

Projects

AQUACULTURE WITHOUT FRONTIERS

PROJECT PROFORMA

SECTION 1:

Project Outline

Funding request (totals for each year)

Project title:	
Proponent's name:	Father K.J. Joseph , Director , Don Bosco Vocational Training Centre
Phone:	91-9436123473
Fax:	91-381-2380822
Email:	mcnraju@yahoo.com
Proponent's organisation:	St. Xavier's Vocational Training Centre
Project Number:	
Country/ies:	India

Year 1	Year 2	Year 3	Year 4	Total
INR : 538,000 (@ 13450 USD)	INR : 108,000 (@2700 USD)	-	-	INR: 646,000 (@16150 USD)

Funding support from contributing agencies/individuals (totals for each year)

Year 1	Year 2	Year 3	Year 4	Total
		-	-	

Project Duration:	24 months
Proposed Start Date:	June , 2008
Proposed Finish Date:	June , 2010

Key Contacts:

Project Leader: Partner Country	
Fax	91-2380822
Title and Name	Father K.J. Joseph
Position	Director
Organisation	St. Xavier's Vocational Training Centre
Phone	91-9436123473

Email	mcnraju@yahoo.com
Address	St. Xavier's Vocational Training Centre , Bishramganj, Tripura

>Collaborators:	
Title and name	Dr. M.C.Nandeesha and Dr. B. Santhosh
Position	Scientists
Organisation	College of Fisheries, CAU, Lembucherra -799210, Agartala, Tripura ICAR Centre for NEH region, Lembucherra -799210, Agartala, Tripura.
Phone	91-9436365392 (Nandeesha) and 91-9436129737
Fax	91-381-2380822
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Postal Address	College of Fisheries , CAU, Lembucherra -799210 , Agartala , Tripura ICAR Centre for NEH region , Lembucherra -799210, Agartala , Tripura.
Street Address	Same as above

SECTION 2:

Project Summary

In Tripura fish is an integral part of the food of people: those who can't afford to purchase fresh fish frequently, at least buy dry fish and /or fermented fish to have fish flavour in their meal. In addition, changing demography of the state with 70% of the population now comprising Bengali people, the demand for fish is on the increase. As a result, fish of any size can be sold at any time and progressive farmers with experience in fish culture view fish not only as food, but fish pond as an "ATM". Even with such good demand, productivity of fish ponds is poor, particularly with Tribal people who do not yet view fish culture as a potential economic activity.

In the past two years, efforts were made to introduce fish culture and increase fish production from the existing ponds. This effort in the first year contributed thirty farmers, majority of them belonging to tribal communities derive support to improve fish production. In the second year, the number was increased to fifty farmers, with most of them again coming from the tribal areas. In the ongoing culture trials, the project activities has been expanded to cover Bengali community and at present altogether 75 farmers derive direct benefit from the project activities. Besides the social issues that are confronted in effective project implementation, among the technical issues, availability of quality seed of desired species is recognized as one of the important issues that are contributing to lower productivity. Hence, through this project, it is aimed to establish a community hatchery complex and provide quality seed to entrepreneurial farmers to nurse the seed to appropriate size and sell to other farmers /traders in their area. The hatchery would be managed with the participation of the community with the Vocational Training Centre playing the main role. In addition, the facilities built will be mainly used to train youth who are brought to the St. Xavier's Vocational training centre to provide training on integrated farming activities including aquaculture. Annually the centre trains about 50 boys and 50 girls, comprising largely school dropouts brought from the areas that have poor access to facilities and livelihood options. It is anticipated that the facilities built will have long term multifarious benefits to stimulate good aquaculture practices in the State with the graduated trainees initiating activities in their places, spread throughout the state and that too in difficult areas. Following major outputs are anticipated from the project : potential youth are trained in fish seed production and nursing besides fish farming ; sustained availability of quality seed of the desired species to the community; spread of good seed production practices to different parts of Tripura through the youth

trained annually; creating seed nursing as an economic activity at village level ; enhancing fish productivity of the farmers through the use of quality seed available in their own vicinity.

The project operated by the St. Xavier's Vocational training centre will obtain the technical support to implement the activity from the College of Fisheries under the Central Agricultural University as well as the Regional Research Station of the Indian Council of Agricultural Research located within Tripura State. In addition, the expertise of the Don Bosco in community mobilization and integrated farming will help in having good impact of the project activities. It is anticipated that during this period of two years, the activities will get integrated to the Vocational Training Centre programs and thereby the activities will be carried out after completion of the project.

SECTION 3:

Project Justification and Methods

3.1 Background and Justification

Tripura has more than 60% of the area under forest and is known for its rich biodiversity. Rice is the major crop grown and it is the staple food with fish for large section of the population, particularly the Bengali community, which constitutes nearly 70% of the total population. The average land holding of people is small with majority having less than one ha. The rain fall is high in the area with an annual rainfall of @2000 mm. and the land topography is such that nearly 60-70% of the area is under hills, called as "tilla" land with rest being low lying area called as "lunga" land. Ponds are built in various localities mainly as water harvesting devices for use in the dry season. The ponds available with farmers are usually of small size with an average area of 900m². Fish is a highly valued commodity in the area and the price of fish is higher as compared to several other parts of the country and hence large quantity of fish is imported from outside the state and sold. Fish ponds are yet not effectively utilized for aquaculture due to various reasons. Availability quality seed of the desired species and at the right time is recognized as one the technical constraints hampering aquaculture development in the State in areas that reasonably good access to resources. In other areas suffering from insurgency coupled with poor communication facilities, people suffer from even getting poor availability of inputs, irrespective of the quality.

Through the AwF support, in the first year, effort was made to bring awareness among people about fish culture and encouraged them to initiate fish culture. Based on the results observed with thirty families in the first season, the number was increased to fifty families in the following season. These farmers were given training and follow up support along with some essential inputs like lime, fish seed and some chemical fertilizers. It was possible to increase fish production from a low of 750 kg/ha to more than 1300 kg/ha. Besides fish culture , through an integrated approach , with the support of ICAR centre , farmers were also assisted to improve other farming activities , particularly in the area of tuber crops , supply of good breeds of poultry , pigs and mangos. Large majority of these farmers belonged to tribal communities and the experience of these farmers in carrying out the fish culture with the resources available indicate the opportunities available to improve fish availability as well as income of these poor farmers. The situation in Bengali dominated area where the work has been initiated during this year is similar in terms of quality seed availability , but in terms of their involvement in the activity is much higher as compared to tribal farmers. There is a large variation in response to the interventions between the two communities that are influenced by cultural, social and political situations.

Few of the seed producers engaged in the activity aim at just producing the seed without any respect for the quality and farmers have no easy way to differentiate the quality. In addition, desired types of fish seed are not available at the right time and farmers tend to stock whatever is available. Poor communication facilities and insurgency further hinder the seed availability in different parts of the state. Hence, this project has been designed based on the suggestions made by farmers to help them with quality seed by establishing a hatchery that will be managed with the active participation of community. The hatchery will also focus on species that are in need of farmers like minor carps and gradually aim to introduce easy to culture species like tilapia.

Most importantly, the proposed facilities will serve as a training resource for the rural youth in the ongoing one year training program. St. Xavier's Vocational training centre provides one year course to rural youth on integrated agricultural activities, generally comprising of 50 boys and 50 girls. These youth are drawn from the rural areas and they are generally school dropouts looking for some skills to earn their livelihood. The training centre has good integrated farming facility with nearly two hectares of water area at present. In this centre, it is proposed to establish the hatchery facility. The existing pond facility will serve as brood stock maintenance ponds and new structures created will serve as central spawn production facility. The seed produced will be supplied to identified entrepreneurial farmers in the project operational villages and encourage them to engage in seed nursing and selling business. Hence, through this training of youth, greater objective of spreading the good practices to various parts of Tripura will be achieved.

Aim of the project:

To improve the quality seed availability to fish farmers in Tripura

The objectives of the proposed project are

- establish a central hatchery facility to produce quality fish seed
- Train rural youth attending the course on agriculture with St. Xavier's Vocational training centre on seed production and nursing besides aquaculture
- promote decentralized seed nursing and distribution of the nursed seed at the village level employing family approach
- Provide support to fish farmers to improve their fish productivity
- Support decentralized quality seed production and nursing by the trained youth and farmers in different parts of Tripura

3.2 Project Context (relationship to other activities)

This is a follow up project developed based on the felt need of the community as well as the St. Xavier's Vocational training center's opportunity to train youth on seed production and nursing besides fish farming. Through two years of work on fish culture with the community, the centre has been able to establish good relationship with the community and initiate their community development activities through agriculture. The community is beginning to feel and appreciate the approach of the project with emphasis on knowledge and focus on women. The project encouraged farmers to use the on-farm resources or use the resources available with them to buy the pond inputs. Though the production levels obtained by farmers is still low (@1300 kg/ha), the increase in productivity from an earlier level of @ 750 kg/ha has brought happiness to farmers. In addition, by adopting farming systems approach, farmers have been assisted in various ways to improve the productivity of other agricultural crops as well animal husbandry practices, though focus continues on fish.

The project has actively collaborated with the College of Fisheries and the Indian Council of Agricultural Research Centre established to address the issues of hilly region in Tripura. This partnership has enabled the project to derive the benefits of the scientific outputs not only in the field of aquaculture, but also in the other areas of agriculture, particularly through the ICAR centre. Integration has been the main focus and the project has introduced improved tuber crops that are popular with tribal farmers, vegetable cultivation, piggery which is again very popular with tribal farmers.

The St. Xavier's vocational training centre has established good working relationship with various Government agencies. The successful integrated activities carried out by the centre have become the

model activities for the State. The practical approach taken up by the centre in providing vocational skills has made highly positive impact. Further, because of the insurgency prevailing in some pockets of the State, the activities of the centre have become all the more important as they are capable of going in to areas that risk prone and work for the benefit of the community.

The College of Fisheries with eight different Departments offers a four year undergraduate program for the students mainly drawn from the Northeast region. The region has witnessed the fast growth of aquaculture sector and at present the regions contribution is estimated to be about 50%. With the declining capture fisheries resources, aquaculture is expected to make the increased contribution to meet the demand. Accordingly the students are given orientation with focus on aquaculture. The project in the past has given an opportunity for the students to derive the benefits of the field experience of AwF projects. It is expected that in future too, students will immensely benefit from the project.

The Indian Council of Agricultural Centre has been established for the Northeastern region hilly region with a specific mandate of developing farming system technologies to benefit people. Farming systems mode of research is the main focus and the centre has developed already four different farming systems models that can fit in to different regions of the state. The centre has the scientific staff who deal with varied crops grown on the farm and this multidisciplinary expertise available on the station has been a great advantage to the AwF project. In the past, AwF farmers have derived larger benefits from the farming system approach.

In addition to the above two scientific institution , the project will also derive the expertise and support of the State Council for Science and Technology , Tripura University , Bamboo mission , rubber board etc to help the farmers to address varieties problems encountered in their farm and improve the farm productivity.

3.3 Detailed Methods/Strategy:

The project will organize consultation involving all the stakeholders to develop a strategy that will help in accomplishing the set objectives in the given time frame. St. Xavier's Vocational training centre with a basic objective of building the capacity of people, particularly the poor, has a good net work to select people from the most disadvantaged areas and bring them to the vocational training centre to give them necessary knowledge skills on an annual basis. The technical help for the project operation will be sought from the College of Fisheries as well as ICAR. Since Dr. M.C.Nandeesha and Dr. B. Santhosh have been actively supporting the project we do not see any difficulty to get the continued support.

The project will focus on Indian major carp seed, namely catla (*Catla catla*) and rohu (*Labeo rohita*), common carp (*Cyprinus carpio*). Improved variety of common carp, named as Amur carp (*Cyprinus carpio*) has already been procured and built as a stock in the St. Xavier's centre and breeding will be undertaken. The Centre also has built the good brood stock of rohu and Chinese carps , namely grass carp and silver carp .

There is growing interest and demand of farmers for the three other carps that are more suitable for culture in small ponds , namely silver barb (*Barbodes gonionotus*) , bata (*Labeo bata*) , gonius (*Labeo gonius*) . The centre will aim to build the brood stock in adequate numbers.

Tilapia is yet not officially introduced for culture in the state, though Nile tilapia is available from the stock brought from Bangladesh. It is learnt that Government has provided permission for the two major companies to start the tilapia culture under bio-secure environment. The centre would explore the possibility to establish link and initiate tilapia culture on the training centre to build capacity of youth on this potential species.

The project will identify ten seed growers in the first year and they will be given training on seed nursing and trading in the local area in the first year. In addition , the quality seed produced will be

sold to other entrepreneurs from outside the project area to undertake the seed nursing and selling in their area.. In the second year, another twenty seed growers will be selected and trained in fish seed nursing and sale to people in their area.

As the hatchery operation and establishing the seed nursing requires technical support, a full time technical staff is accommodated within the project. Based on the past experience and considering the local environment , it is considered essential to have such a support system.

A Chinese hatchery for breeding carps will be established along with the facilities for jar hatching will be built on the station. This will help to produce the different species and undertake simultaneous hatching.

Activity details

a) Month 1-3: Organizing the stakeholders consultation and developing a memorandum between the St. Xavier's Vocational training centre and the participating villages as nursery operators. Complete the working arrangement with the two institutions involved , namely , the College of Fisheries and the ICAR centre , both based in Agartala , Tripura

b) Month 1-6 : Finalize the hatchery plan ; initiate construction and make the hatchery available for seed production within three months; procure quality brood stock of silver barb , bata and gonius to supplement the existing brood stock of major carps of the station. Involve potential youth trainers of the Vocational training centre at all stages of hatchery development and operation

c) Month 3-9 : Train entrepreneurs in seed nursing and help them to begin seed nursing on trial basis using ponds and hapas. Help these entrepreneurs to develop their village network for the sale of fish seed. Include in training , social aspects of providing value service to people with transparency and the technical aspects of growing the quality seed by giving the required nutrition to the growing seed. Expose Vocational training centre youth to the practical field situations by allowing them to have constant interaction with seed growers.

d) Month 3-12 : Provide follow up support to farmers engaged in fish culture through the fish seed nurseries. Assess the service provided and provide back up support as by employing the Hatchery operator / Trainer to strengthen the capacity of nurseries. Initiate village level common carp seed production in the winter season.

e) Month 12-16 : Maintain quality brood stock in adequate numbers on the station. Initiate seed production of carps early in the season. Supply spawn to entrepreneurs for nursing of the seed. Monitor the fish culture progress with the farmers and make plans for fish culture based on the results obtained. Initiate tilapia culture using quality Nile tilapia seed on the Vocational training Centre , if the official permission is obtained and demonstrate the potential to farmers and trainees of the training centre. Help the graduated trainees to initiate activities in their area.

f) Month 17-20 : Provide support to farmers in the field through the fish seed nurseries and document the progress and constraints experienced . Initiate common carp seed production. Encourage one – two active persons to initiate seed production of other easy to breed species like silver barb. Continue technical support to the Alumni of the training centre to initiate the activity.

g) Month 20-24 Organize stakeholders consultation and develop strategies for the management of the hatchery on self supporting basis. Present results and provide plans to the State Fishery Department on scaling up the activity based on the experience gained. Project .

3.4 Methods and Outputs Table

>Objectives	>Methods/Activity	>Outputs	>Timeline
1.Establish central hatchery facilities	Establish formal relationships with farmers and institutions participating in the activity. Identify potential youth in the Vocational training centre to involve in fish seed production activity.	Formal agreements are made with the participating farmers and institutions. Potential youth are identified to undertake seed production and nursing activities.	within 3 rd month
	Establish one open well to ensure regular water supply ; construct Circular breeding pool with one circular hatching 10 jar hatching facilities for hatching of different species ; build cement tanks for early nursing of fish seed	Hatchery facilities becomes available .	within 6 th month
2.Train youth of the training centre on fish culture, fish seed production and nursing	Organize structured learning sessions for the trainees along with practical session involving full culture cycle in the commercial culture ponds of the centre. Identify the keenly interested persons from the trainees and train them further on fish seed production and nursing activity.	Learning session modules become available in local language and students admitted to the Vocational training Centre get formal training on fish culture . At least ten boys and girls with potentials to establish seed production are chosen and given training in seed production and nursing	Within 12 months
	Potential youth of the centre are trained on seed production and nursing. Seed production of major carps and minor carps is started at the centre and seed become available for nursery operators	At least three species of fish seed is produced at the Vocational training centre and trainees acquire new skills	Within 6 months

3. Promote decentralized seed nursing and distribution at the village level employing family approach	Training on fish seed nursing is provided employing family approach wherein both husband and wife in the family are trained.	At least ten farmer families are trained and nursing activity is initiated	within 6 months
4. Provide support to fish farmers through seed growers to improve their fish productivity	Use seed nurseries as key source of information provider to farmers engaged in fish culture. Ensure that each seed nurser is given designated number of farmers under the supervision and show the results. Involve Vocational training Centre students to help them gain field experience	About one hundred farmers under the project will be covered and assisted to improve fish productivity. .	within 12 th month – first cycle and within 24 th month – the second cycle.
	Encourage farmers to produce common carp seed as a first step of decentralized seed production activity	Five seed producers begin common carp seed production and nursing	Within 12-16 th month
	Explore tilapia culture on the St. Xavier's Vocational training Centre using the quality tilapia seed	If the seed of tilapia becomes available, tilapia culture would be initiated on the station and used for demonstration. The activity will be initiated in farmers' field officially, if the permission is obtained to undertake the activity from the Government.	Within 12-16 th month. This will be subject to clearance formalities. However, debate on the potential of tilapia as the culture species would be initiated based on the permission granted by the Government for the culture of Nile tilapia
5. Support decentralized quality seed production and nursing by the trained youth and farmers in different parts of Tripura	Trained youth would be encouraged to initiate seed nursing as a first step and later seed production of easy to breed species. Around the Vocational training Centre farmers intensify seed nursing and seed production of easy to breed species like tilapia and silver barb	At least ten trained youth begin seed nursing in their area and ten farmers around the centre begin producing the seed of easy to breed species	12-18 th month.

3.5 Travel

The staff would provide support to core farmers involved in seed nursing and use them as information providers to farmers in the village. The bike available with the project will be utilized to provide such a support. Technical support needed for the project establishment and running would be derived from the technical experts. The experts would make a visit based on the necessity.

3.6 Project personnel

(i) List of participants involved in the project

Name	Sex M/F	Agency	Position	Time in project (%)	Funded by
Father K. J. Joseph	M	Don Bosco	Project Leader	30%	Don Bosco
Mr. Fazal Ali	M	Don Bosco	Administrator	20%	Don Bosco
Mr. Joshy Joseph	M	Don Bosco	Manager	20%	Don Bosco
Hatchery Operator		Recruitment	Hatchery Operator	100	AwF
M.C.Nandeasha	M	College of Fisheries	Adviser	10%	College of Fisheries
B. Santhosh	M	ICAR	Adviser	10%	ICAR

3.7 Communication and dissemination strategies

The information generated from the project will be disseminated for the benefit of other farmers in the State through presentation in the annual Fish Farmers Day celebration, involving all stakeholders. Besides, both print and electronic media will be used to disseminate the information. The reports will be submitted to the WAS on quarterly basis for publication in the website

3.8 Intellectual Property and other regulatory compliance

All the developments and innovations made would be duly acknowledged and due credit to all will be given. AwF will be informed of all the developments and IPR will be ensured.

SECTION 4:

Project outcomes and adoption

4.1 Social benefits

Farmers in the region will be able to get quality seed and the availability of quality seed will directly influence fish productivity. Decentralized seed nursing would help women gain addition skill to earn income and this would enhance their position within the family and in the society. The hatchery being located in the vocational training centre, it will provide an opportunity for the youth to get the required training from this project and this might help in spreading the technology to different parts of Tripura more efficiently as the students graduate and move to their own places.

4.2 Economic benefits

The direct economic benefits can be seen to entrepreneurs who get engaged in seed nursing and trading. Farmers would improve their income by using the quality seed from the reliable source. The income of the Vocational training centre will also improve on the long run by taking seed production

activity as an income generating activity. This would help the centre to expand its activity. The seed growers will be able to improve their income substantially.

4.3 Environmental benefits

The environmental benefits of the projects will be in terms of utilizing the resources available on the farm without waste through aquaculture. Fish seed growers also will be encouraged to use the various wastes available for nursing as that would help to reduce the cost. Efficient methods to conserve water by developing water harvesting structures will be incorporated in the project sites. Further, water will be recycled in all cases to the extent possible so that water wastage is reduced.

4.4 Enhancement of capacity

The project will build the capacity of the St. Xavier's vocational training centre engaged in building capacity. This is the most direct and immediate effect that can be seen from the project in terms capacity enhancement. Secondly, the entrepreneurs who would undertake fish seed nursing will acquire additional skills. By adopting family approach, women will be encouraged to take lead in managing the activity of fish seed nursing. Thirdly, the farmers who will be supported to undertake aquaculture with quality seed will gain additional knowledge and confidence by seeing the impact of stocking quality seed and adoption of better management practices on fish production. Other institutions involved in helping the project, particularly, the students of the College of Fisheries will derive the benefit of project and it will help in enhancing the capacity of students in many ways. The facilities built can also be used for the work experience of students and thereby build the capacity of students.

SECTION 5:

Budget

5.1 Requested from AwF.

Budget items:	Unit rate		Total	Year I	Year II
	(In Indian Rs.	Units			
1. Personnel					
1.1 Hatchery operator and Trainer	6000	24	144,000	72,000	72,000
1.2 Hatchery workers	100	200	20,000	10,000	10,000
2. Travel					
1.1 Petrol	20,000		20,000	10000	10000
1.2 Technical staff travel	10,000		10,000	5000	5000
3. Training			-		
1.1 Food expenses for farmers	8000		8000	4000	4000
1.2 Training materials for farmers	4000		4000	2000	2000
4. Hatchery construction	200,000		200,000	200,000	
5. Construction of well for water supply	125,000		125,000	125,000	
6. Cement tanks for nursing	100,000	5	100,000	100,000	
7. Contingency	15000		15,000	10,000	5000
Total			646,000	538,000	108,000

Don Bosco contribution

Don Bosco would cover the salary of staff provided from the Centre for management. In addition, the centre will also provide all the logistic and vehicle support that would be required for the project.

In USD: 16150/-

ONE USD: About Indian Rs. 40.00 /-

SECTION 6:

Additional Documentation

Short curricula vitae (resumes, bio-data):

St. Xavier's Vocational Training Centre: This centre is built with the purpose of providing skills and knowledge to rural youth in areas that help them to earn livelihood. The centre has large rubber garden coupled with rubber processing centre , various horticultural crops integrated effectively with fish culture ; apiculture , sericulture , dairy , rabbit , etc are also taken up on a pilot scale '. In addition, driving school, computer centre, tailoring school, bamboo processing centre provide additional exposure to students in the area of their interest. Father K.J. Joseph is the Director of the Don Bosco Vocational Training Centre and has practical experience on many aspects of agriculture and community development, besides his skills in public relations.

Mr. Fazal Ali Mazumdar: He holds diploma in Engineering with expertise in mechanical engineering, computer and accounting. He would be involved in providing the required managerial as well as engineering support needed to build the hatchery under the project.

Mr. Joshy Joseph: He is working as the Manager of the Vocational Training Centre and provides support to develop activities that have economic sustainability. He has acquired good experience in developing small scale business models. He has undergone training in fish nutrition with the support provided by AwF and ACIAR.

College of Fisheries: This is an institution with eight major Departments and having experts in various fields. Dr. M.C.Nandeesh of this institute will act as the central link person and provide the necessary support as required. He has expertise in rural aquaculture and has experience of working with NGOs.

ICAR Centre for North East hilly region: This centre is actively engaged in farming systems research and has developed successful models for the Northeast region. The centre has scientists dealing with various aspects of Agriculture. Dr. B. Santos is working as Scientist (Fisheries) and he has several years of experience on aquaculture development in Northeast. In fact, it was the timely suggestion and help of B. Santos that contributed for the development of the fish farm as part of the integrated farming complex developed by the St. Xavier's Vocational Training Centre. Dr. Santhosh will act as central link person from the ICAR centre in implementation of these activities.

Dedication of the facilities

The facilities built are proposed to be dedicated and named as "South Place Marlow Hatchery" to recognize the contribution of people of that street that has helped to stimulate aquaculture development here in Tripura. This is the commitment made in the message sent to the street party held last year. If support is provided, the St. Xavier's Vocational Training centre will strive hard to accomplish the activities as proposed.