPI has spent about Rs. 90,000/- in acquiring equipment suitable for training.

3.11 BAIF MANAGEMENT TRAINING INSTITUTE :

The future direction of development of BAIF indicates that BAIF will expand not only in its activities but more in terms of development of appropriate technologies for rural industrialisation. This involves developing high quality materials by using better and improved technologies and transferring them to rural areas in a small manageable packages. This may add substantial value to the products developed by the farmers/artisans. Already the need for management training of the persons working in the farm and small production units is felt. This may become much more in future. It is, therefore, essential to provide institutional set-up for advance training to the farmers and individuals interested in managing small production units, cooperatives, marketing etc. The income generation activities in rural development programmes and their future development has obviously necessitated the provision for management training.

Another group of persons which can be effectively served by this management institute is the social workers from NGO working in the rural development. The field technicians and extension workers employed by the NGO's are generally less qualified and need tailor made training programmes.

The functions of the BMTC will be

- . identification of needs of the functionaries
- . development of training modules and materials
- . imparting training

The BAIF has already identified certain areas for training.

4. FINDINGS AND CONCLUSIONS :

4.1 ON TRAINING :

The detailed information and observations are given in the earlier section 3. Here we note down the general findings and conclusions.

1. The BAIF has adopted sound and successful approach to rural development with family as a unit of development with activities directed towards income generation and raising quality of life of the family and community.
2. The training programmes are playing extremely important and vital role in motivating families, farmers and women to participate in developmental activities. The size, extensive coverage in geographical areas as well as large population and diverse nature of activities has made the training a challenging task before the BAIF. It covers five locations with more than 80 villages and 8,000 families. More families from the regions are awaiting for admission to the programme.

3. The training is an on going and integral part of the BAIF developmental activities. They are covered under IDRC projects as well as in other projects under BAIF. The training of extension staff, project participant families and farmers and community training is quite a major part of the BAIF activities.
4. The technical and management expertise and competencies of the BAIF staff has shown radical improvement. This was evident in the notes and status reports submitted, orally presented and in the supply of information during our visit. The BAIF has in this matter reached quite a high standard comparable to that of the National and International Institutions. The high quality and expertise established in BIRC and other BAIF institutions have generated particularly with BIS support, high level expertise in the following areas:
 1. Computerization and Information Management.
 2. Development Management.
 3. Appropriate Research and Development for Rural Areas.

5. By organising eight National and International Workshops, the BAIF has projected its image as a leading R & D, NGO. The BAIF can help other NGO's in the specialised areas for further percolation of developmental activities in rural areas. The Wadi, Wavli and other income generating activities have been substantially expanded. The benefit received by the project participants has raised quality of life of the families, increased women and children participation in the community programmes.
6. The community training programmes are helping not only in community development through greater participation but also expanding horizon of developmental directions of the community. Many families and farmers are demanding additional activities of income generation, management of production units and marketing.
7. Project participant families and farmers who have worked in Wadi and other activities are being used for training in other rural areas adopted for development. This has helped not only in training but also in developing confidence in the farmers and in the programme.

8. Training methodologies used are quite diverse and appropriate to the situations. They need to be strengthen/with appropriate instructional technology support both in terms of hardware and software for higher quality instructions and sharing of expertise. One of the important area of training is community health and hygiene. The BAIF programmes are ensuring participation of teachers, students, traditional health attendents etc. This is ensuring preventive approach to the community health.

/ ed

18) 9. The programmes of sericulture and/production have started ~~mushroom~~ well and are having great potential for expansion.

/ mushru

4.2 ON RPI :

10. By considering the wide variety of target groups, their needs and philosophy of the BAIF, the RPI is a well identified strategic need of the BAIF and fits well in the overall activities organised. It will help/in particular/in

// 5

- developing approaches and methodologies for forward and backward linkage activities.

- developing training packages for various courses that could be adopted in different project areas either directly or with suitable modification, thus strengthening training at field and community level.
- effectively transferring appropriate technologies to rural persons.

/s

11. The RPI is at the initial stage of development. The building work has started, facilities are being established and training modules and materials are in the process of development and improvement. The courses implemented are at the pilot stage.

12. The institutional structure, functions and proposed activities could be well-formulated and worked out in details for speedy growth of the institution. For the development of effective training modules and materials, the institution will need

- i) services of instructional technology expert for producing instructional materials.
- ii) training programmes at higher skill levels requiring better use of appropriate technologies for more value addition.

- iii) well organised and established backward linkage with R and D personnel for appropriate technology modules for small-scale implementation in rural areas.
- iv) systematic feed-back and impact evaluation.

ON BMTIC

13. Spade work in developing BAIF Management Training Institute has been done and the need of the training persons engaged/rural development programmes has been well identified. Besides, the enormous task of Rural Development will need training other NGO's engaged in similar activities. Use of appropriate techniques and technologies at farm level/production centres will need management training programme.

in

and

GENERAL :

14. The women participation is equal in most activities. Wavli activity is entirely for women. In the field staff, the field guides are mostly men, whereas Village Health Workers are mostly women (32 womens, and 4 men)

15. One of the major outcome expected out of BIS is the evolution of replicable Development Model of BAIF for the Rural Development and Tribal Rehabilitation. This will need identification^{and studies} of socio-economic and cultural parameter^{s of background,} inputs and through-puts processes and their outcome^{and} achievement^s ~~studies on scientific basis~~. The four year support has developed and equipped the BAIF and the Wadi programme of tribal rehabilitation, is being implimented elsewhere,. The base-line and impact studies, proper recording of inputs may help in the detailed understanding of the Rural Development process so as to enable its successful replication. The task is very complex but challenging and worth doing.

5. RECOMMENDATIONS

1. The training is forming a vital input to the success of the Rural Development Programmes. It should be further strengthened and made efficient and effective by
 - (i) developing training modules appropriate to the training needs by employing expertise in training technologies.

- (ii) preparing training materials by using multi-media approach. This may need establishment of a separate cell or expansion of communication cell equipped with appropriate experts and facilities.

These facilities can be used for RPI as well as for the field training programmes.

2. Impact studies of the programmes for short and long term achievements be made an integral part of the projects. Detailed record of inputs and throughputs be maintained for evolving BAIF Development Model in quantifiable terms, wherever possible.
3. The Rural Polytechnic Institute be developed further with appropriate structure and resources. It should include units/cells for developing modules and materials as in (i) and (ii) of Recommendation No.1. Facilities for A-V production and use in non-broadcast mode be established.
4. A cell/unit for identifying appropriate technology packages for backward linkage for Production Centres be well identified and established with a function of backward-forward

linkage for developing the appropriate technologies and delivering them to the persons in rural areas. This may be a part of RPI or any other institution of BAIF.

5. Management training institute (BMTI) be established for training in farm management, small-scale production unit management, marketing, cooperatives and rural development for field functionaries.
6. The BAIF be given continued institutional support for extended period of about five years with the same earlier objectives. The BAIF should achieve not only the Rural Development but the replicable BAIF Development Model based on scientific studies of the activities.

TABLE NO.1

Training Conducted at Urulikanchan
under BAIF, outside RPI

In Agriculture Participants - Extension workers/
 field workers

Year	No. of prog.	No. of participants	Training days	Training x days
1988-89	4	185	66	2562
1989-90	7	201	69	1788
1990-91	4	87	35	602
Total	15	473	170	4952

In Health

Year	No. of prog.	No. of M	Participants F	Participants Total	Participants x days
1989-90		582	382	964	2651.00
1990-91		172	123	295	2212.50
1991-92		47	48	95	1092.50
Total		801	553	1354	5956.00

In Health & training, participants also include farmers - participants in projects of Rural Development.

TABLE NO.2**Training Programmes Conducted Under BAIF**

Year	Area	No. of Programmes	Participants			Participants x days
			M	F	Total	
<u>COMMUNITY</u>						
1989	A	3	-	63	63	63
1990	A	4	-	181	181	181
1991	A	1	10	-	10	30
	B	6	-	-	732	732
Total		14	10	244	986	1006
<u>PARTICIPANTS</u>						
1989	A	4	2	181	183	200
	D	1	20	-	20	300
Yr. Total		5	22	181	203	500
1990	A	95	1566	2263	3829	4784
	B	4	-	-	123	123
	D	1	16	-	16	112
Yr. Total		100	1582	2263	3968	5019
1991	A	76	2617	3123	7358	6823
	B	28	900	960	1860	1860
	D	3	2	98	100	248
Yr. Total		107	3519	4181	9318	8931
TOTAL		212	5123	6625	13489	14450

- Notes :
1. The programmes are conducted under BAIF / not IDRC supported.
 2. Most of the programmes are held at Virndavan, in Wavli and project villages and some are at Karnatak, Akole (Maharashtra)
 3. In some programmes division of participants into male and female is not available.

TABLE NO.3

WAVLI TRAINING AT VANSOA (GUJARAT)

Year	No. of Programmes	No. of Female	Participant x days
1989	3	166	166
1990	3	1670	1670
1991	8	1305	1305
Total	14	3141	3141

TABLE NO. 4

Training Programme of Extension Staff
under IDRC Project

Year	No. of Programmes	Participants			Participant x days
		M	F	Total	
1989	7	61	2	63	1165.50
1990	8	65	-	65	747.50
1991	4	15	-	15	1597.50
Total	19	141	2	143	3510.50

Note : Programmes were mostly conducted at CRS, Vrindavan, Akole. 2 persons were sent to Phillipines for 4 month training.

TABLE NO. 5

**Training Programmes : COMMUNITY TRAINING
under IDRC Project**

Year	Area	Program No.	Participant		Total	Participant x days
			M	F		
1989	B	4	-	81	81	166
	C	7	76	138	314	4915
Yr. Total		11	76	219	395	5081
1990	B	14	50	499	549	549
	C	6	107	108	215	588
Yr. Total		20	157	607	764	1137
1991	C	11	125	109	530	867
TOTAL		42	358	935	1689	7085

TABLE NO.6

**Training Imparted to Participants
From other Agencies at CRS, Uralikanchan**

Agency	Year	Participant No.	Participant X days
1. Dairy Dev. Department Govt. of Maharashtra	1984 1985 1986	200 352 98	1200 2112 768
		650	4080
2. Action for food Production-Officials	1984	20	420
Linkmen	1986 1987	28 19	224 152
Farmers	1989	20	420
		87	1216
3. Dairy Dev. Deptt. Bihar	1986	46 81	276 486
		127	762
4. Dept.of Animal Husbandary.Govt. of Gujarat	1988 1989	46 82	276 492
		128	768
5. Diff.State Govt.	1990	42	378
6. Khadi Village Industries	1985	10	60
Total - 6 Agencies	During 1984-1990	1044	7264

APPENDIX-I

INFORMATION SOURCES

- I. Meetings, visits and discussions with persons at places mentioned in Appendices II and III.
- II. Notes, Reports and statistical information submitted by the BAIF, Publications AV-films, training materials of the BAIF.
- III. Reports
 1. BAIF, Annual Report - 1990-91
 2. Training Programme in BAIF -
A Note September, 1991
 3. Rural Polytechnology Institute
Reference Note - September, 1991
 4. The BAIF Institutional Support Programme
Reference Note - September, 1991
 5. Development of Mushroom Production Technology
Reference Note - September, 1991
 6. Development and Standardization of Sericulture
Technology - Reference Note - Sept. 1991
 7. Rural Polytechnic - Technical Report, Dec., 1989
 8. Rural Polytechnic - Technical Report, Nov., 1990
 9. Women in Development - Report, Sept., 1991
 10. Exploratory Studies and Operations Research
on Post Production Technology
Reference Note - September, 1991

- 11.Information Services - Note
- 12.Child to Communicate Programme - Note
- 13.IDRC/CIDA - BIS - Terms of Reference for
Evaluation
- 14.Memorandum of Grant Conditions
- 15.Organisational Set-up and Operation Mechanics
- Note, July, 1990
- 16.Workplan for the Fourth Year Evaluation of
IDRC/CIDA cofinanced BAIF Research
Foundation - Rural Research project -
Nov., 1991
- 17.BAIF Management Training Centre (BMTC)
Concept Note
- 18.BMTC - Workplan and Budget Details for
April, 1991 - March, 1992
- 19.Feed Back Report of the Trainees from Pilot
Training Programmes under Rural
Polytechnic - Report
- 20.In Service Training and Orientation Programme
- a Briserg Experience, Baroda - Report
- 21.Community Health Programmes in BAIF
- a Note by Dr. Chirmulay
- 22.Community Health in BAIF - Progress and future
directions - a Note

APPENDIX-II

PERSONS MET AND INTERVIEWE

At BAIF, Pune

1. Dr.Manibhai Desai, President, BAIF
2. Dr.N.G. Hegade, Vice-President, BAIF
3. Shri Girish G. Sohoni, Res.Programme Organiser
4. Dr.B.R. Mangurkar, Res.Progr.Organiser,
Maharahstra
5. Shri S.C. Kanekar, Jt. Progr.Coordinator
6. Dr.Mrs.D. Chirmulay, Prog.Coordinator
(Health Science)
7. Shri Arvind Karandikar, Prog. Coordinator
8. Shri P.C. Adhikari, Jr.Prog.Coordinator
(Communication)

At Uralikanchan

- | | | |
|---------------------|---|------------------------|
| 1. Dr.A.B. Pande, | - | Training Coordinator |
| Veternary Doctor | | |
| 2. Shri A.A. Panse, | - | Coordinator . |
| Hydrogeologist | | |
| 3. Shri J.D. Bapte | - | Administrative Officer |
| 4. Shri K.M. Kokate | - | Training in Agro-based |
| Agronomist | | activities |
| 5. Dr.Y.D. Phadnis | - | Coordination, Training |
| Veternary Doctor | | at CRS |

6. Shri L.S. Vedpathak - Principal, Highschool,
Uralikanchan
7. Shri V.B. Sidid - Supdt. Technical Section,
Highschool
8. Shri Dikshit - Instructor, Carpentry,
Highschool
9. Shri Gaikwad - Instructor,
Highschool
10. Shri Shilamkar - Instructor,
(ferro-technology)
11. Shri R.S. Mane - Agri.Res. Officer
(Mushroom development)
12. Two participants in Sericulture training.

At Vansda, Gujarat

Met VHW's, Field Workers, Medical Officers,
Participants in Wadi (3 - families), Sericulture (2 -
families) Wavli groups (at 3 - places), trainee par-
ticipants at two places, Community place constructed by
Wavli women, Tube-well operators, oil engine
operators-trainees at
Boriach, Mindhabari, Ghodmal, Gangapur and Vrindavan.

APPENDIX-III

PROGRAMME OF VISIT AND WORK OF DR. RAM TAKWALE

<u>Date</u>	<u>Time</u>	<u>Place</u>	<u>Purpose</u>
04 Nov.91	09.30 - 17.00	Vansda (Gujarath)	Field visit Accompanied by Dr.Manibhai Desai, Mr.G. Sohoni.
11 Nov.91	09.00 - 17.00	IDRC Office Delhi	Briefing Session, Signing contracts.
16 Nov.91	08.00 - 18.00	Uralikanchan Wagholi(Pune)	Visit to project activities. Presentation of Projects Discussions - general.
17 Nov.91	09.00 - 18.00	BAIF - BIRC Pune	-do-
18 Nov.91	08.30 - 12.00 14.00 - 17.00	Hotel Pune BIRC, Pune	Team Meeting Personal research, discussions.
19 Nov.91	08.00 - 18.00	CRS, RPI Uralikanchan	Personal research, visit, discussions.
20 Nov.91	09.00 - 17.00	BIRC, Pune	Personal research Meetings.
21 Nov.91	09.00 - 16.00	Pune	Development of draft report, meeting with Dr.J.B., BAIF persons.
24 Nov.91 26 Nov.91		Nashik	Analysis of information, writing report.
27 Nov.91	09.00 - 17.00	BAIF,Pune	Finalization of Report Debriefing with Dr.Desai, Mr.Hegade, Mr.Sohoni, Dr.J.B.
29 Nov.91	09.00	IDRC Office Delhi	Debriefing with IDRC/ CIDA