



Neighbourhood Empowerment through Science & Technology



Annamalai University

**The NEST of Technologies
for Neighbourhood Empowerment**





Neighbourhood Empowerment through Science & Technology

Objectives

1. To enrich the lives of the local community through a “NEST” of measures
2. To entwine Science and Technology with the lives of people in the neighbourhood -- The rich scientific data and technological expertise that the University possesses for its academic purpose have been extended to the society and entwined with the everyday lives of people
3. To empower the neighbourhood communities with sustenance and self-reliance – The practice aims to enable agricultural folks and fishing community of the region overcome their occupational challenges, and ensure them with a guaranteed income, and empower them with an improved socio-economic status

Context

Annamalai University is set in a rural environment very close to the eastern coast, amidst three most disadvantaged districts of Tamil Nadu where the majority of the population is socio-economically marginalized. Since it is not an industrial region, the lives of the people in the region is highly precarious and uncertain where the struggle is often to make both ends meet. The majority of the population of these districts depends on agriculture and aquaculture (Fishing) for their livelihoods. Less productive coastal lands, vagaries of monsoon, sea water intrusion, proneness to and frequent occurrence of natural disasters (like floods, cyclones, etc..) and low literacy rate render the lives of these people highly precarious.





NEST



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Context



Though the University has played a significant role in improving the overall socio-economic condition of the region through its educational service, it wanted to address this singular issue that poses a particular challenge to the backbone occupations of the region, namely Farming and Fishing. Annamalai University, a nest of scientific expertise and technocrats, has come forward to share its scientific expertise and technological resources with the rural as well as coastal folks of the region so as to make their occupations more rewarding, stable and risk-free. The University has been indulging in a set of extension and outreach activities to alleviate the livelihood problems of the local community and improve the standard of life of the people, especially, the farmers and the fishermen. The University has been consciously and systematically indulging in these activities as part of repaying its debt of gratitude to the local community in particular and the nation in general.





The Practice

The lives of the farmers in the region have been incredibly changed through the introduction and supply of certified seeds: “**Annamalai Brinjal**” – the most sought after variety for many popular and authentic South Indian cuisines; the brinjal variety developed by the University is a pest tolerant variety that offers high yield with low inputs and, thus, guarantees profit to the vegetable farmers.

ANNAMALAI BRINJAL



- Annually 100 KG of **Annamalai Brinjal certified** seeds are produced and offered to the farmers at nominal cost
- The delta farmers get benefited by getting the quality seeds required for brinjal cultivation in 600 ac area



The Practice

“SIGAPPI” (CR1009-SUB1) -- a submergence-tolerant rice variety released by the **Faculty of Agriculture, Annamalai University in collaboration with IRRI, Philippines**, has significantly helped the farmers combat with the recurrent devastating floods in the region.

SCIENCE & TECHNOLOGY / AGRICULTURE

FARMER'S NOTEBOOK

CHENNAI

THE HINDU • THURSDAY, SEPTEMBER 11, 2014

New Sigappi paddy variety creating interest among growers

It is much sought after by Cauvery delta farmers in Tamil Nadu

M.J. PRABU

Cauvery delta region, considered to be the granary of Tamil Nadu, is prone to many natural calamities like uncertain monsoon rains, periodical floods etc.

Under these circumstances, a new rice variety named “Sigappi” has been developed by researchers at Annamalai University to get better yields under submerged conditions. It is 150-154 days under irrigated



NEW RELEASE: The International Rice Research Institute recorded its appreciation for the release of this new variety. – PHOTO: SPECIAL ARRANGEMENT



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The Practice

In order to encourage entrepreneurial culture among the fisher-folk, **marine ornamental fish hatcheries** have been established with the financial support of DBT and MoES.

CLOWN FISH BREEDING



Solar tunnel dryers are established to provide training on hygienic dry fish production.

HYGIENIC DRY FISH BY TUNNEL SOLAR DRYER





NEST



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The Practice

Series of training to fisher-folks on post harvest management of fishes

FISH CLEANING: TRAINING



HYGENIC DRY FISH PRODUCTION





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The Practice

Since post-catch processing and preservation helps the fishers a lot in balancing the fluctuations in demand and supply and enhancing their earnings, a **Fish Drying Bed of 2000 sq.ft. area and a storage facility** have been dedicated to the neighbourhood fishing community at Mudasalodai.

ANNAMALAI UNIVERSITY
(A State University - Accredited with 'A' Grade by NAAC)
PUBLIC RELATIONS MANAGER OFFICE
NEWSPAPER CLIPPING

Date : **29-OCT-2019**

THE HINDU CHENNAI p 2 29/10/19

OFFICE OF THE
PUBLIC RELATIONS
ANNAMALAI UNIVERSITY
ANDHRA PRADESH

Fish-drying yard and building opened

Facilities provided at an estimated cost of ₹10 lakh

**SPECIAL CORRESPONDENT
PUDUCHERRY**

The Dr. Ambedkar Chair of Annamalai University commissioned a fish-drying yard and building in Mudasalodai village in collaboration with National Backward Class Finance Development Corporation (NBCFDC), New Delhi.

CSR Initiative
The facilities are provided under a CSR initiative at an estimated cost of ₹10 lakh.
K. Narayan, Managing Director, NBCFDC opened the yard and V. Murugesan, Vice Chancellor, Annama-



Rajasekaran, Director, Academic Affairs, V. Arutselvan, Director, Estate Development & Administration, K. Soundararajan, Chair Professor, Dr. Ambedkar Chair, V. Rathikarani, Chair Asst. Professor/Research Officer, Renuga, Deputy Director (Regional), Department of Fisheries, Ramya Lakshmi, Assistant Director of Fisheries, Cuddalore and other officials participated.

Among those present were representatives of the Fisheries Association, Boat Owners Association and people of Mudasalodia.

The Dr. Ambedkar Chair of Annamalai University commissioned a fish-drying yard and administrative building at Mudasalodai village. •SPECIAL ARRANGEMENT

lal University opened the administrative building.
V. Thiruvalluvan, Dean, Faculty of Indian Languages and Member-Syndicate, Annamalai University, A.



Blau
Public Relations Manager



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The Practice

A Climate resilient farming system, **Integrated Rice + Fish + Poultry Farming** innovated and introduced by the University has come as a boon in the lives of marginalized farmers of the locale with enhanced household diet diversity and escalation of profit that, in turn, has resulted in alleviated malnutrition among farm women and children and improved livelihood of the overall population.



REGION

03 VILLUPURAM MONDAY 14.05.2018

INTEGRATED FARMING TO BOOST REVENUE

Delta farmers to try their hands at the Central govt funded project; lands of 100 farmers included in initial stage

Rice, poultry and fish to grow at one place

The project involves on-farm participatory experiments in about 100 farmers' holdings in the district. Major technological intervention would be with regard to Annamalai rice variety, fish and poultry. A one-metre deep trench is dug up across the farmland and coops are built on the four corners of the land. As water is required on a constant basis for the rice varieties to grow, the fish farm on the side will aid them. Additionally, the chicken droppings from the coops will boost organic farming. Annamalai University will be the lead partner of the consortium and the International Institute of Biotechnology and Ethiraj College for Women in Chennai would be consortia partners



HARISH MURALI @Cuddalore

AN integrated farming process that has tasted success in various localities will now be implemented exclusively for farmers in the Cauvery Delta region. The project will primarily focus on optimisation of water use and will be implemented by the Annamalai University along with a few other colleges. The funding for the project was approved by the Department of Science and Technology (DST) recently.

The project has been named "Agronomic Integration of Technologies for Productivity Management and Optimal Water Use in Wetlands of Cauvery River Delta", and would be carried out at a cost of ₹2.09 crore.

The Technology Mission Division of DST, New Delhi, sanctioned this project and Dr R M Kathiresan, director, Research and Development, is the project in-charge. Annamalai University will be the lead partner of the

consortium and the International Institute of Biotechnology and Ethiraj College for Women in Chennai would be consortia partners.

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Speaking to Express, Kathiresan said that the project was executed on a trial basis in several farmlands across the region in the last few years. "The process would ensure additional revenue for farmers, optimal use of water and organic farming," he added.

Though several integrated farming methods have been tried in the region over the years, Kathiresan's idea stands out from the rest. According to the professor, a one-metre deep trench is dug up across the farmland and coops are built on the four corners of the land. As wa-



Growing poultry and fish in paddy fields is an essential part of the integrated farming project | EXPRESS

ter is required on a constant basis for the rice varieties to grow, the fish farm on the side will aid them. Additionally, the chicken droppings from the coops will boost organic farming, added

Kathiresan. The professor has been researching in this field with the help of a few establishments and he also trains farmers in Nepal on integrated farming methods.

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Dr R M Kathiresan, Project in-charge



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The Practice

Outcome of Integrated Rice + Fish + Poultry Farming Projects implemented

Project Title: Designing on-farm participatory models of Integrated Farming Systems for enhancement of household diet diversity and livelihoods of women small holder farmers

Sponsored by BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL (BIRAC), DBT, New Delhi

Outcome of the project:

Production of 9000 kg of poultry meat and 2250 kg of fish meat from August to February 2016

- Average weight of vegetables produced per household were 9 kg per household.
- Increase in poultry meat intake by project beneficiary women farmers from 2.8 kg/month to 4 kg/month
- Increase in fish meat intake by project beneficiary women farmers from 0.5 kg/month to 4 kg/month
- Increase in vegetable intake by project beneficiary women farmers from 11 kg/month to 22.6 kg/month
- The blood haemoglobin count of the development Partner or beneficiary of wetland cluster increased from 11.7 gm/dl to 13.9 gm/, folic acid level from 7.61 ng/mL to 8.76 ng/mL, serum albumin from 4.20 gm/dl to 4.87 gm/dl, calcium level from 9.4 to 10.05, globulin from 1.94 gm/dl to 2.79 gm/dl.

Project Title: Agronomic Integration of Technologies for Productivity Management and Optimal Water Use in Wetlands of Cauvery River Delta

Department of Science and Technology (DST), New Delhi

Outcome of the project:

- Increase in the farm productivity per drop of water used in the rice monocropped wetlands of Cauvery Delta with 100 on farm participatory models of integrated rice + fish + poultry farming system.
- Training for 500 farmers in IFS model.
- Enhanced the value of farm produces from every drop of water used in the Cauvery river delta region
- Training for 500 farmers in value addition of farm produces.

Climate Resilient Farming Systems for Sustainable Farming and Livelihood Enhancement of SC/ST Population in Disadvantaged Coastal Districts of Cuddalore and Nagapattinam in Tamilnadu

TALIM , DEPARTMENT OF SCIENCE AND TECHNOLOGY, MINISTRY OF SCIENCE AND TECHNOLOGY, NEW DELHI

Outcome of the project:

- Upscaling Integrated Farming System model with Rice (seed crop) + Fish + Poultry on larger fields ($\frac{1}{4}$ an acre)
- Enhanced return Rs. 60,302 from baseline value of Rs. 19,300 (Rice monoculture)
- Enhanced income Rs. 24,000 (per acre) from baseline value (for grain paddy production of Rs. 15,000)
- Employment generation @ 219 man days /year/household
- Control of Water hyacinth infestation, training to the farmers and creating the awareness to eradicate weeds from channel through biocontrol agents. Shifting of mode of rice cultivation to organic mode by dispensing the use of pesticides and fertilizers. Enhanced livelihoods and nutritional standards of SC & ST farmers.



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The Practice

A set of innovative protocols for estuary ecosystem management -- **Artificial Mangrove Propagation, Planting, and Restoration** -- developed by the University has been successfully implemented in the estuary of the **River Vellar, the Estuaries of Ariyankuppam and the Lake Pulicat** with an overwhelming participation of local communities.

MANGROVE BIOSHIELD NURSERY





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The Practice

Awareness creation for coastal zone greening and ecosystem restoration through workshop



The beneficial impact of the project was widely acknowledged and appreciated by the public during the Tsunami when thousands of human and other lives were saved along the coast where the mangrove restoration interventions are implemented.





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The Practice

Services: For **'Good Catch & Safe Return'**, fishermen are updated with information on promising hefty 'fish-colonies' in the deep sea to decide where to head on; and 'weather data' to decide whether to embark at all.

POTENTIAL FISHING ZONE FORECASTING (PFZ)





The Practice

Self Help Groups (SHGs): Realizing that the economic vitality of fisher-folk depends very much on women's participation, **over 1100 women of SHGs in the adjacent five districts have been trained on Seaweed Farming Technology and Value Added Fishery Products.**

SEAWEED CULTURE





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The Practice

TDPs: Scores of TDPs (Training and Development Programmes) conducted for the benefit of the neighbourhood communities:

- Bee-keeping
- Bio-fertilizer production
- Mushroom cultivation
- Roof gardening
- Kitchen gardening
- Marine algal culture
- Live feed preparation
- Mushroom culture on fish wastes
- Integrated coastal aqua farming
- Value additions of marine products
- Seafood recipes preparation
- Marine environment impact assessment
- Marine fish disease diagnosis



FDG



Training



Demonstration



Harvested crab



Mud crab fattening





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The Practice

Polychete Fishery



Oyster mushroom production by women groups





NEST



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The Practice

Regular Training programmes on Dairy Management and Artificial insemination
Sponsored by M/S. Hatsun Agro Product Ltd.





NEST



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The Practice



Training programmes on Bee Keeping

Training on Bee keeping for sustainable livelihood - 18th and 19th October, 2019





NEST



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The Practice



Value addition in honey



Value added honey products developed by Department of Entomology





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The Practice

Training on Sericulture





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The Practice

Transfer of technology in Agriculture by students
The Curriculum Embedded Rural Agricultural Work Experience help the farmers and students work together for mutual benefit

Dinamalar, Pudukkottai, 27.7.15 P.No. Supl 3.



பொன்னங்கோவிலில் அண்ணாமலை பல்கலைக் கழக வேளாண் புல மாணவர்கள் கிராம பயிற்சி திட்டத்தின் கீழ் நெல்லில் பூச்சிகளை கட்டுப்படுத்த பயிற்சியளித்தனர்.

வேளாண் மாணவிகளின் கிராம பயிற்சி திட்டம் குறுவையில் நோய் கட்டுப்படுத்துதல் கருத்தரங்கு

சிதம்பரம், ஜூலை 28- அண்ணாமலை பல்கலைக் கழகம் வேளாண் புலம் இறுதி ஆண்டு மாணவிகளின் பயிற்சி பெறும் திட்டத்தில் பூச்சி கட்டுப்படுத்துதல் கருத்தரங்கு பொன்னங்கோவிலில் நடந்தது. அண்ணாமலை பல்கலைக் கழகம் வேளாண் புலம் இறுதி ஆண்டு மாணவிகள் இன்றா தலைமையில் 22 பேர் கொண்ட குழுவினர் பொன்னங்கோவில் கிராமத்தில் தங்கி பயிற்சி பெற்றனர். இதில் ரீலையன்ஸ் பவுன்டேஷன் அமைப்புடன் சேர்ந்து குறுவை சாகுபடி பயிர் பராமர்ப்பு, பூச்சி, நோய் கட்டுப்படுத்துதல் குறித்த தொழில் சாசிகளுக்கு எடுத்துக் கொள்ள வேண்டிய கட்டுப்படுத்துதல் பகுக்கவியல் போன்ற இயற்கை நோய் தடுப்பு முறைகள், இயற்கை விவசாயம் செய்வதால் பூச்சி மற்றும் நோய் கட்டுப்படுத்துதல் போன்றவை குறித்து நிகழ்ச்சியில் உழவியல் துறை உதவி பேராசிரியர் பாபு, ஊராட்சி மன்றத் தலைவர் ஜவகர், துணைத் தலைவர் பேரீ சீனிவாசன், முன்னாள் ஊராட்சி மன்றத் தலைவர் நடராஜன், விவசாயி குப்புசாமி, ரீலையன்ஸ் பவுன்டேஷன் கல்வி மற்றும் பயிற்சி மாணவிகள், விவசாயிகள் உள்ளிட்ட பலர் பங்கேற்றனர்.
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Veterinary Health Camp

Rural Agriculture Work Experience (RAWE)



Lab to Land



Neighbourhood Empowerment through Science & Technology

Evidence of Success

Nearly 2500 farming households in 36 villages have been benefited by Integrated Rice + Fish + Poultry Farming method. The positive impact created by the method in local villages made it become national as it derived nationwide attention through "Hunnarbaaz episodes" telecasted by Doordarshan. Ultimately it gained international status and it has been adopted by the Government of Nepal and replicated successfully.



Integrated Rice + Fish + Poultry Farming adopted in Nepal by Annamalai University

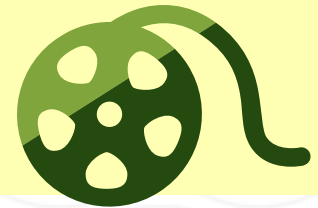
To view Documentary films on Annamalai Rice+Fish+Poultry farming system



 <https://youtu.be/Vh59cLQA404>

 <https://youtu.be/K2vqyXgjlLU>

 <https://www.youtube.com/watch?v=edadhdLsXU>





Evidence of Success

- The submergence-tolerant quality of SIGAPPI rice variety has become popular both at national and international levels. Farmers of Kerala, especially in the flood-prone districts, prefer this rice variety and it is grown in 1000+ha there.
- The number of Farmer's Clubs have increased to 59 and the number of adopted villages has gone up to 55 in the neighbourhood.
- Economic status of fisher-folk has gone up with 20 per cent increase in 'fish-catch'.
- Value addition to raw-fish enhanced the demand and increased returns by 40-80 per cent.
- Share of women to family income increased to 35 % from 15 % during the quinquennium.

HYGENIC DRY FISH PRODUCTION





Evidence of Success

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- Value addition to raw-fish enhanced the demand and increased returns by 40-80 per cent.
- Share of women to family income increased to 35 % from 15 % during the quinquennium.
- The voluntary and sustainable environmental project of Annamalai University – Mangrove Expansion - has its conspicuous impact on the coastal ecosystem and innumerable lives could be protected during the Tsunami-2004.

Global transfer of mangrove technology

About 200 people from 28 countries



**15-days UNU's International training course on mangroves
in the last 15 years since 2000**



NEST



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Evidence of Success

- The number of Farmer's Clubs have increased to 59 and the number of adopted villages has gone up to 55 in the neighbourhood.



- News flash on rural development clubs and Entrepreneurial awareness camp



Problems Encountered and Resources Required

Financial constraints: Annamalai University offers educational service on a nonprofit motive and it functions mainly on government grants. At times, it is difficult to take the programme further and farther since it requires resources.

Time constraints: Though the University devotes itself considerably extension and outreach activities, its prime time is invested in academics, teaching and research. All its extension activities are carried out effectively only with the support of the student volunteers and teachers. However dedicated they are, they cannot involve themselves with these activities round the year.

Financial Requirement: More fund-flow is required to increase the number of beneficiaries and the area of coverage. What is extended as a service in the neighbourhood may be expanded to a larger region with increased financial support.

Logistic Requirement: Quick logistic facility is required to take the volunteers and other necessary equipment to and from the beneficiary villages.

Notes

The informal economic sub-sector within the Primary sector is supporting many families whose economic standing gets strengthened with few well conceived, but least expensive technologies tilted measures. With the spreading of information and a few subsidiary measures, risk is shaved off and stable income is guaranteed ultimately saving the bottom-rung people's livelihood. With a little service, a big impact is made. This is worthy of emulating in similar or related contexts as well.