
75th
ANNIVERSARY OF
STAFF RECREATION CLUB
SOUVENIR
75வது பவளவிழா
ஆண்டு நினைவு மலர்
भाकृअनुप
ICAR
CMFRI
सी एम एफ आर आइ
Staff Recreation Club, Mandapam Regional Centre
ICAR-CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
பணியாளர்கள் மனமகிழ் மன்றம் பிராந்திய நிலையம்
மத்திய கடல்மீன் வள ஆராய்ச்சி நிலையம்

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Mandapam Regional Centre of CMFRI
ஐசிஎஆர் - மத்திய கடல்மீன் ஆராய்ச்சி நிலையம்
ICAR-CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
மண்டபம் முகாம் / Mandapam Camp
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Published by: Director,CMFRI

mandapamstaffrecreationclub@gmail.com

Content

Content

SOUVENIR-2024

Mandapam Regional Centre of ICAR-Central Marine Fisheries Research Institute

Location

- The Mandapam Regional Centre of ICAR-CMFRI is located two kilometers away from Mandapam Camp, Ramanathapuram District of Tamil Nadu overseeing the Palk Bay in the North and Gulf of Mannar in the South.

Historical Background

- The ICAR-CMFRI came into existence on 3rd February 1947.
- The institute initially started functioning at the Zoology laboratory building of the Madras University.
- Subsequently shifted to Mandapam Camp during 1949 under the Ministry of Agriculture and Irrigation, Govt. of India.
- The headquarters of CMFRI was at Mandapam Camp from 1949 to 1971 in the Naval Hospital Complex which was acquired and modified into Laboratories and other facilities.
- During October 1967, the administrative control of the institute was transferred to the Indian Council of Agricultural Research (ICAR), New Delhi.
- In the year 1971, the headquarters was shifted to Cochin and Mandapam became the Regional Centre of ICAR-Central Marine Fisheries Research Institute.

Facilities

- The campus is spread over 92 acres which includes office buildings, residential quarters, laboratories, hatchery complex, National Marine Broodbank, Recirculation Aquaculture System, Marine Biodiversity Museum, Marine Reef Aquarium, Library, Conference Hall, Guest House and International Trainees Hostel. Apart from the main campus, fish farm and a lagoon at Pillaimadam (708 acres) are also available for experiments.

Activities

- Fish monitoring and assessment of marine finfish and shellfish resources to formulate sustainable fishery management plans / policy advisories to Palk Bay and Gulf of Mannar of Tamil Nadu.
- Human Resource Development through training, education and extension activities for management of marine resources, ornamental and food fish seed production, hatchery technologies and farming of fishes, seaweed farming, IMTA and biodiversity aspects.

Achievements

- Seaweed research in India was pioneered at this Centre and technology for seaweed culture was developed and popularized.
- ICAR-CMFRI, Mandapam Regional Centre has developed, standardized and popularized the Integrated Multi-Trophic Aquaculture (IMTA), integrating sea cage farming with seaweed.

Currently through IMTA, seaweed rafts integrated with Cobia farming cages had a better average yield of 390kg/raft, while in the non-integrated raft, the yield was 250kg/raft.

- Identified and mapped potential cage farming and seaweed farming cites along the coastline of Tamil Nadu and Puducherry.
- The ICAR-CMFRI, Mandapam Regional Centre through Scheduled Caste Sub-Plan programme and other programme provided inputs and technical assistance for seaweed farming activity. A total of 94 families (188 fishers) are directly benefitted through this programme and are undertaking seaweed farming in 1880 rafts on the Ramanathapuram and Pudukkottai coast.
- The ICAR-CMFRI has brought out a document on "Good Management Practices in Seaweed Farming" to promote and support sustainable farming of seaweeds in India, while paving the way for economic security of the stakeholders, primarily women.
- The finfish marine Cobia (2010) & Pombano (2011) bred 1st in India.
- **ICAR – CMFRI Mandapam Regional Centre Facilities**
- Marine hatchery complex
    - Plankton production unit (phytoplankton & zooplankton)
    - Finfish spawning units
    - Larviculture units
    - Environmental chamber
    - Edible seaweed culture unit
- Recirculating aquaculture system
    - RAS for food fish breeding and spawning
    - RAS with photo-thermal control facility
    - RAS for marine ornamental fish breeding
- National marine finfish brood bank
    - Four units of breeding tanks with RAS (each 120 tonnes capacity)
    - Five units of breeding tanks with RAS (each 20 tonnes capacity)
    - Two units of breeding tanks with RAS (each 35 tonnes capacity)
    - One unit of breeding tank with RAS (70 tonnes capacity)
- Shellfish hatchery (production capacity of 5 million post-larvae)
- Sea cage farm
- Museum, Reef Aquarium
- Library
- Conference Hall
- Committee Hall
- Interpretation Hall
- Guest House
- International Trainees' Hostel

Activities (15 years)

- Broodstock development, captive breeding and seed production of the Cobia , the Silver Pompano, and marine ornamental fishes
- Development of sustainable mariculture practices through technological innovations in sea cage

and coastal farming

- Analyses of reproductive characteristics of prioritized species for mariculture
- Sea ranching of the green tiger shrimp *(Penaeus semisulcatus)* in Palk Bay and Gulf of Mannar for sustainable shrimp production
- Research and innovations in marine fish microbiome and nutrigenomics
- Field demonstrations on mariculture technologies through the All India Network Project on Mariculture
- Improvement of livelihood options through sustainable production of cultivable seaweeds in the coastal villages of Palk Bay
- Capacity building of fisherfolk, entrepreneurs and fisheries officials on mariculture technologies
- Monitoring the stranding of marine mammals in the Palk Bay and Gulf of Mannar region

Achievements (15 years)

- Developed the breeding and seed production technologies of the Cobia (2010) and the Silver Pompano (2011) for the first time in India
- Developed and commercialized the sea cage farming technology of cobia and silver pompano for the first time in India
- Developed and transferred the technology of marine ornamental fish seed rearing for the benefit of coastal fisherfolk in Tamil Nadu
- Sea ranching of more than 70 million seeds of the green tiger shrimp has been achieved to increase the shrimp production in Palk Bay and Gulf of Mannar during the past 3 years
- A total of 32 field demonstrations on sea cage farming of cobia and sea bass were carried out in the coastal districts of Palk Bay and Gulf of Mannar
- A total of 950 fisherfolk, 25 entrepreneurs and 150 fisheries officials were trained on mariculture technologies viz., breeding and seed production technology, sea cage farming, seaweed farming, ornamental fish rearing, etc.

Salient Achievements of Mandapam Regional Centre of ICAR-Central Marine Fisheries Research Institute (CMFRI)

- The first International Coral Symposium was organized in January, 1968.
- Broodstock development, seed production and farming of Cobia (*Rachycentron canadum*) for the first time (2010) in the country.
- Broodstock development, seed production and farming of Silver Pompano (*Trachinotus blochii*) for the first time (2011) in the country.
- Production of hybrids in clown fishes (Black Ocellaris and Percula Clown).
- Captive breeding and mass production of designer Clown fish.
- Developed the techniques of seed production for green tiger shrimp *Penaeus semisulcatus*. Mass scale sea ranching of *P.semisculcatus* for stock enhancement at Palk Bay and Gulf of Mannar.
- Seaweed research in India was pioneered at this centre and technology for seaweed culture was developed and popularized.
- Developed, standardized and popularized the Integrated Multi-Trophic Aquaculture (IMTA).
- Developed and popularized 'Jelly Safe Kit'.
- Artificial propagation of soft corals *Sinulari kavarattiensis* in India.
- Developed and standardized vibriosis vaccine for finfish.

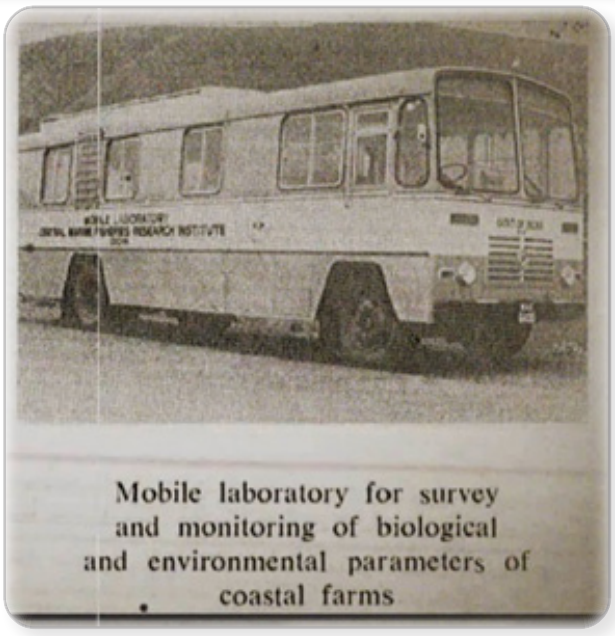
Origin of CMFRI

The CMFRI was first established on 3rd February 1947 as a research station at the Zoological Laboratory of Madras University, under a proposal by Dr. Baini Prashad, the then Director of Zoological Survey of India. Dr. H. Srinivasa Rao was the First Chief Research Officer of CMFRI.

In the year 1949, the research station was shifted from Madras to Mandapam and Dr. Kesava Panikkar was the in-charge of Mandapam research station. Subsequently, 6 research stations were established at Chennai, Calicut, Karwar, Mumbai, Tuticorin and Vizhinjam.

In the year 1961, CMFRI joined the Indian Council of Agricultural Research, New Delhi.Subsequently the Headquarters was shifted from Mandapam to Cochin in 1971 under the leadership of Dr. S.Z. Qasim.

HISTORY



Pair of captive dugongs "mermaids" in the Aquarium at Headquarters (as they rest at bottom of tank when water is drained off for cleaning the tank)

DIRECTORS

Dr.H.S.RAO
1947-1951

Dr. N.K.PANIKKAR
1951-1957

Dr.S.JONES
1957-1970

DR.S.Z. QASIM
1970-1974

Dr.E.G.SILAS
1975-1985

Dr.P.S.B.R.JAMES
1985-1994

Dr.M.DEVARAJ
1995-1999

Dr.V.N.PILLAI
1999-2000

Pro.(Dr.) MOHAN JOSHEPH MODAYIL
2000-2007

Dr.G.SYDA RAO
2008-2013

Dr. A. GOPALAKRISHNAN
2013 to 2024

DR. GRINSON GEORGE
2024 to till date

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ICAR-CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
CMFRI

मण्डपम में में सेवा दे चुके निदेशक
DIRECTORS WHO HAVE SERVED AT MANDAPAM

	नाम / NAME	पदनाम / DESIGNATION	काल / PERIOD
01	डॉ. एच. एस. रॉव / Dr. H. S. Rao	निदेशक / Director	1947-1950
02	डॉ. एन. के. पणिक्कर / Dr. N. K. Panikkar	निदेशक / Director	1950-1957
03	डॉ. एस. जोन्स / Dr. S. Jones	निदेशक / Director	1957-1970
04	डॉ. आर. वेलप्पन नायर / Dr. R. Velappan Nair	कार्यकारी निदेशक / Acting Director	1970
05	डॉ. एस. ज़ेड. खासिम / Dr. S. Z. Qasim	निदेशक / Director	1970-1971

मण्डपम क्षेत्रीय केन्द्र के अध्यक्ष
HEADS OF MANDAPAM REGIONAL CENTRE

	नाम / NAME	पदनाम / DESIGNATION	काल / PERIOD
01	डॉ. आर. वेलप्पन नायर / Dr. R. Velappan Nair	उप निदेशक / Deputy Director	1971 - 1972
02	श्री ओ. वेंकटरामन / Shri. O. Venkataraman	प्रभारी अधिकारी / Officer-in-Charge	1972 - 1978
03	डॉ. पी. एस. बी. आर. जेम्स / Dr. P.S.B.R. James	संयुक्त निदेशक / Joint Director	1978 - 1982
04	श्री एस. महादेवन / Shri. S. Mahadevan	प्रभारी अधिकारी / Officer-in-Charge	1982 - 1986
05	डॉ. पी. वेदव्यास रॉव / Dr. P. Vedavyasa Rao	प्रभारी अधिकारी / Officer-in-Charge	1986 - 1990
06	श्री आर. मारिच्चामी / Shri. R. Marichamy	प्रभारी अधिकारी / Officer-in-Charge	1990 - 1993
07	डॉ. एन. कलियपेरुमाल / Dr. N. Kaliyaperumal	प्रभारी अधिकारी / Officer-in-Charge	1993 - 1994
08	डॉ. ए. डी. दिवान / Dr. A.D. Diwan	प्रभारी अधिकारी / Officer-in-Charge	1994 - 1996

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CMFRI

मण्डपम क्षेत्रीय केन्द्र के अध्यक्ष
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10	डॉ. ए. सी. सी. विक्टर / Dr. A.C.C. Victor	प्रभारी अधिकारी / Officer-in-Charge	1997 - 2000
11	डॉ. एन. कलियपेरुमाल / Dr. N. Kaliyaperumal	प्रभारी वैज्ञानिक / Scientist-in-Charge	2000 - 2006
12	डॉ. जी. गोपकुमार / Dr. G. Gopakumar	प्रभारी वैज्ञानिक / Scientist-in-Charge	2006 - 2014
13	डॉ. ए. के. अब्दुल नाज़र / Dr. A. K. Abdul Nazar	प्रभारी वैज्ञानिक / Scientist-in-Charge	2014 - 2018
14	डॉ. आर. जयकुमार / Dr. R. Jayakumar	प्रभारी अध्यक्ष / Head-in-Charge	2018 - 2021
15	डॉ. जी. तमिलमणी / Dr. G. Tamilmani	प्रभारी अध्यक्ष / Head-in-Charge	2021 - 2023
16	डॉ. विनोद, के. / Dr. Vinod, K.	अध्यक्ष / Head	2023 -

LIST OF STAFF MEMBERS

MANDAPAM REGIONAL CENTRE OF CMFRI, MANDAPAM CAMP

S.No.	Name	Designation
1	Dr.Vinod.k	Head
2	Dr. G. Tamilmani	Principal Scientist
3	Dr. M. Sakthivel	Principal Scientist
4	Dr. P. Ramesh Kumar	Principal Scientist
5	Dr. B. Johnson	Senior Scientist
6	Dr. R. Saravanan	Senior Scientist
7	Dr. Anikuttan K.K	Senior Scientist
8	Dr. Remya L	Scientist
9	Shri. M. Rajkumar	Scientist
10	Shri. M. Sankar	Scientist
11	Shri. S. Thirumalai selvan	Scientist
12	Miss R. Bavithra	Scientist
13	Shri. I. Mendonza Xavier	ACTO
14	Shri. M. Asokan	Sr. Tech. Asst.
15	Shri. G. Hanumanth Rao	Sr. Tech. Asst.
16	Smt. Priya K.M	Tech. Asst.
17	Shri. M. Vijaya Karthikeyan	Tech. Asst.
18	Shri. M. Palanichamy	Sr. Technician
19	Shri. K. Shanmuganathan	Sr. Technician
20	Shri. S.M.S. Bathcha	Sr.Technician
21	Shri. I. Syed Sadiq	Sr.Technician
22	Shri. V. Muniasamy	Sr.Technician
23	Shri. M. Jayasingh	Sr.Technician
24	Shri. Tinto Thomas	Sr.Technician
25	Shri. B. Karthiresan	Sr.Technician
26	Shri. M. Thayalan	Sr.Technician
27	Shri. M. Ganesan	Technician
28	Shri. K. Muniasamy	Technician
29	Shri. K. Senthikumar	Technician
30	Shri. A. Ramesh	Technician
31	Shri. K. Narayanan	Technician

LIST OF STAFF MEMBERS

MANDAPAM REGIONAL CENTRE OF CMFRI, MANDAPAM CAMP

S.No.	Name	Designation
32	Shri. U. Aneesh	Technician
33	Shri. R. Suresh	Technician
34	Shri. M. Mahaligam	Technician
35	Shri. Mithun Muthayan	Technician
36	Shri. D. Augustus Julin Raj	AAO
37	Shri. B. James	UDC
38	Shri. M. Shahul Hameed	UDC
39	Shri. B. Palanivelmurugan	UDC
40	Shri. M. Saravanan	LDC
41	Smt. M. Valarmathi	LDC
42	Shri. R. Saravanan	LDC
43	Smt. K. Mathavi	LDC
44	Shri. T. Jothi Manikandan	LDC
45	Shri. K. Jeevanantham	Skilled Support Staff
46	Shri M. Saravanakumar	Skilled Support Staff
47	Shri. K. Ganesan	Skilled Support Staff
48	Shri. K. Chandran	Skilled Support Staff
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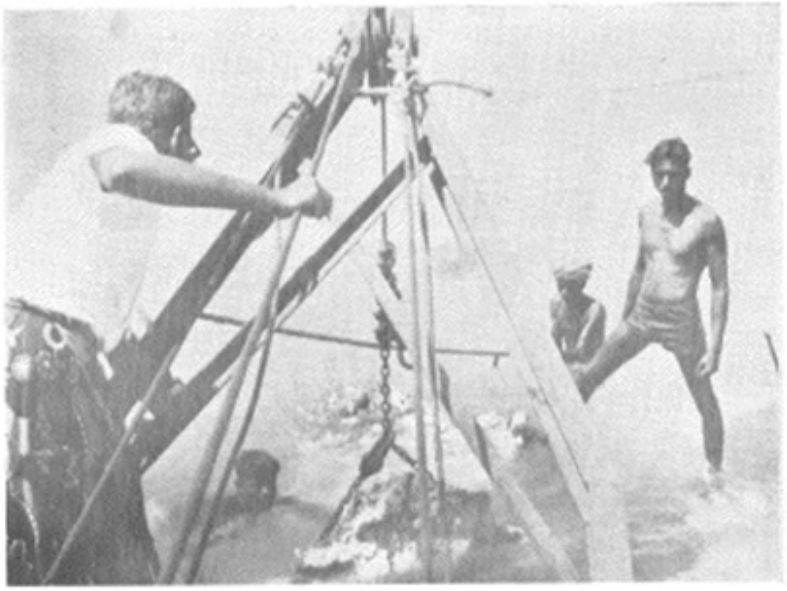
59	Shri. S. Joseph Jegan	Skilled Support Staff
60	Shri. M. SaravanaKumar	Skilled Support Staff
61	Ms. S. Divya Bharathi	Skilled Support Staff

First world conference on coral held at mandapam during 1969

SYMPOSIUM ON
CORALS AND CORAL REEFS

12—16 JANUARY 1969
MANDAPAM CAMP

SOUVENIR



Coral Stones Being Collected from the Reefs

The Corals Unloaded on the Shore

SYMPOSIUM ON CORALS AND CORAL REEFS

Convener

Dr. C. S. Gopinadha Pillai

Reception Committee

Shri K. S. Kasiviswanathan—*Chairman*
Shri PR. M. K. M. Mohamed Abdulkader Maraikayar
Shri A. Rahim
Shri S. Rajagopalan
Shri O. M. S. Kasim Mohamed Maraikayar

Hospitality Committee

Dr. K. Alagarswami—*Convener*
Shri R. S. Lal Mohan
Shri D. B. James
Shri P. A. Thomas
Shri K. Appukuttan

Souvenir Committee

Shri C. Mukundan — *Convener*
Shri P. V. Ramachandran Nair
Shri P. T. Meenakshisundaram

Dr.M.S.Swaminathan, DG, ICAR visited MRC of CMFRI during 1974

CMFRI Nursery School run by Staff Recreation Club,
MRC of CMFRI, Mandapam

Mr. A. Ramakrishnan

Rtd. TO
79/2, 8th main st, GurusamyNagar, Coimbatore -46

I have joined in CMFRI on 31st October 1977 as Field Assistant and retired as technical officer on 1st may 2015. Associated in Crustacea Fisheries Division till 2004 at KovalamField Lab and mandapam R. C. of CMFRI. Then transferred to FRAD, Pattukottai and worked there till retirement.

During my tenure Associated and worked in different Research Activities in Shrimp culture and Crab culture. P.indicus, P.semisulcatus, P.monodon, P.latisulcatus, P.japonicus, and P.merguuiensis were spawned in hatchery and reared up to PL10-15 and sea ranched.

Induced maturation was done on P.semisulcatus and it was spawnedseveral times and larvae were reared up to Post larvae 10-15 and sea ranched.

Eye stalk ablation was done several times on P.semisulcatus and fed with polychaetes and clams and it was matured spawned and larvae were reared up Post Larvae and sea ranched.

Tagging programme was carried out for P.semisulcatus and left in Palk Bay several numbers of tagged shrimps were recovered from trawlers and country boats by paying money to local fishermen.

Post larvae of P.semisulcatus and P.monodon were stocked in Mandapam CMFRI's Fish Farm ponds. After grown up to approximately 18-23grams each were harvested during 1998-2000 and soled to local fisherman.

Portunus pelagicus were spawned megalopa and reared up to baby crab star at shrimp hatchery at Mandapam and baby crabs were sea ranched.

After transferred to FRAD, Pattukottai on 15th October 2004 fishery Data were collected from different Landing centres of Thanjavur and Pattukottai District. The collected data were submitted to FRAD, Kochi in time without failure.

During my tenure in Shrimp Hatchery and Crab Hatchery and collecting capture fisheries data for Shrimp and Crab Mr. I. Syed Sadiq and Mr. N. Ramakrishnan were supported very much and helpful to carried out these works and data processing. I sincerely thanks to them for their helpful and support to me in my work.

Dr. K. Muniyandi,M.Sc.,PH.D.,

Dr.K.Muniyandi,M.Sc.,PH.D. Retired as Technical Officer from Madras RS of CMFRI on 31.7.2007. I am from Rameswaram, Tamilnadu. After my graduation, I joined at CMFRI,Mandapam Camp (then H.Q) on 16.9.1970. At that time Dr.Jones was the Director. Dr.S.Z. Qasim took the position of Director of CMFRI during the fag end of 1970. He took the position of Director at Ernakulam as the H.Q was being shifted to Ernakulam from Mandapam camp. Dr. Veerapathra Rao,Senior Fishery Scientist and Head of Molluscan Fishery retired from Mandapam camp during that time for which function Dr. S. Z. Qasim attended. When I joined as LFA, around 20 staff joined as either LFA or JSA at Mandapam camp for training on identification of marine fishes and marine fish landing data collection. When we joined at Mandapam camp, the major movement of staff to our office was through the Eastern gate to the Refugee camp side. Most of the staff without family depend on the hotels at Mandapam camp and their movements were through Eastern gate. Few Carrier boys used to carry meals to some staff from hotels. A hotel run by one Shri. Chinnaswamy was famous at Mandapam camp as most staff took their food there.

During my joining period Shri. Bannerjee was the Head of Fishery Survey Division and Shri. Chakravarthy was next in position. During early 1971, CMFRI H. Q was shifted to Ernakulam, Kerala State. Against shifting college and school students from Ramanathapuram and nearby places agitated at Mandapam camp R.S.After my training on identification of common Marine fishes of Mandapam and Rameswaram regions and the method of fish landing data collection,I was doing fish landing data collection at Rameswaram island centres. The duration of observation was 12 hrs/ day (morning 6 o clock to evening 6 o clock). Two continuous days observation for each centre. After 3 months of training, I was posted to Pondicherry FC of CMFRI for the collection of fish landing data there. The observation time there was from 9-12 and 15-18hrs on the first day and 6-9 and 12-15hrs on the second day for one fish landing centre. After 6 months of my service in Pondicherry, I was transferred to Chowghat FC of CMFRI at Kerala state. The observation time was 12-18 hrs on the first day and 6-12 hrs on the second day. Two continuous days observation for each centre. The present-day encircling net ('Suruku madi'in Tamil) was prevalent in Chowghat region's during those days as'Kolli valai'. In my fishery zone mackerels, Oil sardines,sole fishes, prawns, sharks,rays, Scombriod fishes were the common fishes landed during my period. The mud bank formation locally called as 'Sakara' occurred once in Valapad- Natika region. In Samara region there will be congregation of fishing crafts from nearby regions to catch prawns mainly in the Sakara region.

In the year 1973 I was transferred to Porto Novo (Parangipettai) in the erstwhile South Arcot Dist. and the present Cuddalore Dist. My survey zone was from Tharangambadi to Porto Novo. Porto Novo and Pazhayar (then Tanjore Dist.) were the only two mechanized boats with other indigenous craft landing centres. Shrimp mainly Peneaus indicus, lesser sardines, mackerels,crabs were the majors landings.In Porto Novo, the deep-sea bottom set gillnet commonly caught sharks,eels,Scombriod fishes, tunas were the common catches. In the year 1985 I was transferred to Mandapam camp. My fishing zone was from Morepanai to Sundarapandian Pattinam in Ramanathapuram Dist. The major catches were crabs,Mackers, and prawns. In Tondi and Nambuthalai Scombriod fishes,Sharks and Rays were caught by fishermen. In Tondi area dynamite fishing by few fishermen were prevalent in those days. In the year 1986 I was posted in FEMD division of CMFRI. My work mainly was monitoring Environmental parameters of the sea near Mandapam. For this purpose, I used to go along with my assistants like Messers. Sikkander Batcha or Shanmuganathan or G.K.Rajan in the CMFRI vessel Sagitta or Cadalmin II in Gulf of Mannar and Palm Bay sea up to about 30 fathom death for the collection of both surface and bottom water samples, atmospherics and seawater temperature, zooplankton samples. The samples were collected in 10,20 and 30 fathom depths. In the Lab. the samples were analysed for phosphate,silicate, nitrate and nitrite, seawater salinity,Zooplankton volume, Primary productivity using white and dark bottle method. Regular monthly data were sending the FEMD at H.Q. During 1980's, Mandapam RC of

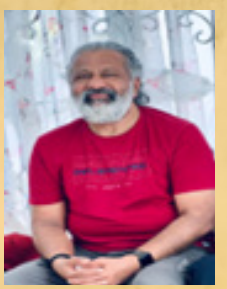
CMFRI did mariculture of sea algae Gracillaria edulis at Hare Island which was under the ownership of Mandapam Maraikayar family. Our office used to get written permission from Maraikayar every time. Good growth of G.edulis were achieved at Hare island. Messers. Kalimuthu, Ramalingam, myself, K. Muthuramalingam,Mohideen and Scientist like Dr. Krishnamurthy Chennubhotla were actively involved in the work. I had participated in the Deep-water seaweed survey from Kanyakumari to Dhanuskodi by CMFRI and CSMCRI. One day after the survey work myself and Shri.Ramalingam were drowned in the sea off Veerapandian Pattinam near Tiruchendur. The Catamaran we used to land from our boat Cadalmin II toppled due to overweight. Luckily, we both got the tied rope of the Catamaran and managed to climb to safety. In the incident some cooking vessels were lost in the sea.

I assisted Dr.P.Nammalwar,Principal Scientist in the DOE& F sponsored project Fish seed resources of the Gulf of Mannar and the mangrove vegetation.For the enumeration of mangrove plant species I had visited most of the Gulf of Mannar islands. During those days,no permission was needed to visit these islands

Mr. Arunsunai Rajan was a scholar worked in the project.Later he got selection as a Lecturer in TN Govt. College. I had participated in 4 cruises of FORV Sagar Sampada, a Deep-water Research Vessel owned by Govt. Of India. Among them the month cruise around Andaman and Nicobar Islands is worth mentioning. During the cruise I came to know of the only uncontacted tribals of the World " the North Sentinel Island". I saw the island from some distance as it is the policy and order of the Govt. Of India as the tribals should not be harmed or disturbed in any way. The naked negroid tribals are in existence in the island for more than 65,000 yes. Historians like Marcobolo have all mentioned about them in their diaries. These curies news was known to me only due to my Andaman &Nicobar Islands SagarSampada cruise. I highered my qualification up to a PH. D degree only due to my service in CMFRI. I am happy to know of the 75yrs. Diamond Jubilee Celebration of CMFRI. I wish and hope that CMFRI will achieve many more mile stones in the years to come.

How Mandapam Camp Changed my Life

Dr P. Jayasankar
Former Director, CIFA, Bhubaneswar & Former Principal Scientist, CMFRI, Kochi



Salty water. No access to good food. Away from my family.You might wonder how these things changed my life for the better. Let me tell you, my story.

I was born and brought up in Kochi, Kerala. A place filled with resources. Growing up, my life was fairly easy since my school and college were less than 10 km from home. So, I always had the privilege and convenience of comfortable bed, clean water, and home-cooked meals.But in 1983, on the advice of Dr. K. Alagarswami, the supervising scientist at the headquarters, under the CAS in Mariculture Post Graduate Programme, I chose to relocate to Mandapam in order to pursue my PhD in Fisheries/Marine Science. Dr. Alagarswami said that that might provide the groundwork for a successful career, and he was 100 percent correct.

It was a great culture shock to suddenly move to Mandapam camp, which I could picture as being completely in the middle of nowhere. I experienced emotional difficulty in the first few weeks and months and felt as though I had been abandoned in an open prison with no way out. I didn't know the language, the traditions, the people, the food, or anything else about it. I felt helpless.

However, as the days went by, I gradually began to make friends. Seniors and mentors who helped me both personally and professionally began to emerge for me. Even the neighborhood fishermen and I became close friends. I was given a room in the office to share with senior scientist Dr. R.S. Lal Mohan.

It was like heaven the first day for lunch when Dr. Lal Mohan offered me some fish pickle from his goods!

The recreation club at the camp was a huge help to me because I've always loved sports. During my free time, I started playing table tennis, cricket, and badminton.But I couldn't get over one thing. That was food. No matter how hard I tried, I couldn't get used to the meals at camp since I sorely missed the food from home. It dawned on me at that moment. I began learning cooking, a skill that will serve me well throughout my life.I called up my mother and got all my favorite recipes. After getting the fundamentals in, I tweaked it to add my own diversity and kept improving. I prepared sambar, Moloshium (dal-based soup) _, Upma, Puttu-Kadala, and so much more! I loved cooking myself some Fish. I remember buying blue swimming crab at Rs.4/- a kilo in 1983 which I am sure today could be easily Rs. 700/- or more. I used to get a 2-kilo king seer as a free gift from some fishermen while conducting my research. Slowly, I started to see the kindness, and acceptance in this beautiful place.

There was another major issue that I had to tackle. The quality of the water in Mandapam was salty and heavy. The water supplied at quarters was undrinkable and not usable for cooking. Salinity remained consistently above 5 ppt, occasionally exceeding 10 ppt. Even while taking a bath, this water damaged the texture of my hair and left my whole-body sticky at the end of the bath. The only source of drinkable water of varying quality was from borewells dug at various points inside the colony and campus. Every day, it was my task to search for reasonably good water around and carry buckets full for drinking and cooking purposes. I gradually saw this challenge as a chance to improve my physical health!

Cooking by myself, fetching water from borewells, cleaning my room in the quarters, washing kitchen wares and clothes, ironing washed clothes, and other related chores all turned my challenges into opportunities. I was gradually developing into a man of self-reliance. They used to say this famous line around the camp: "If someone could manage their life well at Mandapam Camp, they would be fit to live in any other part of the country easily!"

When it came to work, my experience grew exponentially. Overnight stays at fish landing centers and islands for my sample collection created anxious and exciting moments equally. The gears used to catch my required fish were always used at night: kalamkattivalai [a type of stake net] on Manoli Island, olavalai [a type of shore seine] on Dhanushkodi, and seine nets from canoes in Palk Bay. When I was successful in keeping my research fish alive, the sleep disruption and exertion gave way to great relief and satisfaction. Silas Ebenezar, a senior Ph.D. student from Tamil Nadu, and his family became a relief to me during the early days of my Mandapam stay. Occasionally, I was treated to mouth-watering mutton curry at their home. His work involved observing Palk Bay's hydrological and environmental parameters while staying overnight in a makeshift cottage built on the muddy high-tide beach near the bay.

My bachelorhood life at Mandapam Camp was influenced by many other persons, events, and situations; perhaps they all need a book to describe them! Hence, I desist from their mentions and descriptions. Maybe someday I can take some time to describe the rest of the story.

Let me conclude these reminiscences by taking a bird's view on my married and family life at Mandapam Camp. My life partner whom I have discovered from our ARS training period at NAARM, Hyderabad was from a different state and different cultural background; but profession and willingness to take a deviation from beaten track made us tie the knot and start family life. Evidently it wasn't easy going in a remote and ill facilitated locality like Mandapam Camp; staying away from our families, mediocre medical facilities, no avenues for entertainments or shopping, no reliable support to take care our infant kids during office hours, the list of our woes was long! Still, we managed to hang on and keep going as a unit.

Once you stay in Mandapam for longer duration, like our 10 years [personally for me 14 years!]; it's etched in your mind and soul for good. You would love to go back there once again, like a home call.

The living and working ambience of Mandapam Camp during my service there between April 1983 and May 1988.

M. Sivadas, Retd. Principal Scientist, CMFRI
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I got my transfer order to Mandapam Regional Centre of ICAR-CMFRI in April 1983 when I had completed barely nine months of service after my initial posting at Madras Research centre of ICAR-CMFRI. At that time, I did not know where this Mandapam camp was and how the place would be. Our people in Chennai gave a pathetic picture of remoteness and felt sorry for my transfer. This made me a bit perplexed but I took it in my stride and proceeded to join at the Regional Centre. When I got off the train at Mandapam Camp railway station in the morning, the area looked really nondescript with the road facing the station occupied on either side with a few shops mostly thatched or with asbestos sheet roof. The area was calm and quiet with bare minimum presence of people. When I entered the campus, I was pleasantly surprised seeing the sprawling compound verdant with neem trees and dotted with pretty old buildings giving the impressions of a military camp or a hospital. Since all the scientists' quarters were occupied, I was given shared accommodation with the scientist (Late) Shri. Livingston. He was also happy to welcome me. The only sore point here was fresh water scarcity and for everything except cooking and drinking, we had to depend on salt water. Even for fresh water, there was only one borewell near our quarters from which also one or two bucketful could be taken at a time or else there was the possibility of seepage of salt water. Thus fresh water was a precious item. Otherwise I felt the place very salubrious with abundant breeze throughout the day.

In the office, the staff members from top to bottom were amiable and had a cordial relation. There were 11 scientists including the officer in charge. Among these, two were in S-2 grade and others in S-1. The S-1 scientists were also with many years of service as most of them reached that level through departmental promotions. Despite their seniority, none had an air of superiority. Most of the scientists immediately after their arrival in the office in the morning had the habit of visiting other scientists and exchanging pleasantries before going to their respective seats. There were enough interactions. Two scientists were accommodated in one room except that of S-2. There were only limited numbers of technical staff. In capture fisheries, there was only one technical staff who was asked to work on the project on silverbelly alone considering his experience on that resource and also his seniority. Each room had one supporting staff whose service had to be shared by the two scientists concerned. Even though there were three vehicles with three drivers, the capture fisheries scientists had to depend on public transport facilities to go to the landing centres for observation of landings and collection of biological samples. My observation centres varied from nearby ones to far off ones situated in places like Dhargavalasi and Keezhakarai in the main land and Pamban and Rameswaram in the island with seasonal one in Dhanushkodi. The vehicle was provided to drop and pick up from Mandapam Railway station as there was no road connectivity to Rameswaram then. The departure time of train from Mandapam to Rameswaram in the morning was around 5.00. So I had to start from the office by 4.15. Return time was by 12 PM from Rameswaram. The landings in Rameswaram would be over by 8 AM. As there was no train in between, I had to while away the time either by sitting idle in the railway station or move in and around the temple till the departure of train. The same was the case with the visit to Pamban landing centre. The other time the vehicle was provided was to drop and pick up from Mandapam Jetty in connection with R.V.Cadalmin cruise. We used to go to the landing centres in main land by bus. Most of the buses would stop at CMFRI stop. Quite often I had to carry the bucket or bag to fetch the sample and it would be afternoon when I reached back the office after the tour. Among all these tours, the memories still fresh were taking food from hotels in Ramanathapuram during rainy season and that from Pamban during housefly season. The water for drinking from hotels in Ramanathapuram was almost muddy with light red in colour during this period and I managed with hot water. During infestation of

houseflies in Pamban, you could see swarms of it looking like a carpet on a surface. In the hotel, you could not take the food without a fly unless your other hand was continuously in motion to drive the flies away. The staff members were expected to be available in the office after the tour. So I used to come to the office after taking a bath and then finish the analysis on the same day with the help of either the allotted supporting staff or the one from the adjacent room with the permission of the scientists concerned. Studies on fecundity or food and feeding would be done leisurely after preserving them in formalin if the same could not be carried out on the same day. For sample purchase, you had to spend and recoup and there was no system of drawing any advance for sample purchase. Since these practices were something like a norm, nobody including very senior scientists had any complaint. But there was no cap on sample purchase or tour frequency. The scientist could sit and work any length of time in the office even after office hours if needed. The library of the centre was a great boon as this was the only source for referring any work on fisheries including identification of fishes. It was ably maintained by the then librararian Shri.Edwin Joseph. The post office within the campus in such an isolated place was quite handy in terms of delivery or sending any letters or other items.

The office had a canteen run by a committee serving breakfast, lunch and tea depending on the availability of cook, number of people availing of the facility etc. So its functioning was not continuous. The recreation club was fairly active. There were facilities for games like table tennis, caroms, shuttle etc. One of the notable achievements of the recreation club was the publication of a souvenir in 1986 under the leadership of Dr.Lal Mohan, Retd.Principal Scientist and also purchase of a black and white TV for the club from the proceeds of advertisements in the souvenir. A colour TV was not within the reach at that time. Even in the whole campus, only two or three families had TVs that too black and white. Thus TV in the club was a celebration for all the members and their families. The club hall was full when the first cinema was screened by hiring a DVD and the player.

My routine in the evening included a stroll to Mandapam camp or Mandapam along with friends and returning after having dinner from the hotel in Mandapam Camp. We could go out either through the main way or through the refugee camp side. Mandapam Camp was somewhat drowsy whereas Mandapam was quite lively with different shops visited by both locals and tourists/pilgrims. The bus stand was also very busy with continuous departure or arrival of buses. Mandapam Railway station premises had always a line of vehicles waiting to pick up or drop the tourists/pilgrims going to or returning from Rameswaram. The face of Mandapam Camp totally changed with the arrival of refugees from Srilanka from July 1983 onwards. The refugee camps in Mandaam camp started bustling with the arrival of refugees. The road also became very much crowded and noisy with the refugees going in or coming out from the refugee camps.

When I visited Mandapam Camp in 2017, I noticed that the area at least from Uchippuli towards Mandapam remained almost in the same condition as it was during 1980s. Mandapam Camp went back to its earlier drowsy state with the railway station looking like a dilapidated building sans passengers. Mandapam looked really deserted losing all its old charm and significance. But the regional centre had a sea of changes with the addition of new buildings, hatcheries, aquariums etc making it really a centre of mariculture .

REMINISCENCE OF MY MANDAPAM DAYS

Dr. Jeena N S, Scientist, CMFRI

"And the sea will grant each man new hope, as sleep brings dreams of home." – Larry Ferguson

Memories fly back to the days when we, the 99th FOCARS batch, received our postings at the end of NAARM training. I was fortunate to get posted in the cradle of Indian mariculture; the Mandapam RC of CMFRI. We joined initially at the headquarters in Cochin. By the end of our training in Cochin, some of us, including myself, were assigned to participate in the summer school in Mandapam. We went there for three weeks and were surprised to see the scenic beauty of the calm and vast sea adjacent to the Research Centre, the dancing peacocks in the large campus, marine cages, and huge tanks deeper than a human's height with the roaming gigantic Cobia fishes, the enthusiastic silver pompanos, the broodstock receiving hormone injection, the seagrass meadows at the Krusadai Island, etc. And two months laterin the last quarter of the year, four of us, that isme, Surya, Dr. Anikuttan, and Chandrasekar joined Mandapam RC for our duty.

We had three-month Fishery Resource Assessment Division Training during our initial days which involved regular early morning visits to the various landing Centres and harbours in and around Ramnad district where we communicated with stakeholders, updated our knowledge, and bought some fish for identification in the lab. These days of training were fun as each of us had specific affinities for different groups of fish and shellfish. Dr. Anikuttan loved sardines and shrimps while we ladies and Chandrasekar were interested in other groups. As a speaker of the Malayalam language, I am delighted to hear the beautiful and respectful Tamil language, although poorly spoken. Now it amuses me to think about how they managed to understand my conversationswith a large part of Malayalam.

The roads were turbulent, but our friend Surya, despite her difficulties during her pregnancy, managed to travel to all the landing centers with us. We had a great time at the Gulf of Mannar and Palk Bay landing Centres and I remember the local fisherpeople treating us with the utmost dignity. The respect they give to women is admirable. At the end of the training, fascinated by the variety, the landing volume and the sight of the long stretch of silver bellies kept for drying at Rameswaram forming a sparkling ocean parallel to the Bay of Bengal, I took these little shiny fish for research. We have not seen many of them in Kerala. I remember our trip to Kunthukal in search of a species that our esteemed former director and FAO fisheries expert Dr.PSBR James described from this location. This field training, beyond doubt, has enabled us to get an idea of the diverse fisheries on the Southeast coast of the country. I sincerely thank Shri. Ramamoorthy for sharing his expertise in taxonomy and the FRAD staff (Shri. Gandhi, Villan, and Boominathan) for their keen interest in training us.

Mandapam Camp is a place with a mixture of history and mystery. There are enough folk tales and ghost stories like the story of the British hospital (the present old buildings of the campus), the post-mortem stone in it, etc. that were enough to instill fear in sensitive people like me and Surya. Also, our team`s initial stay was at the new international guesthouse, which is located in a secluded corner of campus. Dr. Anikuttan brought his family with him and stayed in quarters on the opposite campus. After some months, Surya went on maternity leave.Whenever the new guest house was empty, I moved into the old guesthouse for fear of beingalone.

Meanwhile, land Chandrasekar have been assigned to marine census work in Ramnad, the largest fishing district in Tamil Nadu. We travelled from Thondi to Rameswaram in shifts. We were able to complete this work with people's cooperation and I recognize that the consideration we have received in different harbours and fishing villages is mainly due to the fame and trust that Mandapam centre has among fishermen of the region through research, mariculture and ornamental fish culture, seaweed farming, training, and related activities. The teamfondly remembersthe two successive Scientist-in-

Charges of our period; Gopakumar Sir for his efficient managerial skills, dedication, and quick wit, and Nazar Sir for his capable approach to running the Centre. We have learned from Mandapam to stay united even if there is a difference of opinion, to be together, and to give each scientist a niche in research, training, and various activities of the Centre.

After that, we all moved into our respective quarters. The quarters were huge old buildings with all sorts of biodiversity in and around them. We must live in harmony with the extraordinarily large lizards, scorpions, flying snakes, and silent vipers which may be there on roads. Later, when Surya came with her little daughter Nani, we gathered at the children's park during the evenings. My son who came with me for his vacation loved playing there with the kids. My colleagues and seniors and their families at Mandapam will be fondly remembered on this occasion. Also, the technical officers, the FRAD staff, the administrative staff, the skilled staff, you all remain in our memories. In between, I drove to Pamban on my scooter to collect the mangrove red snappers, which mostly landed in the afternoon sessions, for the project work.I loved to stand on the Pamban bridge and gaze at the gorgeous sky and the blending of the Oceans, despite the fact that I'm from Alappuzha, a lovely land of beaches, boats, and backwaters. The holy land of Rameswaram is only a few kilometers away. I adore the memories of traveling on the train across the oceanic stretch in Pamban and hearing waves crashing a few feet under the bridge. The fishermen at Pamban who lent me berried lobsters for research purpose is gratefully remembered on this occasion. We went to staff family weddings, First Communion of children, and other functions, and life went on.

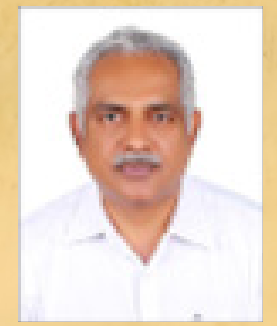
Like the sea with calm and rough faces, we too have had some difficulties like others, which is natural. We were told that situation was tough which improved greatly after Gopakumar Sir took charge of the Centre. I remember our team's daily struggle to get RO water to drink from the tap near the old guesthouse, the scary sound of the northeast monsoon winds blowing on doors at night as if someone were knocking, the seasonal menace of housefly swarms, the hot and dry climate, the unusually large scorpions that crawl into houses at night, the lack of quality medical care, our long journeys to meet our families, and the nostalgic feelings we get when we watch the train moving to Madurai at Mandapam Camp. I was alone and many nights I stayed up thinking about my little son who is far away in Kerala. Thanks to Surya and Amma for accommodating me in their house to sleep at night. The only way to overcome our loneliness is to work, or else you will be emotionally devastated. Many of us feel the same way and we have tried to forget our difficulties seeing our seniors working there and making achievements in the fisheries sector.

Mandapam is where CMFRI toddled, where several distinguished scientists worked at the grassroots level, published, and developed the organization to its current status, making it synonymous with marine fisheries research. Looking back now, I'm glad I was able to serve there for two years and the field experience I gained is satisfactory. While referring to some old research papers, I am amazed how such excellent research was conducted there with minimal facilities even in the 1960s. One of my respected mentors said that he received an email a couple of years ago from a young Spanish researcher enquiring if Drs. Raghu Prasad and PRS Thampi are live. He was fascinated by their research work from Mandapam and wanted to meet them. Even if they left decades ago, their works continue to inspire new generations, similar to the works of many doyens who have had their careers at Mandapam. The legacy should continue, the mysteries of the seas are yet to be unravelled, and I hope and pray that the Almighty will help each of us to contribute more to marine fisheries research and expand the glory of our great institute.

Mandapam Memorabilia

Dr. P. Vijayagopal P.,

Former Head, MBTD, CMFRI, Kochi



After 12 years of Cochin official life the worst or the best that can happen to any employee at CMFRI happened to me. A transfer to Mandapam Regional Centre of CMFRI. Veraval in Gujarat appeared better to me when I went there on tour later. It was May 2002. At first, I went there with my wife and children. I was offered accommodation in the Guest House. Then I was shown the place where I have to stay. I accepted both. Since the place for my stay was not in an occupiable state, I continued in the Guest House with my family for a couple of days and packed them off to Cochin. My wife was working at Cochin and my children were school goers there. They cannot stay back. When I occupied my residence, then came the first shock. I was asked to pay for my stay in the Guest House. I retorted. Had you given me an occupiable space on my arrival for joining officially, which you know in advance? Then, I would not have stayed in the Guest House. Since the house allotted to me was not in an occupiable condition, I had to stay in the Guest House for which I need not pay. I am already sacrificing my house rent allowance and paying the license fee to the Govt. Then why should I pay for the transit accommodation you provided? The argument was more logical and correct according to rules. The case was closed.

My movement to Mandapam lock stock and barrel was in a hired truck, in which I was also travelling. There were two drivers. One fellow slept and the other drove taking turns. I was carrying all my personal belongings and material required for research also because I know Mandapam Centre did not have any history of fish nutrition research which began and ended with me. Research material were small Perspex tanks to run controlled experiments and an electronic balance. My personal belongings included my scooter. The truck entered the campus when all were asleep and without knowing the sandy texture of the soil, I asked the truck driver to drive through the sand to the proximity of the quarters allotted to me in the dark. The truck got stuck in the quicksand. No point in disturbing known acquaintances, Boby and Jagadis. I asked both drivers to sleep in the truck till day break and I strolled till dawn. It was a windy night. I walked up to the Mandapam Camp Railway Station and had a tea close to 4.00 am and walked back. At dawn the first person to see the mishap was driver Sreenivasan. The truck drivers were trying to move the vehicle shoveling out the loose sand with hands. Sir, we will have to hire a tractor to tow and pull the truck out, said, Sreenivasan. I requested him to arrange that. The tractor came and pulled out the truck and by time a crowd gathered and all helped in downloading my personal belongings. Jagadis was trying to start my scooter. I moved with the truck to the Central Block of the Office and unloaded the tanks and balance. The drivers were wonderstruck seeing the building and wanted to know what we were doing there. I politely disposed them off. Jagadis had invited me to come over to his house for breakfast. Delicious it was, with a kesari. My pranams to his wife Chandra who is no more.

My neighbour was Boby and family. Talkative Ria, Boby's daughter is still a fond memory. I occupied the room in the Central Block which Dr. V.S. R Murthy Sir told me was known as the physiology laboratory when Dr. M. N. Kutty occupied it during his days on his return from Canada after his Ph.D. Planned to be an operation theatre of the quarantine hospital for which it was originally built, I had to develop it into a laboratory. Soon, Dr. Modayil the Director then came along with Dr. Ayyappan, the DDG. By then, I was able to buy only a double distilled water unit and I used to drink that water as I was told the drinking water available there was of poor quality. When they walked in, I told them that I have started with a distilled water plant and confirmed whether a laboratory needs to be developed there. When they answered on the affirmative, I told that at present I am drinking distilled water, I remember Dr. Ayyappan hugging me. The drinking water problem ended on finding a supplier who delivered packaged drinking water cans on call.

I started running my leftover Ph.D. experiments with the help of Thangavel first, followed by Shanmuganathan and Shaul Hameed later. Developing conventional wet gravimetric analytical facility for nutrition research progressed parallelly. Surprisingly, a spectrophotometer and a HPLC were added on later.

Without going into research anecdotes, let me highlight some problems which could be solved applying common sense. Fresh water comes in a 12000 KL truck and is pumped for an hour in the morning daily. Freshwater, supposedly, because any water which does not have saltish taste is benchmarked as freshwater in Mandapam. All campus inmates move with pots to the taps on the street within the campus. Took turns to fill the pots and carry it home. Some like me who went to the street side taps only to drink water in school could not digest this activity. I employed a local man, who bunked this activity time and again. Pat comes the monthly meeting where the SIC meets all section heads. I raise the issue. If the freshwater head can reach the street, why can't we extend it into the houses? The store of Manadapam RC is full-fledged hardware shop from where pipes and taps can be taken. In case of shortage of pipes, just dig the area behind the aquarium; PVC pipes of all specifications can be unearthed. That is how a freshwater tap came into the quarters. Today we have RO water coming through these taps.

Networking computers at Mandapam was another experience. With modem in the SICs room internet was available only in the afternoon for 4 hours in a computer where me, Boby and Jagadis sit like trimoorhties. All at different stages of their Ph.D. work with me at an advanced stage needed the desktop computer, printer and internet. Then comes the offer to avail an Ernet connection with a dish and the entire campus had to be networked. I went for training offered by Ernet at NAARM to learn the fundamentals of networking. Right from cabling to connecting all computers and ensure all terminals had internet access was and experience in itself. Come December, a thunderstorm routed the router and a couple of computers. I had to redo the exercise. The service providers were young boys coming from Madurai who wanted to rush back in the evening. At times I had to threaten them to stay back and complete the work and leave!

Security at Mandapam those days were manned by regular staff. Most of them on the verge of retirement. Surprise inspections of these staff especially in the night is a routine. Once, myself and David (Artist at CMFRi Cochin now), the inspectors did the rounds and found one Sonai missing. Promptly the next day morning Sonai appears at the front door of my house. I ask, why are you here? Sorry Sir, yesterday's inspection, murmured Sonai. So, what? I asked. Before I could wink, Sonai prostrates on the sit out floor. I ask him to get up feeling uncomfortable. He was still standing in front of me with folded hands. I ask him to leave. He is standing still. Now the climax. I ask again why don't you go? Sir, should I enact the same drama in front of David also? I could not control my laughter.Sonai later, met with a road accident and survived it. I am unsure of his whereabouts now.

Mandapam grows on you, the longer you stay and work there. My association with Dr. Gopakumar Sir and Mr. Chidambaram of the library grew stronger which we continue even now. We use to laugh a lot, more at ourselves than others. In the process we cultivated enemies also. The thought probably was, why these fellows are happy always?

Construction of compound wall for the campus was completed when I was there. I remember a lady Police Inspector named Joslyn walking into the SIC's room after 6.00 pm when I and Gopakumar Sir were sitting facing each other and talking. She asked us to stop compound wall construction. We had to categorically convince her that we cannot take oral orders. Please bring court orders or speaking orders from the local administration. We are here like you doing our official duty. Nothing personal. Voila Mandapam.

My contribution to the growth of CMFRI

S. Palanichamy, Sr. Technical officer (Rted) CMFRI, Mandapam Camp.

My heartful congratulation's and best wishes to the CMFRI, Cochin for its devoted Srevice rendered to the nation in the field of fisheries research, Laboratory to land programme and the 75 years coral festival celebration. In that I wish to explain my role in the history of CMFRI, growth.

I was joined as lab-cum-Field Assistant with graduation in Botany at Narakkal Lab and field Laboratory centre of CMFRI in September 1976 near Cochin, Kerala. Here I had undergone the lot of field experience and learned much about the culture fisheries management especially Hydrigraphy, Productivity and the environmental parameters of grow Out ponds. Further I learned about the larval rearing of commercially important crustacean and fin -fishes under controlled conditions besides assisting the concerned scientist in the maintenance of stock and mass culture of Phyto and zooplankters

Science the concerned research fellows are got appointment in other department's and resigned from the CMFRI in 1980, I was asked to look after the culture of live feed independently under the guidance of Mr. M.S. Muthu then officer-in-charge of Narakkal field centre.

After that I developed the technique for the mass culture of marine chlorella and Nannocholoropsis oculate species using organic fertilizer ground nut oil cake along with traces of urea and super-phosphate avoiding cow dung to feed the zooplanktons such as Rotifer (B. plicatilis) moina (clado coran) and copepods (Calanus and harpacticoid).

The Photosythetic sulphur bacteria (PSB) mass culture technique was developed to replace costly bakeryeast and Rice-bran to feed the Artemia Salina. TheArtemia hauplii, juvenils and adults are used to feed the different larval stages of prawn and fin-fishes.

Remarkable achievement was made under the valuable guidance of Mr.M.S. Muthu by developing the Aremic Hybrid. The hybrid was developed by crossing high Saline (60-70ppt) Bombay strain Parthenon-genetic fernale and the low saline (30-40ppt) heterosex California strain male. In F1 generation we got mixed characters of male and female. From this low saline Parthenon genetic female was isolated and multiplied for the mass culture under captive in the sterilized sea water.

I was an associate in the mass seed production of P.monodon first time in India under the guidance of Dr. N.N.Pillai at kovalam field centre of CMFRI.

At mandapam Camp research was carried out to the brood-stock development of Sea-bass and groupers. We have successfully mass-produced fin-fish Cobia fingerlings under captive condition under the head of Dr. Nazer then hatchery-in-charge. Further mass culture of diatom such as chaertoceros, Skeletonema and thalossiosira species was done by using the organic fertilizer casurina-green-seed extract and reared P. semisulcatus prawn larvae up to the post-larval stage.

Finally, my sincere thanks to C. Asokan, Senior Technical Assistant who asked me to share my experience during my service in CMFRI from 1976-2011.

My personal & professional life at Mandapam

» (Oct 1987 - June 1996)

» Dr. Reeta Jayasankar

» Retd Principal Scientist

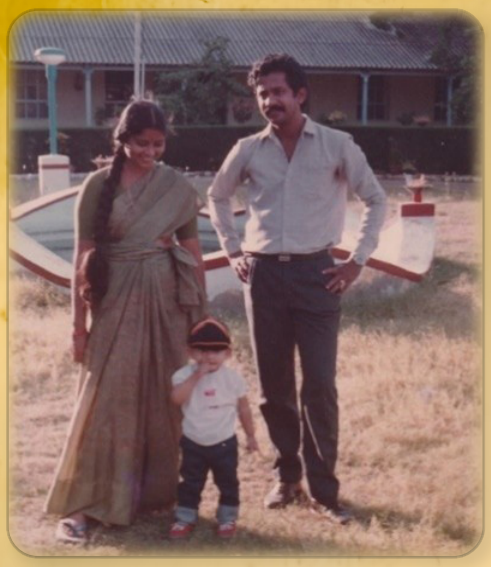
» ICAR-CMFRI, Kochi

Has anyone requested for an inter-institutional transfer to a remote locality like Mandapam from a bustling city like Bangalore? The story begins with my posting as a scientist in IIHR Bangaloreand went for NAARM training. Many of my later colleagues from ICAR-CMFRI were also participants in the training and one of them was Jayasankar. Being a male singer in the group, I happened to meet him and I joined with him on several occasion in music performances which eventually made us life partners. The marriage was on 19th October in Arya Samaj, Bangalore and just after 8 days of marriage the musical couple left for Mandapam on 26th Oct 1987.I joined at Mandapam RC of CMFRI on 27th of October 1987, having received transfer order already before my marriage!

Dr.P.S.B.R.James, the then Director, ICAR-CMFRI was virtually taken a back when I got my transfer order even before marriage and I joined directly at Mandapam RC of CMFRI without following the normal route through Headquarter at Cochin. In fact,during my early stage of my service I was not aware of specific rules and guidelines about ICAR. I wrote an inland letter (stating that my fiancée is working at Mandapam RC of CMFRI and our marriage date is fixed on 19th October) to one of the administrative staffs (one Mohapatra) who had earlier visited IIHR Bangalore. I never met him, I just got the address from the visitor list and to my pleasant surprise, he managed to facilitate my transfer from IIHR Bangalore straight to Mandapam RC of CMFRI. As mentioned earlier CMFRI Director was unaware of my joining at RC of Mandapam so he took it even to the point of offensive and had an impression that I applied some political pressure.

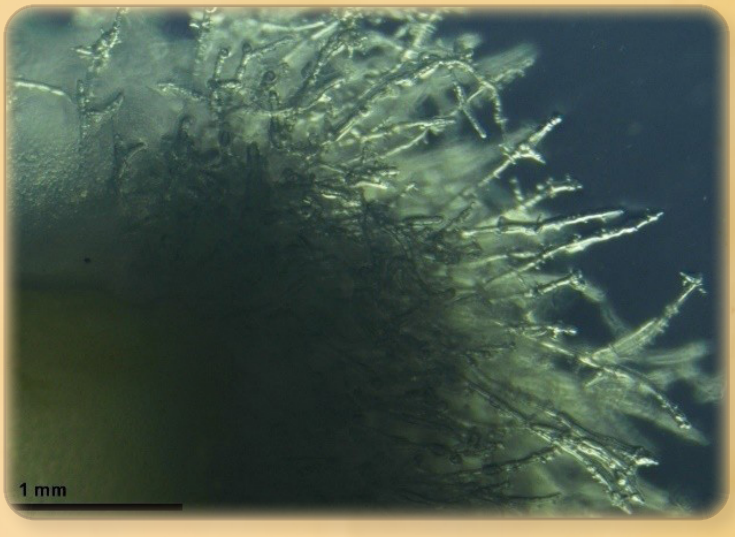
Indeed, I was at pain to explain him during his subsequent visit to Mandapam and that was my first meeting with Director, CMFRI. Dr James did not mince his words, and expressed his utter surprise over my unique and unprecedented joining event. Even with all this controversy, Dr.James supported me a lot in my initial research career in marine science.

I did not have any pre knowledge about Mandapam and its living condition When I agreed with Jayasankarto get a transfer to that place for staying together post marriage.When I arrived at Mandapam with my precious collection of plants in a train I saw the place surrounded by sea. With lot of difficulties, I triedto savemy plants but finally they perished. That was a dear property I



had after my marriage. However, we struggled to develop our sweet home in the quarter No.3/6R from scratches to a reasonably good comfort level.

At the time of my joining, Dr. Vedavyasa Rao was the SIC of Mandapam. A fatherly and amenable figure.I was asked to work on seaweed along with three veterans Dr. Kaliaperumal, Dr.Kalimuthu and Shri Ramalingam. Being a botanist, Director, Dr.James wanted me to work on tissue culture of seaweeds and allotted Rs.10,000/- to establish a tissue culture lab at Mandapam Centre. He sent me for training under an expert working in Sugarcane breeding Institute,



Coimbatore. Within a year of marriage, I was blessed with a son (Rajath- Rajju) and after 3 months maternity leave I joined back the Institute. I proceeded to SBI, Coimbatore for tissue culture training along with my 3 months son. I had previous experience on tissue culture at IIHR Bangalore in plant hormone lab where I was working on tissue culture of citrus and role of abscisic acid on citrus fruit fall. Both the trainings helped me to develop a tissue culture lab and started working on seaweed and microalgal culture. Unfortunately, I could not achieve anything big in tissue culture of seaweed due to lack of necessary equipment. But that initiative gave me significant breakthrough in tissue culture just before my superannuation.

Another thrilling experience was When I went to Krusadai island with supporting staff and Shri Ram Moorthy (Technical staff) leaving my son 6 months old son at home. That day there was a cyclone warning for Bay of Bengal and there was an announcement that cyclone may hit Mandapam coast at 10 am. We thought we can be back from Krusadai before that. Unfortunately, the state govt boat, in which we went was having some technical snag and we could not come back to Mandapam. There was no cell phone or other communication device to inform that we were stuck up here. The only communication was to tie a red flag on the boat. It was 3 pm and the cyclone hit the coast, the water started gushing on to the island and we were all confined inside a small dilapidated building. Finally, one of the boat crew swam through the rough sea and reached Pamban and informed the state govt office. A fishing trawler was sent to bring us back. Thoughts of this event are chilling and exciting in equal measures.Somehow, we reached the shore. SIC PV Rao and staffs were waiting on the harbour. I received a piece of mind fromSIC for my irresponsible act to take staff to island leaving a 6 month baby at home when there was a cyclone warning. On the hind sight he was pleased with my deep commitment to research and field work.

In 1991, I was blessed with a daughter (Seethal-Sonu). I travelled 45 km to Ramathapuram with labor pain in mid night 1 am along with my husband, mother and little Rajju. My daughter was born in Pioneer hospital, Ramanathpuram and turned a blue baby due to lack of oxygen as the umbilical cord being encircled around her neck but thank God nothing happened and she survived! Seeing the unhygienic conditions and the care of the hospital, I insisted leaving the hospital soon and reached back Mandapam within 2 days of my delivery. Thanks to my mother (Being a trained nurse from Lady harding medical college, New Delhi) to take care of me for 15 days and I recovered rapidly. Medical claim benefits did not apply to two of my deliveries. Being in a remote area, the Institute should have been more lenient in their decision on approving the medical claim. However, we did not get that benefit.

We are encountered with multiple problems including support to my children, lack of good portable water, poor medical facilities to name few. Managing the kids when both of us have to go to office was a big challenge. Any care taker brought from Odisha would leave the place within 6 months. Finally, we took refuge on Srilankantamil who were staying in Mandapam campand some of them really took care of our children. I remember with love and gratitude to Kaliamma, Gomatiamma and Rasati. On professional side, I focused on spore culture of *Gracilaria* and could achieve breakthrough on spore output, nursery rearing, transplanting the germlings in different localities in the sea and finally the harvest of crop grown from spores. I have also successfully carried out a project from ICAR on spore culture of *Gracilaria*. My innovative work on cultivation of seaweed under gravitational flow impressed Dr.E.G.Silas, Vice Chancellor of Kerala Agriculture University and former Director of CMFRI during his visit to Mandapam.

He took a photograph of mine near the site and wrote a letter to Dr. Kaliaperumal with a statement that he could see a way forward in seaweed cultivation.It was indeed quite encouraging for an upcoming scientist like me.I also got a project on cultivation of seaweed under

greenhouse condition from DBT but unfortunately I had to leave Mandapam for carrying out my Ph.D work at Madurai Kamaraj University under the guidance of Dr. Kulandaivelu, Head, Plant Sciences. And the project was taken over by Dr.N.Kaliaperumal. Coming from an entirely different realm of research on terrestrial plant physiology, my thrust with seaweeds was challenging and uncertain equally like a small plant under a big banyan tree. Fortunately,I got lot of opportunities to learn things by taking classes of Post Graduate Programme in Mariculture, carrying out my own work on seaweed culture from spores and on microalgal culture.

When you are young you dream to do something special as a scientist but sometimes you will face many obstacles and thus compelled to compromise on our efficiency. I feel, I could have done much better. I was rewarded with ICAR fellowship to continue my Ph.D as an in-service candidate. Before that I got CSIR fellowship too which I was disallowedby the Director citing reasons of need of my service to the Institute. Nevertheless,with ICAR fellowship Director could not deny the opportunityand permitted me to go on study leave for three years from 1993-1996. I completed my work on Physiological studies on productivity of *Gracilaria*sp within the stipulated period and submitted my thesis and was awarded the Ph.D Degree in 1997. During my Ph.D ,I fractured my legat Madurai when I was with my two children. My friendly neighbours at Madurai, who took care of children, took me to the hospital and stayed there till my operation was over and brought back to the quarter. I could able to contact all my relatives in Kochi and Odisha but I could not able to contact Dr. Jayasankar regarding this accident due to poor communication link with Mandapam camp. When he was coming for his weekend visit, I was getting discharged from the hospital with full leg bandage. It was a cruel surprise to him and then my father took all initiative to install the first landline at our residence in Mandapam Regional Centre to communicate. When I and Jayasankar came back from Madurai with this fractured leg, I could not bear the weight of the bandage and I just cut it. But Mr.Vellayan, SSS of Mandapam center brought the Vaidya from Paramakudi and had treated the fracture with traditional medicine and I could resume walking without crutches within 2 months. I am really indebted to my friends at Madurai and Mandapam camp.

During 9 years of my stay,on several occasion both of us requested for transfers but request turned down by Director citing reasons for two substitutes to transfer us.When my Ph.D work was in the closing stage, Dr. M Devaraj took over as Director, CMFRI. I once visited him at Mandapam and requested for a transfer to Kochi since my son developed fits and was in need of regular better medical services. Dr. Devaraj promised me that after my study leave, he would transfer me to Kochi. He kept his promise and transferred me to Fisheries Harbour lab in Thopumpady, Kochi. Ilenges are always there in life but Mandapam is a Home away from my Home. I love the people, especially the children, the supporting staffs. My neighbours like Mrs. Kalimuthu, Mrs. EV Radhakrishnan, Mrs.Raju and MrsMaheswaradu, Mrs.Kaliaperumal all have rendered help at varying occasion during my stay there. The children really enjoyed their childhood with their friends, birthday celebration, initial schooling, nursery class just opposite to my work station, converting the cottage agar industry to central school are still vivid in my mind. My son was the first batch student from that school and now a full fledge

KV is established there. I happened to visit the school and the quarter after 20 years. My journey began from there as a seaweed scientist and I reached to a great height in my goal. I would never forget those nostalgic feelings of Mandapam, the environment, the neem trees, the childrens' park, fresh air, fresh fish, the guest house food, peacocks and very affectionatepeople. I never regret for my stay at Mandapam in the beginning of my research career in marine science. It is the heaven forseaweed, fish and fishery scientists.

From

Smt. S. Parisha

Assistant (Retd),MRC Of CMFRI,Mandapam Camp,·

Sir

I am to state that, with proudly about my carrier in the Mandapam regional Centre of C.M.F.R. Institute, Mandapam Camp during my service periods.

I appointed in the Mandapam regional Centre of C.M.F.R.I,Mandapam Camp as a Lower Division Clark on 27/07/1979 AN and worked with keen interest and duty consciousness in the Administrative and store section respectively I worked in the officehours also apart from the office hours whenever my service was required without any hesitation.

I worked with full appreciation of the following respected officers during my entire service periods till my superannuation on 31/10/2014 in the post of Assistant(i.e., 35 years 3 months 4 days)

1) **Dr. P.S.B.R. James., joint-Director, (He was my appointing authority – 1979)**
2) **Dr. S. Mahadevan, Officer-in-Charge**
3) **Dr.A.D.Diwan, Officer-in-Charge**
4) **Dr. R. Marichamy, Officer-in-Charge**
5) **Dr. P. Vedavyasa Rao, Officer-in-Charge**
6) **Dr. A.C.C. Victor, Officer-in-Charge**
7) **Dr. A. Regunathan, Officer-in-Charge**
8) **Dr. N. Kaliaperumal, Scientist-in-Charge**
9) **Dr. G. Gopakumar, Scientist-in-Charge**

Now, I am A pensioner and I am very grateful to the institute and all the officers and staff of the CMFRI till my end.

Thanking you Sir,

THE PROACTIVE POMPANO – A COVID-19 ESCAPADE

(Autobiography of an unknown brooder)

Dr. Anikuttan.K.K

Men may come and men may go, but I go on forever
-Alfred Lord Tennyson

It was a clear sunny day when I was happily swimming, dancing and enjoying in the clear transparent waters of Gulf of Mannar, the most loved destination of marine biologists, when the sound of dingy (small FRP boat) approaching our shelter (cage) alerted me as well as my friends to take position and be ready to catch the daily ration that is going to be thrown to us from top, similar to the food packets dropped from helicopter during a flood situation. The boat came near our cage and as usual it was tied to the cage but unfortunately there was no sign of any food being thrown to our cage. Instead, someone jumped into the cage with a net and started chasing us to finally catch few of us who were comparatively bigger than others in the cage. We were put into a small tank kept in the boat and then transported to the shore in the same boat. On reaching the shore, I could hear the cracking sound of a tractor with trailer attached to it, on which another tank with water was kept. We were shifted to this new tank on the tractor.

The tractor started moving along with us to our new unknown destination. We heard the driver saying to his colleagues " these are new pompano brooders for new hatchery", from which I understood that we were being taken to the broodstock holding section of new hatchery or the Marine hatchery complex of Mandapam Regional Centre of ICAR CMFRI(as per the official terminology!).

So after some time, we reached our new home which was a big FRP tank filled with sea water. The water was being circulated using a pump. We could see a submersible heater inside the tank protected by a PVC casing with holes. A bulb was also fixed on top of the tank and the tank was completely covered with a rexine sheet. I heard someone saying "This is the photo-thermal regulation for broodstock development" (even though I didn't understand the meaning of it!!). Later on, I came to know that, we were being conditioned in that tank for making us ready for breeding.

Every day we were given special diets such as chopped pieces of squid, cuttlefish, shrimp etc and the people working in the section were taking care of us just like their own babies!

Days passed by and after few weeks of life in the new home(tank), one fine day, we were taken out of the tank and put into another smaller tank. I heard one of the boys telling "hey today cannulation is there, sir told to call him after making all arrangements" I was thinking about the new term "**cannulation**" What is it all about?? any way let me wait and see....

After some time I heard a loud noise which I felt like someone laughing aloud after cracking a joke!! and I could hear the footsteps approaching our tank. I heard a new voice asking the boys " Is everything ready?" from which I presumed that this is that **SIR** about whom the boy was mentioning earlier. Yes sir, the boy replied.

Thereafter, the boy caught me using a hand net and put into a smaller tank in which some other substance was mixed in water (which they call it as anesthetic agent!) After few minutes, I started losing my balance and felt like becoming unconscious!!! It was like an inebriated stage!! when I cannot resist the person touching me or handling me and I could feel some tube being inserted through my genital pore and eggs were sucked out using this tube!!!.

After this they put me back into my old tank where I regained my senses and to my utter surprise came to know that, this process is called **cannulation** as I heard one person (probably that sir) explaining

about it to some students present there. He was continuing " This is done to carryout egg biopsy studies based on which we can do the hormonal induction for breeding of fishes..I whispered to myself "So this is how these humans take out our eggs for such studies!!"

Later, on the same day, I heard someone saying "the eggs are good and is the right time to induce". Then, I was taken out from my tank and put in to the same small tank as earlier for anesthesia and after I became unconscious, they gave me an injection and released me to the big tank along with other male fishes.

Spawning happened after one day or so, most of the eggs were floating (which they call it as fertilized eggs!!) and some settled on the tank bottom. After some time, I could hear the sound of that same sir who did cannulation " It's a good spawning, collect the eggs carefully and transfer to hatching tanks".

We were shifted to another tank and then the eggs were collected for transferring to hatching tanks. I heard the sir telling to the research scholar present there "Estimate the number of eggs and tomorrow after hatching estimate the number of larvae, Ensure that adequate rotifer density is maintained and give good quality microalgae throughout the larval rearing period" . Yes sir, said the research scholar.

From this I could understand that our babies will be hatched out tomorrow and these people will be growing them (they call it larval **rearing!**) using the live feeds such as rotifer and microalgae.

The next day, we were back in our old tank and good food was given to us. The daily activities commenced as earlier. At times our tank was cleaned by the boys when we were held in smaller tanks. During this period we were immersed for a short span of time in a water with absolutely no salt content at all (They call it RO water dip treatment). Even though it was suffocating to be in that water, they were doing that as a means to keep us healthy and free from diseases!!,,thanks to our dear care takers!!..

So the life became interesting in this new home and after about a month or so, we were again taken out of the tank for cannulation followed by hormonal injection etc by the same sir as earlier. Then spawning happened and the egg collection, larval rearing etc followed as usual. This cycle of events went on smoothly for few months and one day I heard someone saying "Hey you know, our sir got transferred to Chennai and now onwards, he will be coming here to Mandapam every month for cannulation"...Oh.. Is it? then he will have to travel all the way from Chennai every month, said the other boy.. their discussion went on like this.

So after some days, sir went to Chennai on transfer and his absence could be felt by all of us due to the lack of that typical loud laughter sound (after cutting a joke)..

The next month he came on the day of cannulation and performed all the activities as usual and this practice was going on for some more months.

One day, I heard the hatchery staff saying " Hey the corona virus is spreading and therefore lockdown has been imposed across the country.. No one can travel now"

I didn't know what it is all about, but felt like something unusual or unexpected has happened...Daily I could hear the discussions about the deadly virus and its official name as COVID-19, the biggest pandemic of this period the world has experienced. Fear among the people was increasing and everyone was becoming more and more health conscious due to which there were less gatherings or gossiping's in the hatchery. This badly affected my chances of getting some news from overhearing their discussions!!.

Days passed by and the lockdown got extended for more days.. I heard the boy telling the other "If this lockdown continues like this, how can sir travel from Chennai and come here for cannulation??,, I think our hatchery operations would come to an end if there is no spawning!! Ultimately it will bring bad name for our office as well as the staff!!.,, some of us may even lose our jobs"

By hearing this talk , I became very sad, mostly thinking about the consequences of the lockdown-

effect on our office as well as the staff who were taking care of all of us just like their babies..My conscience didn't allow me to sit idle in this critical situation. So I called a meeting of my fellow brood fishes in the tank and appraised them about the situation and the pathetic condition of the staff who are taking care of us. I said to all other fishes present in the tank "we must do something now!! We must be proactive!!, So even without hormonal induction, we should perform spawning and help in running of this hatchery!!. So everyone please cooperate!!".. My appeal was well accepted and everyone agreed to my proposal.

The very next day there was a spawning in our tank and the hatchery staff were very much excited to see eggs in the tank..

They informed the matter over phone to their boss and immediately he arrived. He said "Ok this is a good news that we got a **volitional spawning!!,**

(I thought, Ohh... these scientists have found a new term also for our sincere proactive action!! *Volitional spawning*...Great)

He was giving further instructions to the staff "Please make arrangements for egg collection and further hatching and larval rearing activities.

We decided to continue with our proactive action as long as the lockdown continues. Almost every fortnight or so there was the so called volitional spawning!! and finally one day I could hear someone saying, "this has become a menace now,, like every fortnight there is spawning!!!

That statement really hurt our feelings and everyone in the tank were upset.. We didn't know what to do next.. We had taken this proactive action in order to help these humans and now they are telling it is a menace!! Really disheartening to hear this.. So we decided to reduce the frequency of volitional spawning!!.. and finally we stopped this proactive action at once!!.

(Later I came to know that, these people have made research publications also comparing volitional spawning with induced spawning!!! how cruel they are!!)

We consoled ourselves and started returning back to our old style of living. After some days, I heard the sound of another person asking the boys to make arrangements for cannulation. I came to know that now onwards, this new **SIR** will be doing cannulation..." Okay, Let this be a new beginning, we will continue with our duty as long as we are alive"...I said to myself...

Men may come, men may go...but I go-on forever!!

****

Acronyms:

FRP : *Fibre Reinforced Plastic*

The saga of Raja and Rani of Mandapam CMFRI

Dr. Raju Saravanan
Senior Scientist
Mandapam Regional Centre of CMFRI
saravanan.r@icar.org.in

The Mandapam Central Marine Fisheries Institute's legacy is the variety of marine biological research it conducted during the course of its 75-year existence, which began in 1947. Many pioneers and deans of Indian marine fisheries research who worked at Mandapam CMFRI won accolades for their creative thinking on previously unheard-of projects in the Indian subcontinent. In addition to being influenced by both the southwest and northeast monsoons, Mandapam's isthmus, which is bordered by Palk Bay in the north and the Gulf of Mannar in the south, also enhances the biodiversity of the local undersea environment.

It is well known that the coral reef and seagrass areas of the Gulf of Mannar and Palk Bay support life forms richer than many coastal areas of our country. This enabled the researchers who worked at this centre to try various avenues of research due to its proximity to the pastures of research. Marine mammals are large marine animals that have fascinated mankind ever since man came to know about them. The Gulf of Mannar and Palk Bay enable the survival of a unique marine mammal called Sea Cow (Dugong dugon) in Tamil Avuliya, a gentle giant feeding on the pastures of seagrasses available in these waters. Their population was thriving in these waters at the beginning of the twentieth century, but pressure on their meat and other parts in the latter period decimated their population; thus, they have been protected under the Wildlife Protection Act since 1972.

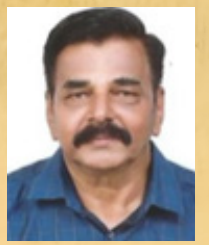
Mandapam CMFRI scientists have tried their hands at studying these animals since the 1950s. On March 23, 1955, a 95 cm long dugong was brought to the centre and kept alive for two months before dying on May 25, 1955. This was the first attempt by Indian scientists to try and maintain these mammals in confinement. Another dugong which was brought alive on 14 June 1955 survived for about a month and perished on 22 July 1955. Subsequently, scientists maintained a 2.5-metre-long dugong in the ponds for about four months in 1956. These were the initial trials undertaken by the scientists of Mandapam centre to rear them, with little success. However, scientists did not lose heart and attempted further; on October 2, 1959, a male dugong measuring 160 cm, caught near Hare Island in the Gulf of Mannar, was brought alive to the centre and maintained in the tank. Within a gap of two months, on December 6, 1959, a female dugong of about 196 cm was brought alive and reared in the tank with the male dugong. After a few days, they adapted to the tank conditions.

Dugongs are herbivores; hence, they were fed with sea grasses weighing about 50 to 60 kg a day, and mostly they were hand-fed or else submerged with the help of stones. On December 19, 1959, Mrs. Lourdhammaal Simon, the Minister for Fisheries, Madras State, visited the Central Marine Fisheries Research Station in connection with the Decennial celebrations of the Mandapam Branch of the Zoological Society of India, and the two dugongs were named "Raja" and "Rani" by her while opening the Zoological and Fisheries Exhibition.

These two dugongs continued their stay at the Mandapam CMFRI facility due to their well-kept condition for more than a decade. On July 1970, the dugong "Raja" passed away, and the "Rani" also died in the month of August 1970. The dugong's 10 years and 10 months in captivity are most likely a world record for this species in an aquarium. This feat was possible due to the tireless care given by the staff of Mandapam CMFRI. These two gentle giants facilitated various scientific advancements in understanding their biology, and the memories they left among the tourists who used to flock to see these marine mammals were undeletable. What was believed to be male and female during their initial

years was found to be male upon their deaths. These two dugongs were preserved and are now on display at the Mandapam CMFRI Museum. Restoration work on this dugong was carried out in 2022, and it is now on display in the museum.

The Comedy of Cobia Breeding



G. Gopakumar

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Human beings are doing a lot of injustice to fishes. Since time immemorial we have been catching fish without much discretion and eating them. It is generally taken for granted that fishes are created for human consumption. It is seen that even very kind people who are disturbed by witnessing the killing of a hen or a cock in a poultry farm, are happy to see a fish being caught and feel very unhappy if the fish is escaping from the net or hook. We generally do not feel mercy to a fish as we feel for other animals when they are being killed. We also enjoy by watching the poor fishes struggling for their life in the aquarium and relive our tension. I have seen many of our 'aqua shows' becoming 'aqua tortures'. The pain felt by fish is not generally recognised by us. Until recently it was also felt that any quantity of fish is available in the sea and we can catch to whatever level we want. I have heard the story of a poultry farmer who went to a poultry scientist and made a demand

"Doctor sahab, I want my hen to lay a dozen eggs per day, can you do it sir?

Poultry scientist thought for a while and replied

"Yes, don't worry; I will do it for you".

After a few hormonal treatments the scientist developed a hen which can lay a dozen eggs per day. He called the farmer and handed over to the farmer who became excited and thrilled.

The next day the magical hen laid a dozen eggs and the farmer saw that each egg was of the size of a mustard seed. He had a shock of his life!

Sea was considered as an unlimited source of fish. But in recent years scientists and fishermen have realised that sea is not full of fish and as we go on catching fish indiscriminately the populations will decrease. If you ask any fisherman about the fish catch nowadays, everyone will lament that catches they get now are very poor and cannot be compared to the same in their good old days. It has led to the awareness that if we are going to catch fish indiscriminately the sustainability of the resources will be affected. This is evident when we examine the scenario of exploited fisheries all over the world. Fishing has become a high energy enterprise and we are moving to more distant waters. We also realise that the inshore areas of the sea harbour most of the fishes and the oceanic waters have only few resources. Hence nowadays fishery scientists talk a lot about managing fisheries, certifying fisheries and governing fisheries.

Managing an institution or managing a group of people can be easily understood. But how to manage fish in the sea? We hypothetically estimate the stocks of fishes and project on the alarming situation due to overexploitation, climate change and what not (with due apology to my fisheries management friends! I am telling it because of my ignorance on these aspects). The sad reality is that most of these findings remain only in papers of fisheries journals and cannot be implemented due to socio-economic and other reasons. The plight of fishes and fishermen remain without much change. I have a strong conviction that as fishery scientists we have to be socially relevant and put our heart and soul to move forward to save this sector which provides livelihood, food and nutritional security to several millions of people. It is well understood that there are several burning social issues in fisheries sector and the only way forward is to sustainably increase the fish production. Some regulations even if they are scientifically true cannot be implemented if the social acceptability and livelihood of the concerned sector is not taken into consideration. An arm chair management policy will remain as a pipe dream. This is very much true in the Indian context. We have to deal the situation at the grass root level and move forward.

We all are sure that our research is to enhance and sustain marine fish production. I have a sincere

feeling that some of the research problems we are addressing are like a question asked by the school inspector to high school students.

The inspector asked: "If the length of the platform is 200m and the speed of approaching train is 10 km/ hour, calculate my age."

One student answered "Sir, your age is 52"

The inspector became very happy . He asked " Very Good! The answer is absolutely correct. By the way, how did you calculate?"

Student: "Sir, I have an elder brother aged 26 years, everybody calls him half mad."

Excuse me for the exaggerated example.

My doubt is that when there are lots of burning issues in the fisheries sector which require research interventions, why we are addressing imaginary or less significant issues and coming out with fantastic suggestions which are not at all practicable to implement.

A gentleman went to a doctor and told: "I am seeing a beautiful dream every day."

Doctor: "Same dream everyday! Tell me what the dream is?"

Gentleman: "In my dream everyday a very beautiful young girl enters my bedroom and rushes towards me?"

Doctor: "Then!"

Gentleman: "I forcefully push the girl away with both my arms."

Doctor: "I appreciate your moral values even when you are asleep. Well, I am sure that you would like to take some medicines to avoid the dream"

Gentleman: "Not at all. I want to remove both my arms. Please make arrangements for amputation immediately."

What an imaginary problem and fantastic solution!

I have a strong conviction that when scientists recommend a technology to be undertaken by a farmer or advocating a management regulation for ensuring sustainability they should be down to earth realistic and 100% sure that these can be adopted and the plight of the fishermen will improve without affecting their present livelihood. I have heard the story of a house owner and a visitor coming to his house. The house owner was reading newspaper in the sit out of his house and he saw his dog barking and jumping at the visitor who was trying to open the gate.

The frightened visitor asked whether the dog will bite him.

The house owner replied in a cool way

"No, no you can come"

As soon as the visitor entered the dog pounced on him and has bitten him severely.

The visitor shouted

"What nonsense, why you have not warned me?"

"Sorry, I have purchased this dog only today and I wanted to test whether it will bite or not."

What a cruel testing!

The fishermen who invest money and labour for a new technology advocated by fisheries scientists are more practical oriented and unless they are fully convinced about the profit they will not be ready to adopt it. I have read about an interesting example of a fisherman and a fisheries scientist. They both were travelling in a train and sitting nearby in the train compartment. The scientist was feeling bored and wanted to start a quiz game with the fisherman. He told the fishermen

"You can ask a question to me and if I am not able to answer the same I will give you Rs.100/. Then I will ask a question to you, if you cannot answer you need to pay Rs.10/ to me."

The fisherman thought about it for a while and agreed the conditions.

The scientist told "First you can ask the question"

The fisherman asked " Name a fish which can climb a coconut tree in five minutes and come down in two minutes"

The scientist could not answer the question and he paid Rs.100/ to the fisherman.

Then the scientist asked the question " What is maximum sustainable yield?"

The fisherman replied "I don't know, you take your ten rupees"

He put the remaining ninety rupees in his pocket.

Whatever may be the alarming situations in future, capture fisheries will remain as the chief contributor of seafood production. But it is well understood that it cannot be enhanced to meet the growing demand for fish in the coming years. When I was working with marine fisheries resource management I used to be perplexed with the lengthy formulae and equations of population dynamics and used to wonder whether the poor fishes can follow these formulae! The names of von Bertalanfy, Beverton and Holt , Gulland, Ricker, Pauly, Sparre – all were frightening to me (my apology to these international experts, I felt like that that because of my ignorance). In our scientific meetings a question frequently asked was "Why the catch of the resource declined this year?", The usual answer was "The stock in the sea was less". The next question was "Why the stock was less?" The reply may be "It may be due to climate change and factors such as El-Nino and La Nina and the southern oscillations and circulations!" All these were Greek and Latin to me. (Apology to our experts on these aspects). Sometimes I was tempted to think whether we are practising 'squid technology'? When a predator is sensed by squid, it splashes black ink, creates confusion and escapes nicely. It is like the funny answers given by a suspected thief when questioned by police

Police: "Where do you live?"

Thief: "With my parents."

"Where do your parents live?"

"They live with me"

"Where do all of you lie?"

"We all live together."

"Where is your house?"

"Next to my neighbour's house."

"Where is your neighbour's house?"

"Next to my house"

What a clever confusing replies evading the required answer!

I basically belong to a middle class agricultural family and we are used to produce food through farming. When I had joined ICAR, I had a strong thinking that I should do some research on farming of fish. But initially there was no opportunity for me to do this type of work. I was very much bored by measuring the fish in the field and getting scolding from fishermen. In the beginning the manual length

progression analysis and calculations of stock assessment were beyond my brain capacity! Subsequently many computer programmes emerged (Thanks to LFSA, ELEFAN, FISAT, Thompson and Bell Analysis etc...etc..). I was saved and I could get wonderful graphs and predictions! But these graphs and figures were disturbing me! (due to my ignorance).

In the meantime I got transferred to Mandapam. Initially I was feeling that it was a 'punishment transfer' because even though everybody will say that Mandapam is an wonderful place to work, nobody liked to go there and work. I also reached Mandapam with the same attitude. The condition of Mandapam was also like that. The location is really beautiful – on a sand dune from where we can see both Palk Bay and Gulf of Mannar. I could find a vast stretch of sand with abundant thorny trees. The land was full of gracing goats. The Sri Lankan refugee camp was adjacent to us and in the beginning I could not distinguish our staff from Sri Lankan refugees and local people who were passing through our campus.

I was posted at Mandapam as the In-Charge of the newly created Mariculture Division (Thanks to Dr.Mohan Joseph Modayil sir, the then Director of CMFRI). My fish farming interest got an opportunity to express. It is well known that seed is the basic requirement of any farming process and for fish farming also, it was the same. I thought of breeding a suitable species of marine fish for producing seed. Breeding a fish according to our need is again an injustice done to fish from an ethical point of view. The fish has to enjoy breeding naturally and forcing a fish to breed is the selfishness of man. Anyway we cannot help the situation and hence breeding and seed production methods have to be developed for promising species. My colleagues and I formulated a project on fish breeding and I became the Principal Investigator of the project.

Which fish has to be selected for breeding? I was rather confused. I remembered the incident narrated by our late beloved Director Dr. P.S.B.R.James sir. When he came to Mandapam as a Ph.D research scholar, his guide and former Director of CMFRI Dr. S. Jones sir asked him to visit the nearby fish landing centres and to select a fish for his research. He went to all the landing centres and within a week or so selected the fish for study. He met his guide. "Have you selected the fish? " Dr.Jones sir asked. James sir replied "Yes sir"

"Which fish you have selected?"

"Sir, I have selected anchovies"

"What James, you have selected a small fish, go and select a big fish"

Then he went and selected a big fish – ribbonfish. He worked on that group and became an expert in that group subsequently.

I also remembered an instance in my life. When I got study leave and was joining for my Ph.D programme I have selected the topic 'rotifers as live feed'. At that time my daughter was studying in school. She was very curious and asked me

"Acha, which fish you are working for Ph.D?"

I replied "I am working on rotifers"

"Is it big like tuna?"

"No, it is microscopic organism."

She was very much disappointed and told

"Then your Ph.D will be very small!"

I thought that this time when I am selecting fish for breeding I should be wise enough to select a big fish. I have gone through the literature of marine fish breeding at a global level (Thanks to the enterprising librarian Shri.Chidambaram, who used to give me all possible references in shortest time) and finally selected the fish Cobia. After all cobia is not a small fish!

Everybody knows that for breeding fish we need to have the broodfishes. We have to collect the fishes caught by fishermen in live condition without any injuries. I enquired with some technical staff who were very sincere people regarding the availability and possibility of collecting fish from fishermen. (In this context I cannot forget the sincere cooperation given by the technical personnel Shri. Ramamurthy and Shri. Gandhi in the collection of fish). Ramamurthy and myself visited many fish landing centres in the area and enquired with many fishermen regarding the availability of fish and the possibility of getting them alive. Most of them laughed at our funny idea and said in Tamil

"Sir, you are really crazy, cobia is obtained very rarely and getting it in live condition is almost impossible. Leave this futile exercise, go to your office and do some other work and get salary." They added

"What a foolish idea! producing seeds of cobia and farming the fish, your education has spoiled your common sense"

I felt that what they said is sometimes true because many of our projects are testifying to what they said.

But in certain centres some fishermen were little more positive and said "We can try sir"

But Mr. Ramamuthy, our Technical officer is a fully positive and confident person and said

"Sir, we can take colour prints of cobia and distribute to many fishermen at different centres and promise them to give double price of what they normally get."

We did exactly as what he said. A look out notice with cobia colour photograph was distributed to many fishermen. We also gave our phone numbers for calling us as soon as they get the fish in live condition. Some of the fishermen took it as a challenge. Each day we were waiting anxiously for the call from fishermen. In fact I never waited eagerly for a phone call like this even from my wife!

Days passed without any call. In between Mr. Ramamurthy went many times to the fishermen friends and reminded them.

In the fine morning of a holiday I got a strange phone call. Somebody was speaking in Tamil. I could not make head or tail of what he was speaking. I got some clue by repeated asking that it was regarding the catching of cobia. We rushed to the spot in our office vehicle with a tank containing good quality sea water, aerators etc. We met the fisherman who called us and he showed us the fish he got. It was a juvenile cobia of about 200g and the fish was struggling for air. We immediately shifted the fish to our tank in the vehicle and paid the fisherman lavishly and told him to collect more big fishes. The fishermen felt that we are somewhat genuine people because we reached the spot promptly and paid more than what he expected.

This was the first success of live cobia collection. The fish was given quarantine treatment in the hatchery, put in a bigger tank and I was thrilled to see the future brood cobia swimming in the tank! After about two days the fish started taking the feed we have provided. I was watching the cobia taking the feed and felt excited. I realised that I never felt this much happy when my only daughter was taking her first rice feed as an one year old child! Everyday morning my first job was to go from my quarters to hatchery to see this dear cobia. Subsequently we got many phone calls from fishermen and we could get many fishes – some fishes were dead when we reached the place, some were half dead and died on the way to hatchery, some were more fortunate to live in hatchery for a day or two and only a few could be maintained in good condition in our limited facility at that time. I used to be very proud by seeing the cobia swimming nicely in our tanks and as a routine activity as soon as I get up from bed I used to rush to hatchery to see these precious swimming creatures. Usually I was not carrying my mobile phone with me when I went to hatchery in the morning. One day after returning to my quarters I found that there were about half a dozen missed calls from my daughter. I called her back and my daughter was annoyed because I did not take the phone. At that time she was studying for MBBS at Trivandrum Medical College

and she wanted to discuss some serious matter with me.

"Why you were not taking the phone?" She asked in angry voice.

"I went to see my cobia in the hatchery"

"Acha, throw them out or I will come there and inject poison to your cobia!" She was expressing her anger and for her it was foolish for me to go in the early morning to see the welfare of a fish!

Happy days were going ahead . The fishes were growing. One fine day when I went in the morning the fishes were moving sluggishly and that day they were not taking feed. The next day all of them were dead and I had a real shock of my life.

We did not give up. Again we collected cobia from fishermen, stocked in bigger cement tanks and rearing continued. The same story repeated. Somebody commented

"Your project title can be changed to "Torturing of Cobia'

When I happened to narrate the story of my experiments with Cobia, an expert who happened to visit our centre said

"Such big fishes like cobia if you maintain without proper filtration devices and recirculation systems in hatcheries what else you can expect other than their mass mortality".

This was a revelation to me.

In the meantime I was sent to Vietnam by the Institute for getting expertise on breeding cobia and other marine fish. It was for about a month. Dr. K. Madhu, Principal Scientist and myself went together. We had to work with the Vietnamese technicians in the hatchery and farm to learn the techniques. We were very much fascinated by their technical skill in the different protocols of marine fish breeding. We understood that we are very good theoreticians and we lack the technical skill when compared to them. If we ask the scientific name of cobia, a Vietnamese technician may not be able to tell but he can breed the fish!

We returned from Vietnam fully motivated and when I reached Mandapam there was no cobia available in the tanks. In the meantime I was fortunate to get a team of enthusiastic young scientists who have joined at Mandapam (Dr. A.K.Abdul Nazar, Dr. G. Tamilmani, Dr. M. Sakthivel, Dr. P. Rameshkumar, Dr. Kalidas and subsequently Dr. R. Jayakumar became my team members. I should specially mention that Dr. Tamilmani is a veterinary physiologist, Dr. Rameshkumar a veterinary pathologist and Dr. Sakthivel is a veterinary geneticist. The way they adapted to fish breeding is really an example of success in interdisciplinary team work.) I attribute the success in cobia breeding mainly to all the members of my team.

I recollect that I was a task master and due to my over tasking and desperate shouting regarding work some of them became unhappy with me initially, but later on we understood each other and we became a very good team. I now realise that if that understanding was not developed cobia breeding would not have happened. In challenging projects such team building is very essential . All of them continue to be my good friends even after my retirement (That is what I think!).

We continued our cobia mission with more vigour. We collected many fishes and stocked them in sea cages as is practised at Vietnam. (I should recollect the interest shown in cage culture by the then Director Dr. G Syda Rao and his constant encouragement in cobia breeding). Cannulating the fish to find out the male and female was the first challenge we undertook. I was feeling why God was unkind by making most of the marine fishes monomorphic (No external difference between male and female). If it was the same in human beings what a monotonous world it would have been! I would have preferred to die and reborn as a sexually dimorphic species!

I was also not having much expertise in cannulation, I directed my younger colleagues to learn to insert the cannula in dead fishes so that we can cut open and examine whether the cannula has reached the gonads to get a biopsy. It is a skilled work and can be accomplished only by trial and error. I remember

once that when we cannulated about two dozen fishes, all were found to be 'males'. Later we realised that our cannula went to the urinary bladder and not in testis or ovary. But subsequently my younger colleagues became real experts in cannulation.

We also felt the need of electronic tagging of fish to identify specific fishes . We acquired PIT tagging equipment and all the broodstock fishes were tagged. This enabled us to track the cannulation record of oocyte development and maturation.

In between administrative and audit problems also started emerging. Indian scientists are destined to do research according to Swami's rule books and if we are following the rules and regulations strictly and not breeding the fishes, it is well accepted. I remember an instance of a watchman who was doing his night duty by regular punching of the punch clock every hour. But everyday we were noticing that something is lost from the laboratory .We asked the watchman. He replied

"I don't know anything about that sir, I have punched the clock regularly. You please see the record"

Later, on enquiry we found that this watchman was engaging a boy in the night to punch the clock while he was sleeping comfortably. In the morning he will take some material from the laboratory and give to the boy as reward – it may be a bucket, a weighing machine or even a small microscope. What a funny way of doing the duty!

It is easier to blame the system and put all the blame on the establishment for our non-performance. But I could not accept this philosophy. I was feeling that without contributing positively to our assigned works and getting salary is almost equal to stealing money. I felt that the golden rule is to contribute the best within the limitations of the prevailing establishment. I remember when I wrote a file note regarding the sanctioning of money for putting the fishes in the cage, an audit person wrote " How can fishes be put in cages, we can put birds, dogs tigers, lions etc in cages , but incurring expenditure on putting fishes in cages is not justified."

Then I had to request the audit person to visit our cages installed in the sea to get him convinced. He exclaimed "I was thinking that you are putting the fishes in cages on the land!"

(Here I should also admit that there are lot of administrative and audit personnel who understand the scientific requirement and facilitate the work without any unwarranted objections)

We were in a hurry to breed the fish. When the ova reached slightly bigger size we wanted to hormonally induce the fish to breed. We brought a female fish and two males from the cage and stocked in a 100 tonne cement tank and hormone doses were injected. The poor fishes would have been in a dilemma and would have thought why these funny people are making us excited without any use! We waited for three days. Nothing happened. We moved back the fishes to the cage.

We had no patience to wait. After about two weeks we brought the fishes again to the spawning tank and injected with a slightly higher dose of hormone. The fishes were thrilled and the female was forced to release thousands of eggs. We were also thrilled , but when we examined the eggs all of them were unfertilised. We learnt a lesson that we should not make hurry in making the fish breed. We waited till the ova completed the intraovarian maturation as seen from the ova diameters recorded from ovarian biopsies of broodfishes.

The next attempt was a tragedy. As usual we brought the broodfishes after cannulation and examining the ovarian biopsy. We felt that the ova had completed their intra ovarian growth and introduced them to spawning tank and induced with the required hormones to spawn. We found the fishes very much excited and we happily waited for the fish to spawn. In the night I was tempted to go to hatchery and observe the fish. I found that the broodfishes were moving in distress and struggling for life. We exchanged water and made all attempts to save the fish, but in a few hours all of them were dead. The death of the fish remains a mystery to me. Probably the fishes would have felt that we are doing a lot of sexual harassment to them and would have decided that dying is better than this torture and would have

committed suicide! When we did the post mortem we found that the fishes were fully mature and were ready for spawning.

After about two weeks we connulated the remaining broodfishes in the cage and brought one mature female and two mature males. We confirmed by examining the biopsy that the female had fully developed ova in the ovary. We introduced the broodfishes to the spawning tank and induced them with hormones. We were almost constantly observing the fishes like watching a suspense thriller. In the early morning hours cobia spawned and we could see thousands of eggs floating like small beads in the water. We rushed to examine the eggs under microscope. We were thrilled to find that the eggs were fertilised , healthy and embryonic development was initiated. We removed the broodfishes back to the cage, sieved all the floating eggs and introduced them to a few large incubation tanks. After a few hours, the tanks were filled with floating tiny larvae of cobia. All of us jumped with joy and the drama of cobia breeding ended as a comedy.

In the early morning itself I called my wife who was staying at our house in my native place near Trivandrum. She rushed from bed and took the phone

"Hello, what happened ?" I could hear her disturbed voice.

"Our team succeeded in breeding cobia" My voice was joyful and exciting.

"Go to hell with your cobia, are you mad to call me for this in the early morning!" She kept the phone with a bang.

I received my first appreciation like this.

Our Director and many of our colleagues appreciated our team for successfully breeding cobia. Sometimes it makes me embarrassed. As I was telling in the beginning we are doing lot of harm to fishes and let us at least give the credit of spawning to the fishes. If cobia would have been adamant that they would not spawn, what achievement we would have made? So, let us give the credit for making cobia breeding a comedy to these wonderful fishes.

Finally kindly permit me to sermonise some lessons we have learned through the story of cobia breeding. I did not want to say any inspiring things to you because it is said that if you want to get rid of somebody just tell him something for his own good. Of course, I do not want to get rid of you. But I felt that it may be helpful for many young scientists who pursue similar efforts .

While we are formulating a project we need to plan it meticulously with lot of logic and common sense. If a very good project is not planned realistically, even if the project staff work round the clock also, nothing worthwhile will be accomplished. I have heard the story of two orthopaedic surgeons – one specialised in disk surgery and the other in knee surgery. They both were going for a morning walk. They saw from a distance a person limping and walking with difficulty. The disc surgeon told " He has a problem in his disk."

The knee surgeon told "No, no, he has a knee problem"

They argued over the matter and a quarrel started. Then one of them told " Let us go and ask that person why he is limping. They approached him and asked. The person replied

" While walking one of my slippers was torn, I don't want to lose it, that is why I am limping and carrying It"

If they would not have realistically perceived the problem the poor person would have been subjected to surgery and he would have been permanently disabled!

We may be a specialist in a particular aspect. But by specialising we should not lose our common sense. It is humorously said that common sense without education is far better than education without common sense. I have heard of a funny full form of PhD – 'Permanent head Damage'. That is why many specialists lack common sense.

A student was asked to convert 'I made a mistake' into passive voice

He promptly did it ' I was made by a mistake'

What a super common sense!

But the common sense of a middle school boy is really commendable The boy was asked by his English teacher

"Pants –whether it is singular or plural?"

The boy applied his common sense and replied

It is plural at the bottom and singular at the top"

My daughter was telling me a story about the common sense of a boy who was studying for MBBS. During the first year MBBS anatomy practical examination there were some specimens for identification, one of them was the uterus. The boy could not identify the same. He was blinking. The internal examiner wanted to help him. He started giving some clues without being noticed by the external examiner.

The internal examiner said "This is a very vital organ in human body"

The boy was blinking.

Another clue was given

"Without this organ the human race cannot sustain"

Even then the boy was blinking

Then the final clue was given

"This I am not having, you are also not having but my wife has got it"

The boy was excited and told

"O! I understood sir, it is the brain!"

What a fantastic common sense!

When we are in a team work, we have to forget regarding seniority complex. I have a feeling that whoever is suggesting a solution with common sense has to be accepted even by the seniormost in the team. I should mention that on many occasions I have accepted and followed the suggestions given by many technical staff, supporting staff and even contractual workers and they have helped us to improve the progress. Maintaining a team spirit is extremely important. I remember a funny remark made by one of the team leaders. He said

"It is good to have team work; we can easily pass on the blame to each other in the team for not achieving"

Such team leaders will not be able make any success. The team leader should be ready to undergo the maximum hardships. When there are continuous failures the team members may try to break up and escape, it is the hard task of the team leader to motivate, inspire and keep them together. When the fish is scheduled for spawning if the team members have to come in the night in the hatchery, the team leader should be the first to be there. I heard an example of leadership by Alexander the Great. On this journey to conquer the world he was crossing a desert with more than 20000 soldiers. Everybody was terribly thirsty and would do anything for getting some water. One of the soldiers went on horseback and after searching for a long time in the desert brought one helmet full of water. He offered the precious water to Alexander. He got it in his hand, looked back at the soldiers and in front of them poured the water from the helmet into the hot sand. What a golden act of leadership! If he would have drunk that water in front of the thirsty soldiers, his leadership would have been at stake.

The team leader should have full confidence in his team members. In the initial stages there may be instances when the team members want to break away and leave. Whenever hard field work and odd time workings are necessary, some of the team members may like to leave and take up some easy going

other projects (In a government set up it is very much possible also). The confidence among the team members and that between the team leader and members is the vital factor. I have heard a funny story regarding the confidence of a Professor of an Engineering College in his students. The students made a small air craft as their project work. They fixed one day for the test flight of the aircraft. None of the persons invited to witness the function was ready to board the air craft for the test flight. Then the professor himself confidently came forward to board the aircraft. Somebody commented "You are very bold"

The professor replied

" Not at all. My students only made the aircraft. I was very much confident that it will never take off!?"

What a strong confidence!

Finally there may be lot of problems when we pursue a project. It is wisely said that we should not run away from problems and if we do so the distance between us and the problems increases and it will be difficult to bridge the gap subsequently. The nature of problems is highly varied. I have heard an instance of the problem faced by the owner of a pet dog.

The owner of a pet dog advertised for selling his dog. He said in the advertisement " My dog is very obedient ,in the morning it will bring the newspaper to me, it will fetch my shoes near me when I am going to office and he will oblige for all my commands faithfully".

A person who wanted to buy a pet dog saw this advertisement. He called the owner of the dog and asked

"I want to buy your dog. You said your dog is so good, then why are you selling it, what is the problem?"

The owner replied

"That is a secret, I will tell you after the deal is over"

The deal was over and the buyer asked

"OK, now tell me the problem"

The owner told

"Whatever I told in the advertisement is true, but my problem is that whenever my wife quarrels with me and leaves to her parents' house, this pet dog will promptly go there and bring her back"

What a funny problem!

I have also heard of some funny solutions to problems

One elderly couple was seeking marriage alliance for their daughter. The couple was discussing about the prospective bridegroom

The husband told

"The boy is handsome, family is good and he has a good job, let us finalise the relation"

His wife was a little hesitant and told

"But whenever the boy is smiling, the front teeth are not looking good"

The husband promptly replied

"That is not at all a problem, after marriage with our daughter he will not have any chance to smile at all"

What a funny solution!

If we have a feeling that the problems are well within our ability to overcome nobody can stop us and we will emerge victorious. I am concluding the article with a humorous anecdote regarding the accomplishment of a house wife. Two men were sitting in the bar and discussing

One person said "Yesterday when I went home in the night after drinking, one thief entered my house , at that time my wife only was there in the house"

The second person asked "Then what happened?"

The first person replied

"Two teeth of the thief was lost, one of his ribs also was broken and his lower jaw also got fractured"

The second person exclaimed

"Is your wife so bold!"

The first person replied "Not at all, she thought that it was me who is knocking at the door after drinking."

The house wife had mistaken the thief as her husband and felt that she has the ability overcome the problem. What I wanted to say is that, when we perceive that the problem is well within our ability to solve nobody can stop us from overcoming it and we will be emerging as winners.

(I have tried to make a humorous narration, it is never intended to hurt anybody, some of the views expressed are due to my ignorance in the concerned area and not to be taken seriously. My sincere apologies if I have made anybody unhappy).

The Mandapam Centre through the episodes of Cobia and Pompano

G.Gopakumar

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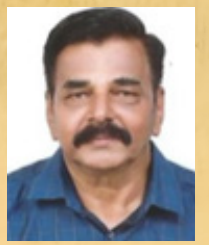


I joined Mandapam as Head in Charge of the newly created Mariculture Division in the year of tsunami -2004. Please don't think that it has something to do with the formation of tsunami, I have just mentioned it like that because it is easy to remember the year. I just went round the Centre and I felt like a king who has no kingdom. We are on a sand dune in between the Gulf of Mannar and Palk Bay and the whole area is densely populated by the thorny tree *Kattukaruvai* (*Prosopis juliflora)*.The beautiful location with old dilapidated buildings and the deserted look of the area with full of grazing goats created an impression of an abandoned paradise with a few desperate people who were destined to live there. But when viewed from the top of the hill, the blue and shallow waters of the Gulf of Mannar with the scattered islands and the Palk Bay on the other side gave a romantic scenic beauty to the area. The Rameswaram Highway and the metre gauge railway line added to its romantic charm. The sound from the occasional trains to Rameswarm, the prayers from the mosque of the nearby village Marakkarpattinam and the winds shaking the trees were giving some relief to the mysterious silence which pervaded the area.

I have an attachment to such remote calm places which are away from the 'maddening crowd'. I did not feel much lonely because in my career I served for three years in a much remote place Minicoy Island of Lakshadweep which is not connected to the mainland. Here I felt happy that I am in a place which is connected to the mainland. But my worry was how I will be able to develop a Mariculture facility at the Centre. The mariculture work which was going on at the centre regularly at that time was the seed production and sea ranching of the green tiger prawn. I am aware that many of our stalwarts in the Institute had spent most of their career doing excellent work at the Centre. But unless a collective effort is taken the mariculture facilities cannot be established at the Centre. I understood that in terms of land and natural unpolluted seawater facilities, the centre is blessed for establishing good mariculture infrastructure. Otherwise, the easiest thing I could have done is to take all sorts of available leave, and go occasionally to Mandapam and after two or three years manage to get a transfer back to Vizhinjam, Trivandrum which is near to my native place where my family is living. I have heard the instance of one of the scientists who was transferred to a remote locality. After two or three months of his transfer he met the Director with a very sad face. He told to Director

" Sir, I have lot of problems and kindly give me a transfer back to my place"

Director asked

"What is your problem?"

The scientist told " My parents are very old"

Director asked " Whose parents are not old?"

The Scientist could not answer the question and left the room.

But I was not inclined to do it eventhough family members wanted me to do it.

Initially I felt very much disturbed when I was transferred to Mandapam by the then Director, Dr. Mohan Joseph Modayil sir, but subsequently I realised that he had a vision to develop massive facilities suitable for Mariculture at Mandapam. Since my joining of service I had a passion to work on Mariculture, which I could accomplish only partially till that period. Hence I also felt that I will try my best irrespective of my personal problems to develop good infrastructure if I am able to get proper support. I have a strong belief that nothing substantial can be achieved in the development of mariculture technologies without a collective effort. Stand alone work may be possible in areas like taxonomy where not much

infrastructure is needed and a scientist can specialise in a particular group over the years by hard work. But mariculture is not like that. Only when three aspects are jointly acting a good mariculture technology can be developed – state of the art infrastructure, a group of committed manpower and a steady fund flow. Here the infrastructure is practically not sufficient and the available facilities were also in a dilapidated condition, about the fund availability I was not sure but I was somehow confident that by giving a leadership we may be able develop a committed manpower there. In the initial days what fascinated me is that I could find many obedient and hardworking staff, if we develop a friendly approach to them.

I was in Charge of the ornamental fish hatchery and aquarium at Vizhinjam centre prior to my transfer to Mandapam. I was never satisfied to sit an AC room as a Principal Scientist and head in Charge of Mariculture Division and do some paper work. I felt that a scientist sitting in his room with a computer and some files is like a doctor without any hospital and patients. Immediately I have no magic to create a big hatchery or farm. Lot of space is available in the campus and good seawater is available just near to our campus. I saw lot of pipes, roofing sheets and tanks scattered at various places of the campus. I requested the help of the enterprising staff there to construct a temporary hatchery so that some work can be initiated. I was surprised by the co-operation extended by many of the staff members who were not even attached with me officially. Mr. Mendonza Xavier , the active and enthusiastic Civil Engineer of the Centre made a plan for the hatchery and with the help and co-operation of many staff members we started making the temporary hatchery. I cannot forget the voluntary help I received from late Shri. Selvakumar, Shri. Ganesan, Shri.Thiruppathi, Palanichamy (electrician), Shri Guruswamy (contractual staff) and many others (now I have forgotten many names) and within a month we made a temporary hatchery with filtered sea water facility, aeration systems and essential FRP tanks. Nowhere except in Mandapam such a thing could have been done. In a government system many staff members try to avoid work and get all the monetary benefits. I remembered an instance told by one of my colleagues about a laboratory attendant who was never liked by the section heads in any of the sections where he was posted. One day the Chief of the Centre called and asked this young laboratory attendant

" Are you having any health problem?"

The Lab attendant replied faithfully " No sir, I am perfectly healthy"

"Then, why you are not working in any of the sections where you are posted?"

"Sir, if I decide I can catch even a tiger, but even if I die I will not decide like that."

What an adamant attitude!

When the temporary hatchery was made by the enterprising staff of the Centre, I felt very much confident. If at all I am able to accomplish something worthwhile in Mariculture, it will be at Mandapam. In the hatchery I started the broodstock development and breeding of marine ornamental fishes such as, different species of clownfishes, blue damsel, humhug damsel, sapphire devil damsel, blue green damsel and three spot damsel. The broodstocks were developed and breeding also occurred, but the larval rearing of damselfishes was giving some problems. Eventhough the copepod technology was not standardised at that time, we could make some crude methods of production of copepod larvae and the larval rearing of these species could be done successfully. This gave me lot of confidence. In the meantime, I also happened to become the Scientist-in-Charge of the Centre which gave me additional empowerment in addition my charge as Head of Mariculture Division.

I felt that unless the infrastructure facilities for work and the living conditions of the staff living in our quarters are improved , further progress is not possible. Already there was a proposal for constructing a hatchery at Mandapam and it was almost in the cold storage. The then Director Dr. Mohan Joseph sir was very much interested to revive it and as in Charge of the Centre I gave full support to him. We have to do all the constructions and major renovations only through the CPWD. The CPWD is another

Central Govt.Dept. and we cannot order them to do the work as per our schedule. Moreover , they were stationed at Madurai, 150 km away from our place. We developed a good rapport with the CPWD engineers and in turn they became very responsive to our needs and I should clearly state that the construction of the hatchery and all the subsequent constructions and renovations done at the centre was the result of our good rapport with them. Mr.Xavier, the Civil Engineer of the centre played a vital role in this aspect and he was our connecting link with the CPWD.

If we develop a mindset to contribute something we will be showing a commitment and priority for accomplishing the same. On the other hand, if we have already made a mindset for not performing we can easily do so and escape by lame excuses. I have heard the funny story of Mulla Nazruddin who was invited for a speech. He had to agree for the speech but he had determined that he would not speak. He asked the audience

" Do you have any idea what I am going to speak?"

The audience replied "No"

"Then I don't want to speak to ignorant people"

He escaped, but the organisers did not leave him, they invited him again. As was done earlier he asked

"Do you have any idea of what I am going to speak?"

This time the audience did not want to be fooled. They said "Yes"

"You already know, so there is no need for me to speak"

He escaped nicely but the third time also they invited him to speak. He asked the same question

"Do you have any idea of what I am going to speak?"

This time the audience wanted to be more wise, half of the audience told "Yes" and the other half told "No"

Then Mulla told them

" OK, those who know can tell to those who don't know"

What a clever way of escaping irrespective of the situations!

I remember during one occasion, when I was at my home in Trivandrum celebrating Onam, I received a call from Dr.Mohan Joseph Modayil sir. He told

"Gopakumar, The CPWD Chief Engineer , Architect and few others are visiting Mandapam tomorrow to finalise the Hatchery Plan and estimate so that we can deposit the money and start the construction"

I was in a dilemma.

"Sir tomorrow is Thiruvonam"

"Gopakumar you can celebrate Onam next year also, but this of prime importance to the Centre, what have you decided?"

" I will be at Mandapam tomorrow sir"

"Very Good, that is the commitment " He became happy and kept the phone.

My family members started cursing me . But I did not listen to them and immediately started to Mandapam.

The details of hatchery was finalised, money was deposited to CPWD and the construction was also started without any delay. I never hesitated to pursue a matter repeatedly to the concerned and I never compromised with that. When we call a person repeatedly for a few days, the concerned person will definitely do something at least to avoid our call. This was the policy I followed for getting things done. Developing a personal attachment to concerned persons and extending hospitalities to them whenever CPWD engineers are visiting made them also friendly with us.

In the meantime, I discussed with my colleagues and we felt that the first thing we have do regarding our campus development is to make a full compound wall to our vast campus which is more than 80 acres. It was a real challenge to get the sanction and budget approval from ICAR. At that time due to financial constraints only biofencing was permitted. We were sure that any biofencing will be eaten by the goat population which can eat anything. Lot of pursuing was done, security issues were highlighted and in the meantime the Finance Director of ICAR happened to stay at our Guest House , when he came for a visit to Rameswaram temple. We appraised him of our problem and he was convinced about the need for the compound wall and that was the period when the EFC for the Institutes were being finalised. This requirement of the Centre also found a place in the final EFC and the same was approved, and money was deposited with the CPWD.

Many major issues cropped up subsequently. There were no proper records for all the land which we were possessing. When the compound wall construction started there were many land disputes between us and the adjacent village Marakkarpattinam. We had a hell of time. I wanted to protect the centre's property and at the same time did not want to antagonise the villagers. There were pending court cases and in addition they filed a few more cases regarding land. They approached the Tahsildar and other revenue authorities and we were put in a difficult situation. One day I was told by one of my staff that some surveyors have entered our campus and started measuring our land and putting stones without our presence. I lost my temper and had to literally drive them away. The villagers also misunderstood us and thought that we are partially blocking their entrance to the village. My colleagues and I had a tough time. Even face to face encounters and exchanging of harsh words also happened. But we did not lose hope. I frankly told the leaders of the village

I am not your enemy, I am in Charge of a government establishment and I am duty bound to protect the government land. We will discuss amicably and take appropriate decisions without giving any problem to the entrance to your village"

But initially they had doubts regarding my words.

In the meantime Mr.Xavier and myself fixed an appointment with the Ramanathapuram District Collector and met him. We explained our issue in detail. I remember the young collector clearly understood our point of view immediately instructed the concerned RDO and tahsildar to help us.

But irrespective of all, I understood that unless we reach at a peaceful agreement with the villagers things will become complicated. The Panchayat president of Marakkarpartinam Shri. Nazar is a gentleman and by repeated listening to us he came forward with an amicable solution and we felt it reasonable and with the consent from CMFRI headquarters, a mutual agreement was made. All the court cases against us were withdrawn and the villagers became our good friends. We completed our compound wall and secured our land. People started calling it as 'The Great Wall of China'. I felt a big relief! Now at least we have a real campus with a compound wall protection. This instance made me feel that when proper frank communication is not there will be lot of suspicion and imaginary fears. It was exactly what happened with the villagers. They thought that we are trying to harm them and we also misunderstood them due to lack of frank communication. If a husband is not talking to his wife for a day due to urgent works, sometimes the wife will think that her husband is planning something against her, it can happen *viceversa* also and a cold war will follow which will subsequently become an open war with exchange of harsh words. I read the story of an HR Manager, his male Assistant and an old woman and her young beautiful daughter travelling in the same compartment of a train. In the course of the travel they became temporary friends. The train was going through a tunnel and it was completely dark. Suddenly there was a kissing sound and then a slap sound. The train came out of the tunnel , the women and the Assistant were looking perplexed. The Manager was bending over holding his face which was red from an apparent slap. All of them remained diplomatic and there was a communication gap. The old woman was thinking

'These managers are crazy after girls, he might have kissed my daughter and it was very proper that she slapped him'

The girl was thinking

'The manager would have tried to kiss me but kissed my mother instead, and got slapped'

The Manager was thinking

'Damn it.. My Assistant must have kissed the young girl, she might have thought it was me and slapped me by mistake'

The Assistant was thinking

' If the train goes through another tunnel I will make another false kissing sound and slap the manager again. He keeps on harassing me in the office'

What a hostile situation created by a communication gap!

Our efforts to Campus development gained momentum after the completion of the compound wall. We actioned all the *kattukaruvai* trees in the campus. The campus development programme was entrusted with Shri.Arputharaj, Technical Officer. He is an inspiring personality. In fact he underwent kidney transplantation more than ten years back at that time and was having many other health issues. But nothing could stop his enterprising nature. He started planting coconut trees, many fruit trees and ornamental plants in the entire campus, arranged drip irrigation and very soon the campus started emerging like an oasis in a desert.

The living conditions of the staff were rather pathetic. Most of the quarters were leaking and in a dilapidated condition because they had become rather old. In many quarters the roof got cracked and started falling due to the corrosion of steel in the concrete. My quarters was also no exception. During the rainy season my quarters became filled with water, I managed by spreading lot of jute sacs on the ground so that they will absorb the water. Fortunately rainy period of Mandapam is very short. In some quarters, the septic pools were filled and water was not flowing to the pools and they could not use the bathrooms. I have seen that some staff members were pushing the water to go down the septic pools with a long stick. What a pathetic situation! I made a good narrative of the condition of the quarters to our headquarters, got an estimate for the renovation from CPWD and convinced the headquarters regarding the urgent need for thorough renovation. We have pursued the matter and finally sanction was accorded and CPWD undertook the renovation programme on a war footing and completed it within the shortest time possible. The leaking problem was solved, septic pools were made proper and electrical works , plumbing works were completed, the floors were laid with tiles and the quarters had a new appearance. Similar renovations were also completed in the old office blocks also.

A big issue at Mandapam was the lack of drinking water. The ground water was saline and when we tested it was containing a very high percentage of dissolved salts. Many of our staff members were having kidney problems due to the regular drinking of this hard water. The problem was also taken up with headquarters and the need for establishing desalination plants for supplying drinking water to all the quarters was convinced to our authorities. At that time our neighbouring centre of CSMCRI was popularising the desalination plants fabricated by them. We got an estimate from them including the maintenance costs and the matter was pursued with CMFRI headquarters. Our headquarters was so considerate and the proposal to establish two desalination plants in the campus was approved and money was deposited with CSMCRI. Very soon the plants were installed and every quarters was given one hour supply of desalinated water for drinking purpose everyday. Staff members felt a big relief!

The lack of medical facility in and around Mandapam was a big issue. There was only a primary health centre at Mandapam and if a staff member is facing any serious health problem, life was at risk. The matter was also taken up with CMFRI headquarters and a credit facility for treatment in a super speciality hospital at Madurai was established. In addition, we arranged a campus doctor facility ever

day for two hours for minor health problems of staff members and family. The nursery school was renovated so that kids of staff members need not go out of campus for their nursery education. The power house at the centre was equipped with sufficient capacity diesel generator so that round the clock power supply was ensured at the centre. In this regard the committed efforts by Shri.Vijaya Karthi and other staff of the Power House need big appreciation. Our old Guest House was renovated and good furniture and ACs were provided in most of the rooms. In the meantime an already approved international Guest House and New Scientific and Administrative Block proposals were also pursued and CPWD took up the constructions.

The seawater pumping, filtration and storage facility is the basic requirement for any Mariculture work. A new seawater intake and filtration system was established, the existing overhead tank was renovated and an additional seawater overhead tank was constructed at the top of the hill so as to get filtered sea water to the hatcheries by gravity flow.

The administrative staff of the Centre played a vital role in completing all the required formalities for establishing the infrastructure and also in the procurement of many major items. I recollect the roles played by Shri.Selvaraj, late Shri.Abdulla, Smt.Parissa , Smt.Gomathi, Smt.Rameswari and others.

Establishing the infrastructure may become a pure waste if they are not utilised properly for the development of technologies which will benefit the sector. I have seen that sometimes a realistic planning is not done while we are building up infrastructure or during the formulation of a project costing a good amount of money. This can result in the wastage of lot of money. We are very much realistic in our personal life regarding spending of money. I have heard the story of the son of a very rich man. The rich man was suffering from old age health problems and he could move only in a wheel chair. He told his son that after his death, the news of his death should be advertised in a leading paper so that all his friends will come to know about it. His son promised to do so. Time passed and the rich man died leaving behind a lot of wealth to his son. After his father's death he remembered his father's wish and sent the news of death to the newspaper as 'Vairamuthu passed away' . He wanted to make it very short because each word in the advertisement was costing one thousand rupees. The editor of the newspaper said that the advertisement should have a minimum of at least six words. He modified the advertisement as 'Vairamuthu passed away, wheel chair for sale"

What a calculative advertisement!

Sometimes a lack of practical sense is also noted among the scientific community. Two friends were travelling in a tourist bus. The bus stopped at an unknown place. They wanted to know which place it was. The person sitting at the window seat saw a neatly dressed gentleman passing through the side of the bus. He politely asked

"Hello, may I know where we are?"

The gentleman stopped, observed them thoroughly for a while and replied

"You are sitting inside a tourist bus."

After the gentleman had gone, one of the friends was telling to the other

"I am sure that the gentleman is a scientist, what he told is very much accurate but totally useless!" May be too much of specialisation reduces common sense!

We have planned the infrastructure facilities mainly to develop technologies of seed production. I was very sure that unless seed production technologies for high value finfish and shellfish species are standardised, we will not able to commercialise mariculture in India. Already in another article I had narrated the efforts taken by us in the breeding of cobia. When the first success in cobia breeding came, many people thought that it is an accidental spawning and may not be possible to get regular spawning. The exaggeration of research results in many projects is one of the problems faced by the scientific community. When an accidental spawning of a species occurs in the hatchery a news will be flashed '

A breakthrough in breeding technology' was achieved. Afterwards nothing will be heard about it and technology simple remains as a 'paper technology'. But in the case of cobia, the technology development was genuine and we could obtain repeated spawnings regularly.

One of the biggest challenges was the larval rearing. Eventhough the initial feeding with enriched rotifers was successful, the larval density to be maintained in rearing tanks, the number of rotifers to be maintained in rearing water, the water quality maintenance and the concentration of greenwater in the rearing water all needed to be standardised for effective survival of the larvae. The sincere and dedicated efforts taken by the young scientists, Dr. Abdul Nazar, Dr.Tamilmani, Dr.Sakthivel, Dr. Rameshkumar and a group of committed technical and contractual staff require special appreciation. The larvae were reared with live feeds and successfully weaned to special formulated larval feeds. The larval formulated feeds also need so many nutritional factors. We had to go for imported larval formulated feeds and we faced a lot of formality problems regarding the import. Many people think that juvenile fish can take any feed and there is no need for importing the same. Are we importing just for show? I recollected the story of a highly rich person who had to undergo a minor surgery. The doctor suggested the nurse to give local anaesthesia. The rich man became angry and told "Why local anaesthesia, you tell her to give me an imported anaesthesia". The rich man thought that it was below his standard to have local anaesthesia.

Our case was not like that. The nutritional requirements of the larvae are very important and no such larval feeds are manufactured in India. We convinced the concerned authorities regarding the need for imported feeds and we could import the feeds and the weaning to formulated feeds was successful and the first batch of juveniles of cobia was nursery reared and stocked in sea cages for farming. Subsequent batches were becoming ready in the hatcheries. We purchased a good dinghy and a speed boat for our regular visits to sea cages. The hatchery produced juveniles of cobia growing in sea cages made all of us feel great and happy.

While the broodstock development of cobia was progressing, I was on the look out for another high value fish for seed production. I was going through the global literature on breeding and seed production of marine finfish (Thanks to Shri.Chidambaram, the then librarian of Mandapam Centre who was very prompt in getting the required literature for me). I happened to see the references of breeding Florida pompano and how they have succeeded in making the seed production a commercial success fascinated me. They even purchased an aircraft for transporting pompano seeds to distant places. The name 'pompano' was also sounding very attractive to me. I recollect that in one of our personal talks late Dr. Sriramachandra Murty sir also talked to me regarding the possibility of breeding pompano. Along with Shri. Ramamurthy, our versatile technical officer we went in search of collecting the common species of pompano available in our locality. While searching we could find groups of juvenile silver pompano in certain locations. We collected a few of them and started rearing in the hatchery. Initially some set backs were there. On one fine day all the pompanos which have reached about one kilogram size were found dead. The cause of their mortality remains as a mystery. But we did not get dejected and started collecting silver pompano juveniles in good numbers again and with the expertise gained by our struggle with cobia we had become wiser and stocked them in sea cages. They appeared to be very friendly fish and maintaining them was easy when compared to cobia. Probably the struggle with cobia would have made us feel easy for maintaining silver pompano. They readily accepted the feeds given and were growing fast in the cages.

The broodstock development of silver pompano was progressing as a routine matter and our main attention at that time was focussed on cobia breeding. We got success in cobia breeding and larval rearing and several batches of cobia fingerlings were produced. Now which species we can newly breed? Then we turned our attention to the pompano which was already in the process of becoming broodstock. The expertise gained in cobia broodstock development and breeding made all of us

enthusiastic and confident for breeding pompano. Scientists of my team took initiative in cannulating and studying the ovarian biopsies of silver pompano. Dr.Abdul Nazar developed skill on the cannulation of pompano by a few trials. In the meantime Dr.Jayakumar who was earlier with MPEDA also joined our team. The idea of bringing a few silver pompano from sea cages and conditioning them for fast maturation in special tanks with recirculation facility and photothermal control was suggested by them and accordingly we set the tanks in the new hatchery and brought a few fishes. In fact, this idea has accelerated the broodstock development and within a short period of time pomapano brooders were ready for hormonal induction to spawn. The fishes were injected with appropriate hormone doses and the on the second day early morning the tanks were filled with eggs. The eggs were examined under the microscope. All were fertilised eggs! All of us became very much excited and happy. The fertilized eggs were sieved and introduced into incubation tanks. The next day the tanks were filled with newly hatched larvae.

All the team members were appreciated by then Director, Dr.Syda Rao. (in fact, his constant encouragement and facilitation only made to us achieve it). The larval rearing was comparatively easy than that of cobia and we got good survival from the first batch itself. The achievements on breeding and seed production of cobia and silver pompano gave a big reputation to Mandapam Centre. Many researchers visited the centre and exclaimed the progress in infrastructure development and the breeding and seed production of cobia and silver pompano. The number cages in our sea farm increased and shortly we stocked the hatchery produced pompano fingerlings also in cages.

The hatcheries were filled with cobia and pompano larvae. We had to make two more temporary hatcheries with large number of larval rearing and nursery rearing tanks for cobia and pompano. The centre was brimming with activity in the hatcheries and farm. We got a lot of demand for cobia and pompano fingerlings for farming from different agencies from all over the country. In fact it was not possible for us to meet the huge demand for seed. But we tried to supply seeds as much as possible. We even airlifted the seeds to Gujarat and West Bengal.

One day a local group of fishermen from Rameswaram came to my room. I always liked very much to interact with fishermen. They told me that they had heard about cobia seed production at the centre and they were very much interested in cage farming of cobia. In fact in the beginning I was a bit skeptical about their sincerity in undertaking cage farming. Usually many people who are not genuinely interested will come to a government agency for getting some subsidy or financial benefits. I told them plainly that we are a research agency and we will give only technology and they have to invest the money. We will initially give cobia fingerlings and for that also they have to pay after their harvest. They agreed and we showed them our cage farm and explained to them regarding the fabrication of cages, mooring the cages and related aspects. They went back. I was thinking that if they are not genuinely interested they may not come back. After about two weeks they came back to me and told that they have already started fabricating cages and within a week ten cages will be launched for farming. They have also formed a "Cobia farmers Association". I asked them

"Don't you feel risky that you are investing a good amount money to a new venture like this?"

Their reply was surprising to me

"Sir, going for trawling from Rameswaram is much more risky than this and many times we were caught by Sri Lankan navy for crossing the international maritime boundary line and we are imprisoned. When compared to that we not finding much risk here. Moreover we are feeling confidence in the technology you people have developed"

That was a proud moment for me and my colleagues!

They launched ten cages, we provided the cobia fingerlings and our colleagues were always with them giving the required technical help. By about 6-7 months the cobia had reached the size for

harvesting. More than ten tonnes of cobia were harvested. The harvest function was inaugurated by Shri.Nandakumar IAS, the then District Collector of Ramanathapuram District. The Collector appreciated the Centre for the participatory demonstration of cage farming of cobia as an additional livelihood for the fishermen. Later the district Administration carried forward the cage farming by giving proper incentives to the fishermen.

Further infrastructure development was also in progress. The centre has a fish farm at the Palk Bay side. The farm was also in a dilapidated condition. The kattukaruvai trees were cleared and a compound wall was constructed. Large cement tanks were constructed for undertaking nursery rearing of fingerlings and for conducting farming experiments.

Many major functions and meetings were conducted at the centre. A national consultative meeting in developing Mandapam as a Centre of Excellence in Mariculture was conducted at the centre which was the vision of Dr.S. Ayyappan, who was DDG(Fisheries) at that time and later became DG(ICAR). In the meeting almost all the fisheries dignitaries of India participated and gave very valuable suggestions. In fact, this consultative meeting is a memorable event in the history of the Centre. The new hatchery inauguration was also an unforgettable event. Dr. Mangala Rai, the then DG of ICAR inaugurated the hatchery in the presence of Dr.S.Ayyappan, (then DDG(Fisheries), ICAR) and Dr. Mohan Joseph Modayil, the then Member ASRB. I remember that the DG was very impressed by the ongoing research programmes at the Centre and assured all the support from ICAR. The Institute IRC meeting was always conducted only at headquarters. Dr.G.Syda Rao, the then Director of CMFRI took the decision to conduct the meeting at Mandapam Centre. All the CMFRI scientists came to Mandapam and the meeting was also a memorable event for the Centre.

The seed supply of cobia and pompano was going ahead as per the full capacity of the Centre. In fact, what usually happens with research institutions is that, a technology will be developed , a scientific paper will be published on it , some one or two front line demonstrations will be done and there ends the story. The technology is never adopted by the sector and it goes to the cold storage. Our team had a strong vision that unless the technology developed is reaching the concerned sector and gets established there it is better to pursue the efforts by handholding with other developmental agencies and farmers. In fact, I feel that such an approach only made the cobia and pompano farming reach the sector and still moving forward.

Efforts to marine ornamental fish breeding and taking the technology to fishermen groups were also continuing at the centre. Many species of clownfishes and damselfishes were regularly produced in good quantities. In fact a good revenue was generated at the centre by the sale of hatchery produced ornamental fishes. Thanks to the constant effort taken by Dr. Abdul Nazar, Dr.Jayakumar and others. Many women groups were trained to take up small-scale ornamental fish production units by Dr.B.Johnson, our enterprising extension scientist.

We wanted to bring new futuristic technologies also to Mandapam. Aquaculture research and development is a major enterprise in the world and unless we keep pace with the rest of the world we will suffer from 'frog in the well' syndrome. I have also a feeling that we need not 'reinvent the wheel' by wasting a lot of time. We can get the technology which has already been established elsewhere, if required modify as per our need and can be applied. This will save a lot of time. When somebody is bitten by a mad dog, we are not reinventing the rabies vaccine! We were able to convince the authorities and a Recirculation Aquaculture System for controlled spawning of Cobia was imported and installed at the centre. Here we can manipulate different parameters and condition the brooders for spawning as per the need. In fact now a lot of work on RAS in aquaculture is progressing and I feel the RAS unit at Mandapam would have inspired other researchers to modify and adopt RAS as per their requirement. We also fabricated a cheaper RAS unit at Mandapam which was also serving the purpose. Similarly the concept of brood bank for maintaining a few brooders was felt as an essential requirement for

uninterrupted breeding and seed production of cobia and pompano. A proposal was made, got approved and it was also getting ready. The Integrated Multitrophic Aquaculture (IMTA) is also another futuristic technology where groups of different trophic levels are integrated into a farming system, for example the finfishes in cages surrounded by shellfish and seaweed rafts. We made participatory demonstrations to fishermen of a neighbouring village Maunaikkadu with cobia and sea weeds. The efforts were led by Dr. Johnson, the enthusiastic extension scientist at the centre. The organic waste produced by the cage farming was used by seaweeds as manure and we were able to reduce environmental degradation and increase the production of seaweed biomass. Further efforts to popularise the same are being continued.

Finally a major function was organised at the centre for the formal inauguration of all the completed infrastructure. It included the new block Laboratory cum office building, the International Guest House, the RAS unit and Broodbank. Dr.Ayyappan, DG ICAR inaugurated these facilities in the presence of Dr.Meenakumari, DDG(Fisheries), Dr.Madan Mohan, ADG (Fisheries and Dr. Syda Rao, Director, CMFRI and shri.Nandakumar IAS, District Collector. The DG and other dignitaries appreciated the Centre for its achievements. That was a proud moment for the Centre .

I recollected the famous quote from *Alchemist* by Paulo Coelho .

"When you want something, all the Universe conspires in helping you to achieve it"

The Centre became the epicentre of the Mariculture research of the Institute. This process of development nearly took a decade. In the meantime Dr.Gopalakrishnan took charge as the new Director of the Institute. He is also very keen to maintain the tempo of development of the Centre and takes special interest in the further progress of the centre. Time is eternal and will be moving ahead through seconds, minutes, hours, days, weeks, months and years. In between we are all just passing phases.

I am concluding by quoting a fantastic sentence written on every Japanese bus stop:

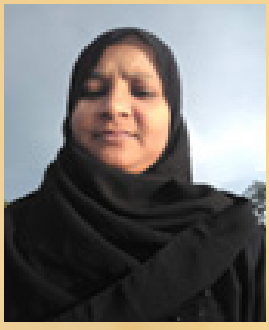
"Only buses will stop here, not your time; keep walking towards your goal!

(I have written the article purely from memory, it is not a chronological description of events at Mandapam Centre, I felt that such a description will be boring to the readers. I would not have mentioned many names, but I wish to state that if anything is achieved at the Centre, the credit goes to all the staff. I am sorry if I have mentioned anything wrong or hurt anybody)

SEVEN Of the World's Greatest Women Inventors in Science

Although there are many wonders in the world let's get to know Seven important women Scientists as listed in the Seven wonders.

1) Marie Curie – The first female to win a Nobel Prize
2) Peggy Whitson – First Officer of the International Space Station
3) Marie Thorp – Map Maker for the Ocean Floor
4) Wanda DiazMerced –Making Astronomy Accessible
5) Quarraisha Abdool Karim – A Break through in HIV/AIDS Prevention
6) Soyeonyee – South Korea's first female astronaut
7) Raja cherkau El Morsli – Contribute to the discovery of the Higgs Boson



By M.Afrin Rani

Mandapam Camp Days

Abubekkar

Recently I had an opportunity to visit to the Regional Centre of CMFRI, Manadapam Camp, along with Padma Sri Ali Manikfan. The trip was made possible due to the sincere support by Dr. A. Gopalakrishnan, Director, CMFRI. I am very much grateful to him for this. We reached the Regional Centre on 28thJuly, 2024 evening. I am also thankful to my good friend Dr. K. Vinod, the Scientist-in Charge and his dedicated team for the hospitalities during our stay there. A function was arranged on 29th afternoon to felicitate the guest of Honor Padma Sri Ali Manikfan and also to introduce him to the present generation. Majority of them either did not know him or knew only very little. I was given the opportunity to introduce him to the elite audience. Perhaps I was one the very few persons closely associated with for a brief period in 1970,and also from 1996 onwards till now.

After the function we were taken round to all the important neatly maintained places like marine hatchery, wet labs and especially to the museum which was considered as one of the best of its kind in Asia. This was built up by the great personality, Padma Sri Ali Manikfan. All the works starting from collection of the specimens from the sea, identification, preservation and labeling were carried out almost single handedly. His ability as a good taxi dermistis exemplary. Even now some of the stuffed specimens are intact in the museum.

At this point I recollect the good old memories of my life at the Mandapam Camp where I stayed with some of my friends in an ordinary lodge, and the office I worked. I have only sweet memories of the days spent there even with minimal facilities.

I joined the service in CMFRI, on18th September, 1970. I was really disappointed to see the place, dry sandy terrain with sharp dry thorns, scarce clean potable water. We had to walk through the camp site for the Tamil Repatriates form Sri Lanka to reach the CMFRI campus. The original road was lengthy and so we travelled through the short cut only. The only restaurant named after its owner "Chinnaswami"which fed us, was also in this route.

At the time of my joining, Dr. R. Velappan Nair was the acting Director, and the first Director Dr. S. Jones, the internationally acclaimed Scientist had just retired. Dr. VeerabhadraRao, father of another scientist of CMFRI, Dr. Satyanarayana Rao was the Officer in Charge. Shri. S. Rajagopal was the Administrative Officer and Shri Mathai, the Superintendent to whom I reported for duty. Our former Directors Dr. Devaraj was working in CMFRI, and Dr. Mohan Joseph Modayil was a research scholar in the Algal Research Station, Mandapam.

Being the headquarters, the staff strength was very high resulting in shortage for office space and quarters. One big room in the survey block was allotted to the new recruits of twenty persons as bachelor's quarters. It was too difficult to live in, and so a few of my friends and I moved to the Anthony's Lodge situated close to the Mandapam Camp railway station. Just behind our lodge was a touring talkies, a primitive movie house with thatched roof, park benches and sandy floor. This was owned by Shri. Jamal who was the postman in the Marine Fisheries Post Office situated in the campus. He also owned many such theaters at that time. On those days the main mode of communication with parents and friends was only through letters. Naturally, the post man was the inevitable person for all the people. He himself was the best advertiser of his movie houses. Personally he used to meet everyone and tell everyone; "Sir, today is a new movie, please come". But the movie screened would be something different. Whether the movies were good or bad, new or old, we used to go for movies many days in a week. It was the main assembly point of friends and their families especially on Sundays.

During my recent visit, I went round the Mandapam Camp area. Some of the buildings including the lodge we lived in were partially or fully demolished during the expansion programme of the highway. Some archives still remain.

In a short span of life there, quite a large number of people from all walks of life became my friends. Even after fifty four years, friendship with them continues. After the training in identification of marine fishes and statistical survey work our batch of new recruits was posted in different centres of CMFRI. My place was Mangalore Research Centre. In December, 1970, the headquarters was shifted from Mandapam Camp to Kochi. Internationally known Oceanographer and the Chief Scientist of the International Indian Ocean Expedition (IIOE), Dr. S.Z. Qazim took charge as the new Director. He was recipient of Padma Sri and Padma Bhooshan awards.

At Mandapam CampShri. Ali Manikfan and I were colleagues. He is from Minicoy Island, Laskhadweep. He was working as the museum assistant at that time. How he built up the museum is mentioned earlier. At the first sight itself I was attracted to him. I used to spent time with him in taxonomy studies. He was a good teacher who makes learning effortless.

During Friday prayers at the Marackar Pattanam, I was surprised to see Shri Ali Manikan as a religious scholar doing the sermons in Tamil and Arabic.

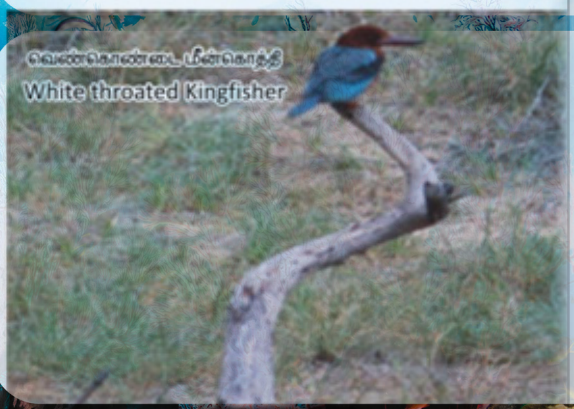
For quite some time we did not meet each other and in 1996,I met him again. Since then we have been in constant contact and he used to stay with me in my house at Kochi a number of times. I was fortunate to learn a lot of things on various new topics from him.

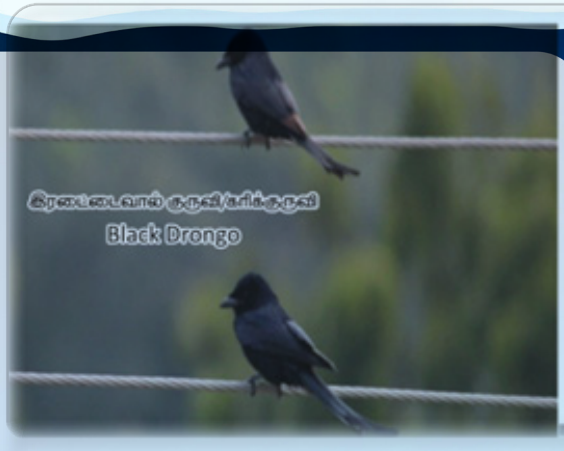
மண்டபம் பகுதியில் வெவ்வேறு பருவங்களில் தென்பட்ட பறவைகளும் அதன் பெயர்களும்

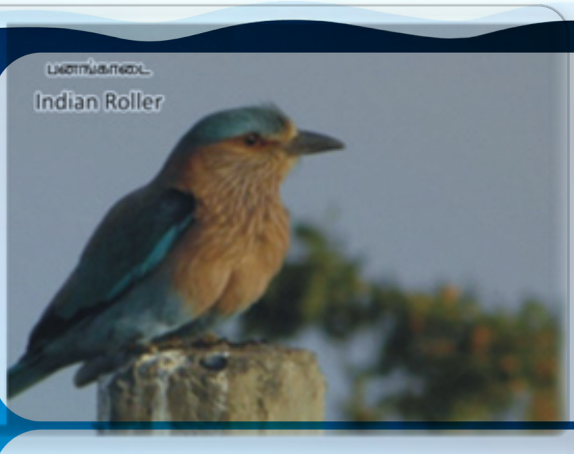


Dr.P.Rameshkumar, B.James and G.Tamilmani

இந்தக் கட்டுரையில் மண்டபம் பகுதியில் வெவேறு பருவங்களில் காணப்பட்ட பறவைகளை ஒளிப்படக்கருவி மூலம் படமெடுத்து அதன் பெயர்களை பட்டியல் படுத்திருக்கிறோம் . இவை அணைத்து பறவைகளுமே CMFRI அலுவலகப்பகுதி, பணியாளர்கள் வசிப்பிடப்பகுதி மற்றும் அதனைச்சுற்றிள்ள பகுதிகளிலும் எடுக்கப்பட்டது. நன்றி .* Photos by.Dr.P.Rameshkumar




இரட்டைவால் குருவி/கரிக்குருவி
Black Drongo


பனங்காடை
Indian Roller

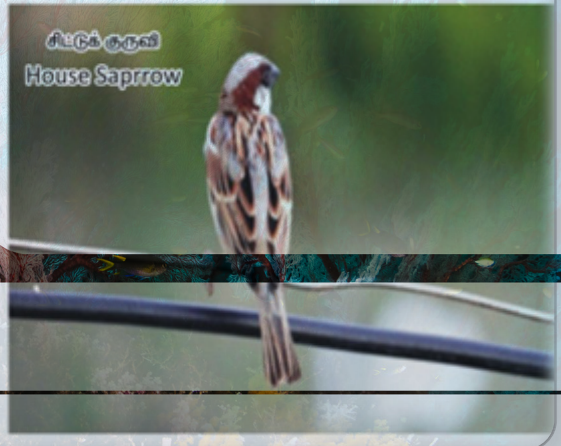

மைனா
Common Myna


செம்முக்கு ஆள்காட்டை
Red-wattledLapwing


சாம்பல் கௌதாரி
Gray Francolin


சிறு வெண் கொக்கு
Little Egret


பெரும் வெண் கொக்கு
Great Egret


சிட்டுக் குருவி
House Saprrow


வெண்தலை சிலம்பன்
Yellow-billed Babbler


செங்குதக் கொண்டைக் குருவி
Red-vented Bulbul


பச்சைக்கிள்ளை
Rose-ringed Parakeet


பச்சைப் பஞ்சுருட்டான்
Asian green Bee-eater

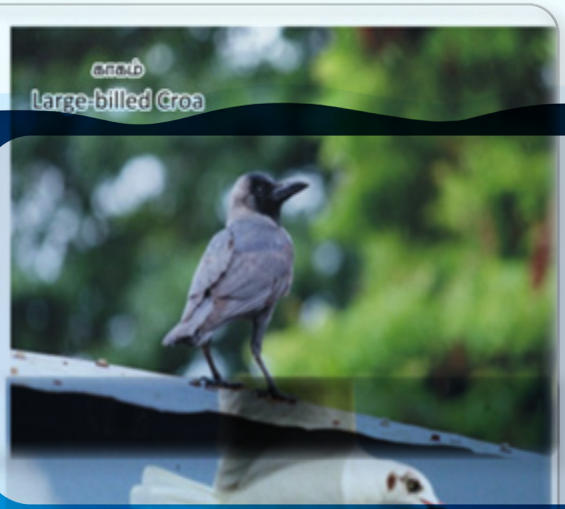

கருப்பு அரிவாள் மூக்கன்
Red-naped Ibis


சாம்பல் நாரை
Gray Heron


நெடுங்கால் உள்ளான்
Black-winged Stilt


வல்லூறு
Shikra


Laser Black—backed Gull


காகம்
Large-billed Croa


பூநாரை
Greater Falmingo


சிவப்பு மூக்கு ஆலா
Caspian Tern


பெரிய முகடு டெர்ன்
Great Crested Tern


நீலவால் பஞ்சுருட்டான்
Blue-tailed Bea-eater


சங்குவளை நாரை
Painted Stork


நத்தைக்குத்தி நாரை
Assian Openbill


வெண்கொக்கு
White Stork
மடையான்/குருட்டுக்கொக்கு
Indian Pond Heron
சாம்பல் கூழைக்கடா
Spot billed Pelicon
தேன் பருந்து
Oriental Honey-buzzard
பொன்முதுகு மரங்கொத்தி
Black-rumped Flameback
கொண்டலாத்தி
Eurasian Hoopoe
செம்புழுப்புவால் காக்கை
Rufous Treepie
வெள்ளை மீன்கொத்தி
Pied Kingfisher
செம்பருந்து
Braminy Kite

எனது நகரம்....!

– என்றும் விழிப்பாய்

திருமதி. பவானி செல்வி ஜெயசிங்

கடம்பவனம், கூடல் மாநகர், நான்மாடக்கூடல், தென்னிந்தியாவின் ஏதென்ஸ் என்றெல்லாம் அழைக்கப்படும் மதுரையை பற்றி அறிந்து கொள்வோம்.

நான் இந்த வையகத்தில் உருவானது இம்மாநகரில் தான்! நான் வசிர்த்த பிறகு தான் தெரியும் இது ஊரல்ல பிறரை வாழ வைக்கும் வலக்கரம் என்று! கோயில்கநுசிஏ ஒவ்வொரு தெருவின் முனைகளில்! சிறுவர்கள் விளீ சியாடி மகிழ்ந்திட பூங்காக்கள்! வரலாற்றை எடுத்துரைக்க காந்தி அருங்காட்சியகம், வைகை ஆற்றின் அழகை கூற வார்த்தைகள் இல்லை என்னிடம்! என்றும் வற்றாமல் நகரின் வசித்தை எடுத்துரைக்கும் வண்ணம் அமைந்திருக்கிறது நம் தெப்பக்குசிம். உள்சித்தில் விதைத்த விதைகள் விழுதாக வசிர்ந்து பள்ளிக்கூடம் கல்லூரி, பல்கலைக்கழகம், தொழில் நிறுவனங்கள் ஆகியவற்றிலும் செழித்தோங்குகிறது! எந்த மாதம் கண்டாலும் திருவிழாக் கோலம்! மீனாட்சி அம்மன் கோயில் கோபுரங்கள் நகரின் மையத்தில் ஆதாரமாய் விசிங்குகிறது! தடுக்கி விழுந்தால் உதவிக்கு ஆயிரம் கரங்கள் மணத்துக்கு மல்லிகை, மானத்துக்கு பெண்கள், வீரத்துக்கு (ஜல்லிக்கட்டு) காளீ சிகளும் காளீ சியர்களும்! குடிக்க ஜிகர்தாண்டா! பருக பாசமும் வீரமும்... என்றும் உழைக்கும் மக்கள்! சோம்பல் இரவு பகலாக உழைப்பிற்கு இலக்கணமும், பெருமையுமே எமது தூங்கா நகரம் கல்தோன்றி மண் தோன்றிய காலத்திற்கு முன்பே தோன்றிய எம் தமிழ்மொழியை எம் தமிழ்தாயை

அழியாச் சங்கமாய்

இன்றும் நாம் காண முதன்மை படுத்தியவர் எம்முன்னோர்கநுசி!

அசோகன்
முதுநிலை தொழில் நுட்ப அலுவலர்
மத்திய கடல்மீன் ஆராய்ச்சி நிலையம்
மண்டபம் கேம்ப்.

சுவாமி விவேகானந்தரும் இராமநாதபுரம் மன்னர் பாஸ்கரசேதுபதியும்

நீலக்கடலின் ஓரத்தில் நின்று நித்தம் தவம் செய்யும் குமரி அன்னையை தரிசிக்க வேண்டி ஆதிசங்கரர் தோன்றிய காலடியில் இருந்து புறப்பட்ட சுவாமி விவேகானந்தர் காலக் கடலை கவலையுடன் கடந்து 1892 ஆம் ஆண்டு டிசம்பர் 24ம் தேதி மாலை கன்னியாகுமரி வந்தடைந்தார். திருவாங்கூர் தேசத்தின் மன்னர் கெடுபிடியால் சுமார் 25 லட்சம் நாடார் சமுதாய மக்கள் கிருஸ்தவர்களாக மதம் மாறியிருந்த வேதனையான காட்சியை கண்டு விட்டு தேவிகுமரி சிவனை நோக்கி தவம் செய்த ஸ்ரீ பாதம் எனும் பாறையை நோக்கி தனி மனிதனாக நீந்திச்சென்று 3 தினங்கள் கடும் தவம் மேற்கொண்டார். தவத்தின் ஊட பாரத அன்னைதலைவிரி கோலமாய் நிற்க கண்டார். பாரத அன்னையின் துயரம் நிச்சயம் நீக்குவேன் என சூளுரை செய்து கரையேறிய விவேகானந்தர் மதுரையை நோக்கி பயணமானார்.

சுவாமிஜியின் அன்றாட நிகழ்வுகைசி கவனித்து வந்த மைசூர் மன்னர் சாம்ராஜ் உடையார் அவர்கள் தனது இனிய நண்பரான இராமநாதபுரம் மன்னர் பாஸ்கர சேதுபதிக்கு தகவலை தெரிவித்தார். அடிமை தேசத்தில் அடிமைப் பட்டுத் கிடந்த முத்தழிழையும் ஹிந்து தர்மத்தையும் நிலை நாட்டுவதே தமது வாழ்வின் குறிக்கோசிாக கொண்டிருந்த மாட்சிமை தாங்கிய மன்னர் பாஸ்கர சேதுபதி அவர்கள் மதுரைக்கு ஓடோடி வந்து விவேகானந்தரை எதிர்கொண்டு வரவேற்று மதுரையில் தமது அரண்மனையில் தங்க வைத்து இராமேஸ்வரம் ஸ்ரீ இராமநாத சுவாமி கோவிலில் தரிசிக்க இராமேஸ்வரம் அழைத்து வந்தார்.பின் இராமநாதபுரத்தில் மன்னர்தமது விருந்தினர் மாளிகையான சங்கர விலாசத்தில் சில தினங்கள் தங்க வைத்தார். தினசரி சுவாமிஜியுடன் சைவ, வைணவ, சித்தாந்த கருத்துகைசி பகிர்ந்து கொண்டார். அந்த சமயம் தான் மதுரை மாவட்ட கலெக்டர் கரோல் மூலம் அமெரிக்க நாட்டில் சிகாகோ நகரில் நடைபெற விருக்கும் உலக சர்வ சமய மாநாட்டில் தாம் கலந்து கொள்சி பயண ஏற்பாடுகள் செய்திருப்பதாக தெரிவித்தார்.

மேலும் தற்சமயம் மன்னராகிய நான் சென்று ஆன்மிக சொற்பொழிவு ஆற்றுவதை விட தாங்கேசி தகுந்தவராவீர், தாங்கள் சிகாகோ செல்லும் பட்சத்தில் பயண ஏற்பாடுகைசி தாமே செய்வதாக கேட்டுக் கொண்டார். இதனையே மன்னர் தனது இனிய நண்பர் ஜஸ்டிஸ் சுப்பிரமணிய ஐய்யர் மூலம் வற்புறுத்தினார். சுவாமிஜியோ தாம் பாரத பரிகிரமா என்ற வகையில் இந்தியாவை சுற்றி வர இருப்பதால் இறைவனின் நோக்கம் அவ்வாறாக இருந்தால் பிறகு யோசிக்கலாம் என சொல்லி விட்டு இராமநாதபுரம் சீமைக்கு தட்சிணகாசி (தென்னகாசி) என பெயரிட்டு சென்னைக்கு புறப்பட்டுச் சென்றார்.

சென்னையில் தமது இனிய நண்பரான அசிசிங்கர் என்கின்ற அழகிய சிங்கரிடம் இது குறித்து பேசிக் கொண்டிருந்த போது அவரும் இராமநாதபுரம் மன்னரின் கருத்து மிகச்சிறந்தது என்றும் தயவு செய்து மறுக்க வேண்டாமென வலியுறித்திய போது சுவாமிஜி அதனை ஏற்றுக் கொண்டு சிகாகோ செல்ல முடிவெடுத்து பயண ஏற்பாடுகைசி சென்னை நண்பர்களும் பாஸ்கர சேதுபதியு ஏற்பாடு செய்ய 31.05.1893 அன்று பம்பாயிலிருந்து (மும்பை) பெனின்சூலா என்ற கப்பலில் சுவாமிஜி சிகாகோ நகருக்குபுறப்பட்டார். அவர் ஜூலை மாத கடைசி வாரத்தில் சிகாகோ சென்று அடைந்தார். அமெரிக்காவில் எளிமையாகவாழ்வு நடத்திய சுவாமிஜி 1893 செப்டம்பர் 11ம் நாள் கலந்து கொள்சி ஆங்கிலேயர் ஜே.எச்.ரைட் எனும்அறிஞரை சந்தித்து உரையாற்றும் வாய்ப்பை பெற்றார்.

இறையருசில் தனது முன்னுரையிலே சீமான்கேசி சீமாட்டிகேசி என துவங்குவதற்கு பதிலாக எனஅருமை அமெரிக்க சகோதரர்கேசி, சகோதரிகேசி,என தமது உரையை துவக்க, அரங்கமே

அதிர்ந்தது. ஒரே நாளில் சுவாமிஜியின் புகழ் அமெரிக்கா முழுவதும் பரவியது. சர்வ மதமாக சபையில் இவருக்கு ஒப்பானவர்வேறு எவரும் இல்லை என ஏக மனதாக தெரிவித்தார்கள். மாநாடு நடைபெற்ற 1 வார காலத்திற்கு 9 முறைதனது உரையை ஆற்றி விட்டு மாநாட்டை நிறைவு செய்தார். உலகெங்கும் உள்சி அறிஞர்கைசி ஐரோப்பியநாடுகளுக்கு வருமாறு சுவாமிஜியை அழைக்க 3 மாத பயணத் திட்டம் 3 1/2 வருடங்களில் நிறைவு செய்தார்.சுவாமிஜி மனதில் தாய்நாடு திரும்ப வேண்டுமென எண்ணம் உதயமானது. விசுவாசம் மிக்க அவரது உள்சிம் இப்பேரும், புகழும் எந்த மன்னரால் தமக்கு ஏற்பட்டதோ அந்த மன்னரின் மண்ணில் தான் முதன் முதலில் கால் பதிக்க வேண்டுமென எண்ணினார். அமெரிக்காவிலிருந்து கல்கத்தா செல்வதற்கு நேரடியாக எளிய வழி இருந்த போதும் தாம் தலைகீழாக சுற்றி கொண்டு இலங்கை தேசத்து கொழும்பிற்கு 1897 ஜனவரி மாதம் 15ந்தேதி வந்து சேர்ந்தார். இலங்கையின் தென் கோடியில் உள்சி கொழும்பிலும் வட கோடியில் ஹிந்துக்கள்வாழும் யாழ்ப்பாணத்திலும் ஜனவரி 23ம் தேதி செற்பொழிவுகைசி நிகழ்த்தி விட்டு 1897 ஜனவரி 26ம் தேதிஅதி காலையில் தீவுத்திடல் என்ற தலை மன்னாரில் இருந்து சுமார் 50கி.மீ. தொலைவுள்சி பாம்பன் நோக்கி சாதாரண படகில் பயணமானார். அன்றைய தினம் மாலை 3.00 மணிக்கு நகரில் உள்சி குந்துகால் துறைமுகத்தை சுவாமிஜி நெருங்கிய போது மன்னர் உற்சாகமாக சத்யமேவ ஜெயதே, சத்யமேவ ஜெயதே என கோஷமிட்டார். அதன் தமிழாக்கம் வாய்மையே வெல்லும் என்பதாகும்.

துவக்க, அரங்கமே அதிர்ந்தது. ஒரே நாளில் சுவாமிஜியின் புகழ் அமெரிக்கா முழுவதும் பரவியது. சர்வ மதமாக சபையில் இவருக்கு ஒப்பானவர் வேறு எவரும் இல்லை என ஏக மனதாக தெரிவித்தார்கள். மாநாடு நடைபெற்ற 1 வார காலத்திற்கு 9 முறை தனது உரையை ஆற்றி விட்டு மாநாட்டை நிறைவு செய்தார். உலகெங்கும் உள்சி அறிஞர்கைசி ஐரோப்பிய நாடுகளுக்கு வருமாறு சுவாமிஜியை அழைக்க 3 மாத பயணத்திட்டம் 3 1/2 வருடங்களில் நிறைவு செய்தார். சுவாமிஜி மனதில் தாய்நாடு திரும்ப வேண்டுமேன் எண்ணம் உதயமானது.விசுவாசம் மிக்க அவரது உள்சிம் இப்பேரும், புகழும் எந்த மன்னரால் தமக்கு ஏற்பட்டதோ அந்த மன்னரின் மண்ணில் தான் முதன் முதலில் கால் பதிக்க வேண்டுமென எண்ணினார். அமெரிக்காவிலிருந்து கல்கத்தா செல்வதற்கு நேரடியாக எளிய வழி இருந்த போதும் தாம் தலைகீழாக சுற்றி கொண்டு இலங்கை தேசத்து கொழும்பிற்கு 1897 ஜனவரி மாதம் 15ந்தேதி வந்து சேர்ந்தார். இலங்கையின் தென் கோடியில் உள்சி கொழும்பிலும் வட கோடியில் ஹிந்துக்கள் வாழும் யாழ்ப் பானத்திலும் ஜனவரி 23ம் தேதி சொற்பொழிவுகைசி நிகழ்த்தி விட்டு 1897 ஜனவரி 26ம் தேதி அதிகாலையில் தீவுத்திடல் என்ற தலை மன்னாரில் இருந்து சுமார் 50கி.மீ. தொலைவுள்சி பாம்பன் நோக்கி சாதாரண படகில் பயணமானார். அன்றைய தினம் மாலை 3.00 மணிக்கு நகரில் உள்சி குந்துகால் துறைமுகத்தை சுவாமிஜி நெருங்கிய போது மன்னர் உற்சாகமாக சத்யமேவ ஜெயதே, சத்யமேவ ஜெயதே என கோஷமிட்டார். அதன் தமிழாக்கம் வாய்மையே வெல்லும் என்பதாகும்.

1947 நமது தேசம் சுதந்திரம் அடைந்த பிறகு பாரதத்தின் இலட்சிய முத்திரை அசோக சக்கரம் என்றும் கீழ் வாக்கியம் சத்தியமேவ ஜெயதே என்றும் தமிழில் அசோக சக்கரத்தின் கீழ்உள்சி சாக்கியம் வாய்மையே வெல்லும் என்று நிர்ணயமாயிற்று. மிகச்சரியாக 50 ஆண்டுகளுக்கு முன்பே எம் மன்னரின் தீட்சயமான வார்த்தைகள் நம் தேசத்தின் இலட்சினை ஆகிற்று. சுவாமிஜி மீண்டும் தாய் நாட்டில் கால் பதித்த அந்த ஜனவரி 26ம் தேதியே பின்னர் 1950ல் டாக்டர் அம்பேத்கார் போன்ற அறிஞர்கசிால் இந்திய அரசியல் அமைப்பு சட்டத்தை உருவாக்கி குடியரசு தினமாக என்னே விந்தை?

படகிலிருந்து தாவிக்குதித்த சுவாமிஜியை நோக்கி எம் மன்னர் முதன் முதலாக என் தேசத்தில் கால் பதிக்க நினைத்த ஏந்தலே என் தலையில் கால் பதியுங்கள் என குந்து காலிட அவ்வாறு செய்யாமல். சுவாமி மன்னரை ஆரத்தழுவி விட்டு மண்ணில் வி ழுந்து 3 முறை புரண்டு எம் தாய் மண்ணே வணக்கம் என்றுரைத்தார். இவ்வாறு மன்னர் குந்து காலிட்ட அவ்விடம் குந்துகால் என்றே பெயர் விசிங்கியது. 4குதிரைகள் பூட்டிய சாரட் வண்டியில் மன்னரை அழைத்துச் செல்ல ஏற்பாடு செய்து

குதிரைகளே அவிழ்த்து விட்டு மன்னரும் சேவர்களும் சாரட்டை இழுத்து வந்தது எம் மன்னரின் பணிவையும் பெருந்தன்னையும் எவ்வாறுவியம்புவது. 3நாட்கள் பயணமாக பாம்பன் இராமேஸ்வரம் மண்டபம் ஆகிய இடங்களில் சொற்பொழிவு ஆற்றி விட்டு திருப்புல்லனை ஸ்ரீ ஆதி ஜெகநாத பெருமானளே தரிசனம் செய்து விட்டு ஜனவரி 29ல் இராமநாதபுரம் வந்தடைந்தார்.

நகரமே சுவாமிஜியை வரவேற்க விழாக்கோலம் பூண்டிருந்தது. தங்களின் திரு உள்சித்தை மகிழ்விப்பதாக. சேதுபந்தன இராமேஸ்வர் சமஸ்தானம் என்று அழைக்கப்படுவதும், இராமநாதபுரம் நகரில் வாழ்கின்றநாங்கள் தங்கைசி வரவேற்பதில் பெருமகிழ்வு அடைகிறோம். கீழை மற்றும் மேலைநாடுகளில் ஆன்மீக மறுமலர்ச்சிக்காக தாங்கள் மேற்கொண்ட முயற்சியை பாராட்ட போதுமான வார்த்தைகேசி இல்லை.

தாங்கள் தொடங்கியுள்சி நற்பணி தொடர நீண்ட ஆயுளும் நல்ல வலிமையும் தங்களுக்கு நல்குமாறு இறைவனை வணங்குகிறோம் என தங்கப் பேழையில் வரவேற்புரையை வாசித்தமைக்கு சுவாமிஜி தமது பதிலுரையில் மிக நீண்ட இரவு விலகுவது போல் தோன்றுகிறது. மிக கடுமையான துன்பம் கடைசியாப முடிவுக்கு வந்து விட்டது போல் தோன்றுகிறது. பிணம் போல் இருந்த உடம்பு விழித்தது போல் ஆகி விட்டது.இராமநாதபுரம் மன்னர் அவர்கேளே! இராமநாதபுரம் குடிமக்கேளே! நீங்கள் அன்போடும் கனிவோடும் எனக்அளித்த வரவேற்புக்கு என் நெஞ்சார்ந்த நன்றிகைசி ஏற்றுக்கொள்ளுங்கள்.

இதயத்துடன் இதயம் பேசுவதே உயர்ந்த மொழி. மேன்மை தாங்கிய இராமநாதபுரம் மன்னர் அவர்கேசி மேலை நாடுகளில் நமது மதத்திற்காகவும், நம் தாய் நாட்டிற்காகவும் என்னால் இயன்ற சிறிய வேலை செய்ய முடிந்தது என்றால் அதற்கான பெருமை முழுவதும் தங்கைசியே சாரும். ஏனெனில் முதன்முதலில் இந்த எண்ணத்தை நீங்கள் தான் என்னை இடைவிடாமல் இத்தகைய வேலைக்கு தூண்டி வந்தீர்கள் எதிர்காலத்தைஉள்ளுணர்வால் புரிந்து கொண்டது போல் நீங்கள் தான் என் கரங்கைசி பிடித்து இழுத்து சென்று எல்லா வழிகளிலும் உதவினீர்கள்! எனது வெற்றியில் மகிழ்கின்ற முதல் மனிதராக நீங்கள் இருக்கின்றீர்கள். அதைக்காணவேதான் என் தாய் நாட்டிற்கு திரும்பும் வழியில் முதன் முதலில் உங்கள் அரசில் இறங்கினேன் என்றும்உங்களுக்கு ராஜரிஷி என பெயரும் வழங்குகிறேன் என பதில் உரையாற்றினார். புனிதமிக்க அந்த வசிாக இடத்தை 100ஆண்டுகளுக்கு பின் தனியாருக்கு விற்க முயன்ற போது 1/4ஏக்கர் நிலத்தை எனது இல்லமாவும்1/4 நிலப்பரப்பை நானே கிரையம் பெற்று அதில் விவேகானந்த பாஸ்கரம் என்ற நினைவு மண்டபம் கட்டி சுவாமிஜிக்கும் மன்னர் பாஸ்கர் சேதுபதிக்கும் சிலைகள் நிறுவி தேசத்திற்கு அர்ப்பணம் செய்ததை என் வாழ்வின்பெரும் பாக்கியமாக கருதுகிறேன் வாழ்க என் மன்னர் பாஸ்கர சேதுபதி புகழ்! ஓங்குக சுவாமி விவேகானந்தர்கீர்த்தி! உலகின் வல்லரசாக பாரதம் விசிங்குக வாழ்க வையகம் !

ஆரோக்கியம் நிறைந்த மீன் வகைகள் மற்றும் அதன் நன்மைகள்

இராஜ்குமார், மு., விஞ்ஞானி மற்றும் ஜெயசிங், மூத்த தொழிற்நுட்ப உதவியாளர்

நித்தம் நித்தம் நெல்லுச் சோறு, நெய் மணக்கும் கத்திரிக்கா, நேத்துவெச்ச மீன் குழம்பு என்னஇழுக்குதய்யா. இந்தப் பாட்டை ரசிக்காத மீன் ரசிகர்கள் குறைவு மீன்களுக்கு இணையான சத்தானஉணவு எதுவும் இல்லை என்று தான் சொல்ல வேண்டும். அந்த அசிவிற்கு மீன்களில் சத்துக்கள்உள்சின. உலகில் 70 சதவீதம் பரப்பசிவில் அமைந்துள்சி கடலில் இருந்து மீன்கள் கிடைப்பதால்அவற்றை என்றும் அழியா சொத்து என்று சொல்லலாம்.சிலருக்கு மீன் உணவுகைசிப் பார்க்கும்போதுமட்டுமல்ல, மீனைப் பற்றிப் பேசினாலே நாவில் எச்சில் ஊறத் தொடங்கிவிடும் அந்த அசிவுக்குப்பலரின் நாக்குடன் சேர்த்து மனதையும் கட்டிப்போட்டு வைத்திருக்கிறது மீனின் ருசி இறைச்சியைவிரும்பாத அசைவப் பிரியர்கள்கூட மீனை விரும்பக் காரணம் அதில் உள்சி தனிப்பட்ட சுவைதான்.

ஆரோக்கியமான அசைவ உணவு என்றால் அதில் மீனிற்கு முதலிடம் உண்டு. மீனின் சுவைக்குநம் நாக்கு அடிமைதான். சுவைக்காக மட்டுமல்லாமல், அந்த மீனை நாம் உணவாக உட்கொண்பின்பு குறைந்த நேரத்தில், எளிதில் ஜீரணமாகி, ரத்தத்தில் கலந்து உடலுக்கு தேவையான சத்துக்கைசிதந்துவிடுகிறது. நம் உடலிற்கு ஆரோக்கியம் தரும் இந்த மீனை சாப்பிட்டால் நல்லது என்பதை நம் குழந்தைகளுக்கு சொல்லி வசிர்க்கின்றோம்.ஆனால் அந்த மீனில் என்னென்ன சத்துக்கள் இருக்கின்றன என்பதை குழந்தைகளுக்கு சொல்கிறோமோ? மீனினால் என்னென்ன நோய்கள் குணப்படுத்தப்படுகிறது என்று அறிந்திருக்கின்றோமா? சிந்தித்துப் பார்த்தால், சிலருக்கு தெரியாது என்றுதான் கூறுவோம். அசிவில்லா சுவையையும், அசிவில்லா சத்துக்கைசியும் உள்சிடக்கிய இந்த மீன்கள் சிலவற்றின் பயன்கள் என்ன என்பதை பற்றி இந்தக் கட்டுரையில் விரிவாக காண்போம்.

மீனில் உள்சி சத்துக்கள்:

மீன் உணவில் குழம்பு, வறுவல், புட்டு என்று பல வகைகள் இருப்பதுபோல மீன்களிலும் கடல் மீன், ஆற்று மீன், ஏரி மீன் என்று பல வகைகள் உள்சின. ஒவ்வொரு நீர் நிலைகளிலிருந்தும் கிடைக்கும் மீனுக்கென்று தனிப் பெயர்களும். தனி ருசியும் உண்டு அதுபோல் அவற்றின் ஊட்டச்சத்துகளும்சிறிது மாறுபடும். மீன் உணவு அதிக ஊட்டச்சத்துகள் நிறைந்தது. கடல் மீன், ஆற்று மீன், ஏரி மீன்கள்போன்றவை வசிர்வது வெவ்வேறு சூழலில் உள்சி நீர் நிலைகளில் தான் என்றாலும் அவற்றில் உள்ள ஊட்டச்சத்துகள் பெரும்பாலும் ஒரே மாதிரியாகத்தான் இருக்கும். மீனில் புரதச் சத்து மிகவும் அதிகம்மற்றும் கொழுப்பு மிகவும் குறைவு. வைட்டமின் டி, கால்சியம், புரதம், பாஸ்பரஸ்இரும்பு சத்து, ஜிங்க்,அயோடின், மெக்னீசியம், பொட்டாசியம் இந்த சத்துக்கள் அடங்கியுள்ளது.

ஆற்று மீன் மற்றும் கடல் மீன் இரண்டுக்கும் இடையே உள்சி வித்தியாசம் என்னவென்றால் ஆற்று மீன், ஏரி மீன்கள் எல்லாம் ஆறு, குசிம், ஏரிகளில் உள்சி புழு, பூச்சிகைசி உணவாக உட்கொண்டு வளரும் ஆனால், கடல் மீன்கள் கடலில் வசிரும் கடல்பாசிகைசி உட்கொண்டு வசிர்வதால் அவற்றில்ஒமேகா–3 கொழுப்பு அமிலங்கள் போன்ற குறிப்பிட்ட சத்துகள் நிறைந்து காணப்படுகின்றன. கடல் பாசிகளில் ஓமேகா–3 என்ற கொழுப்பு அமிலமும், புரதச் சத்தும் அதிகம் உள்சிது. எனவே, இவற்றைச்சாப்பிட்டு வசிரும் கடல் மீன்களிலும் ஓமேகா–3 உள்சிது. ஆனால், ஆற்று மீன்களில் இந்தக் கொழுப்பு அமிலம் காணப்படுவதில்லை. குறிப்பாகக் கடல் மீன்களில் பெரிய மீன்கைசிவிடச் சிறிய மீன்களில் தான் இந்த ஓமேகா–3 நிறைந்துள்சிது. உதாரணமாக மத்தி, காணங்கெளுத்தி,

சங்கரா போன்ற மீன்களில் ஒமேகா–3 அதிகம் உள்ளது. இந்த ஒமேகா–3 உடல் வசிர்ச்சிக்கும், ஆரோக்கியத்துக்கும் மிகவும் சிறந்தது. இது உடலில் ரத்தம் உறையாமல் பார்த்துக்கொள்கிறது. இதயம், மூசை போன்றவற்றின் ஆரோக்கியத்துக்கும், மூட்டு வலியால் அவதிப்படுவோருக்கும் இந்தக் கொழுப்புஅமிலம் ஒரு சிறந்த நிவாரணியாக உள்ளது. மீன் எண்ணெய் மற்றும் மீன் மாத்திரைகள் இந்தஒமேகா–3 கொழுப்பு அமிலத்திலிருந்துதான் தயாரிக்கப்படுகின்றன. ஆனால் மத்தி, சங்கரா போன்றஒமேகா–3 அதிகம் உள்ளி மீன்களில் இருந்து மீன் வாடை அதிகம் வருவதாலும், அவற்றில் முள்அதிகம் உள்ளி காரணத்தாலும் பெரும்பாலானோர் அவற்றை உணவில் சேர்த்துக்கொள்வதைத் தவிர்க்கின்றனர். உண்மையில் பெரிய மீன்களில் உள்ளிவற்றைக் காட்டிலும் இவற்றில் அதிக ஊட்டச்சத்துகள் உள்ளின. ஆற்று மீன்கேசிரடு ஒப்பிடும்போது கடல் மீன்களில் சிறிது உப்பு அதிகமாக இருக்கும் என்பது உண்மைதான் என்றாலும் அவை உடல் ஆரோக்கியத்தை ஒருபோதும் பாதிக்காது.

கடல்மீன் வகைகள்:

மத்தி மீன் பேய்ச் சாசை மீன்

மத்தி மீனில் புரதச்சத்து மற்றும் ஆரோக்கிமான ஒமேகா 3 கொழுப்பு அமிலங்கள் அதிகம் நிறைந்துள்ளின. மேலும் இதில் வைட்டமின் டி, பாஸ்பரஸ், கால்சியம், பொட்டாசியம், நியாசின் போன்ற சத்துக்கள்உள்ளின. இதயம், மூசை, முடி, தோல், மூட்டுகள் ஆரோக்கியமாக இருக்க உதவுகிறது. இதனை மாத்திரையாக மருந்தாக மற்றும் உறைந்த நிலையில் உட்கொள்ளுவதால் அனைத்து சரும நோய்களும் குணமாகும்.

சூடைமீன்

அதிகப்படியான டிஹெச்ஏ நிறைந்த மீன் இது. இந்த மீன் நரம்பு மண்டலம் சிறப்பாக செயல்பட உதவுகிறது. இது குழந்தைகள் மற்றும் சிறுவர்களின் ஞாபக சக்தியை தூண்டும். மேலும் மூசை வசிர்ச்சிக்கும் இந்த மீன் சிறந்தது. இதில் ஏராசிமான புரதம், வைட்டமின் மற்றும் தாதுக்கள் நிறைந்துள்ளின. இது நோய் எதிர்ப்பு சக்தியை அதிகப்படுத்துவதோடுமன அழுத்தத்தை போக்குகிறது. மருத்துவ குணம் நிறைந்த இந்த மீனை சக்கரை நோய் உள்ளிவர்கள் சாப்பிட்டால் நோய் எதிர்ப்புதிறன் அதிகரித்து ரத்தத்தில் சக்கரையின் அசிவை குறைக்கலாம்.தோல்நோய், மூசை, நரம்பு பாதிப்புமன அழுத்தம், முடி உதிர்தல் போன்ற பிரச்சினைகள் வராமல் தடுக்க உதவுகிறது.

வாவல் மீன்

இது நாடு முழுக்க பிரபலமான மீன் ஆகும். இதில் குறைந்த அசிவு எண்ணைய் உள்ளது. அதிக சுவை மட்டுமன்றி ஏராசிமான அசிவில் ஒமேகா 3 கொழுப்பு அமிலங்கள், வைட்டமின் ஏ, வைட்டமின் பி 1 மற்றும் வைட்டமின் டி நிறைந்து இருக்கிறது. அதிக விலையுடைய மீன்களில் இதற்குமுதலிடம்.

வஞ்சிரம்/ சீலா (அ) நெய் மீன்

இதயத்திற்கு பலம் சேர்க்கக்கூடிய கொழுப்புகளும் மற்றும் ஏராசிமான புரதம், ஒமேகா 3கொழுப்பு அமிலம், வைட்டமின் ஏ, வைட்டமின் டி, வைட்டமின் பி6 மற்றும் வைட்டமின் பி12நிறைந்த மீன் இது. இது இரத்த அழுத்தத்தை சீராக வைத்துக் கொள்வது. பார்வை குறைபாட்டைமேம்படுத்துவது, எலும்புகைசி வலுவாக்குவது என பல்வேறு நன்மைகைசி வழங்குகிறது. சைனஸ்பிரச்சினை உள்ளிவர்களுக்கு நல்ல மருந்து மிகவும் சுவையான இந்த மீன் ஏற்றுமதி முக்கியத்துவம் வாய்ந்தது.

சங்கரா மீன்

இந்த மீனில் ஏராசிமான புரதம் உள்ளது. இது அதிகசிவு புரதம் தேவைப்படும் விசையாட்டு வீரர்களுக்கு சிறந்த மீன் ஆகும்.மேலும் இது உடல் எடை குறைப்பு மற்றும் தசைகைசி வலுவாக்க சிறந்தது. இந்த மீனும் அனைவரும் வாங்க கூடிய விலையில் கிடைக்கிறது.

அயிலை மீன்

தென் பகுதி மற்றும் மத்திய இந்தியாவில் அதிகம் கிடைக்கும் மீன் இது. இதில் ஏராசிமான ஒமேகா 3, வைட்டமின் டி மற்றும் செலினியம் நிறைந்துள்சிது. இது இதய ஆரோக்கியம், மூசை வசிர்ச்சி, இரத்த அழுத்தம் என பல்வேறு பாதிப்புகைசி சரி செய்யும். இந்த மீன் கேரசிாவில் மிகவும் புகழ்பெற்ற மீன்.

கட்டிக்காசை

இந்த மீன் இந்தியாவின் சால்மன் என்றும் கூறப்படுகிறது. இது நாட்டின் மேற்கு கடற்கரை பகுதியில் அதிகம் கிடைக்கும். இது விலை உயர்ந்த மீன் என்பதோடு, இதன் சுவையும் துர்க்கலாக இருக்கும். இந்த மீனில் அதிகப்படியான அமினோ ஆசிட் ஒமேகா 3 மற்றும் ஒமேகா 6 கொழுப்பு அமிலம் நிறைந்துள்சிது.

கிழங்கான் மீன்

வெள்சை சதை கொண்ட இந்த மீன் குறைந்த கொழுப்பு மற்றும் அதிக புரதத்தை கொண்டுள்சிது. உடலுக்கு மிகவும் குளிர்ச்சி தருபவை. மூல வியாதிகைசி குணப்படுத்தும் சக்தி கொண்டது. இந்த மீன் சாப்பிடுவதால் சரும பிரச்சனைகள் வராமல் தடுக்கிறது. அதுமட்டுமில்லாமல் தோல் சம்மந்தப்பட்ட பிரச்சனைகசிான அரிப்பு, தோல் வறட்சி போன்ற உபாதைகள் ஏற்படாமல் தடுக்கும். வெயில் காலங்களில் இந்த மீன் சாப்பிடுவதால் உடலுக்கு நன்மையை தருகிறது.

நெத்திலி மீன்

நெய் தோல் எனும் பெயர் நெய் தோலி என மாறி பின்னர் நெத்திலி என்று பெயர் வந்தது. இதில் பொட்டாசியம். கால்சியம், செலினியம், வைட்டமின் பி 12 மற்றும் சுண்ணாம்பு சத்து அதிகம்உள்சிது. செறிவுறாத கொழுப்பு அமிலம் அதிமாக உள்சிதால் இதய ஆரோக்கியத்தை மேம்படுத்தும். உடலில் உள்சி தேவையில்லாத கெட்ட கொழுப்பை குறைத்து இதய நோய் வராமல் தடுக்கும் வைட்டமின் அதிகம் உள்சிதால் வாரம் ஒரு முறை உட்கொண்டு வந்தால் கண் பிரச்சினைகைசி தடுக்கலாம்.

சுறா மீன்

சுறா மீனை வாரம் ஒருமுறை சாப்பிட்டு வந்தால் சுகர் பிரச்சனைகைசி தடுக்கலாம். குழந்தை பெற்ற தாய்மார்கள் சுறா மீனை குழம்பு / புட்டு செய்து சாப்பிட்டால் தாய் பால் சுரக்கும். சுறா மீனில் கொழுப்பு இல்லை. பெண் சுறாக்கைசி வாங்குவது நல்லது. ஆண் சுறாமீனை அவ்வசிவு சுலபமாக வேகவைத்து விட முடியாது. இதில் யூரிக் அமில வாசனை இருப்பதால் உப்பு சுவை கொண்டது.

சூரை மீன்

சூரை மீனில் ஒமேகா–3 கொழுப்பமிலங்கள், மெக்னீ சியம், புரதச்சத்து, வைட்டமின் பி12மற்றும் நியாசின் அதிகமாக இருக்கிறது. குழந்தைகளின் மூசை வசிர்ச்சிக்கும், கர்ப்பிணிபெண்களுக்கு கர்ப்ப காலத்தில் ஏற்படும் மன அழுத்தத்தை குறைக்கவும் உதவுகிறது. சிவப்பு சதையாக இருப்பதால் கிழக்கு கடற்கரை பகுதியைக் காட்டிலும் மேற்கு கடற்கரை பகுதியில் அதிகம்உண்ணப்படுகிறது. ஏற்றுமதி முக்கியத்துவம் வாய்ந்த இந்த மீன் பச்சையாக வெளிநாட்டினரால்உண்ணப்படுகிறது.

கடல் விரால்

அதிக கொழுப்பு நிறைந்தது. வைட்டமின் னு, ஒமேகா–3 போன்ற கொழுப்பு அமிலங்கள், புரத சத்துக்கள் நிறைந்து காணப்படுகிறது. வேகமாக வசிரக்கூடியது. உடல் ஆரோக்கியத்திற்கு நல்லது.

கொடுவா மீன்

ஆரோக்கியமான மீன் வகைகளில் ஒன்றாக கருதப்படுகிறது. இதில் வைட்டமின், ஒமேகா 3, கொழுப்பு அமிலங்கள், புரதம் மற்றும் மூசை வசிர்ச்சி, உடல் ஆரோக்கியத்திற்கான ஊட்டச்

சத்துக்கள் உள்சின. பார்வை மேம்படுத்தல், கொழுப்பு மற்றும் எடை குறைவதற்கு உதவுகிறது. கொடுவா மீனின் மீன் எண்ணெய் மற்றும் ஒமேகா 3 கொழுப்பு அமிலம் ஆகியவை சருமத்தை பாதுகாக்க உதவுகிறது.

பாறை மீன்

உடல் ஆரோக்கியத்திற்கு தேவையான கொழுப்பு, வைட்டமீன்கள், தாதுக்கள் அதிகம் உள்சின. பாறை மீன்களில் ஒமேகா–3 கொழுப்பு அமிலம் அதிகமாக உள்சிதால் ட்ரை கிளிசரைடுகள் அசிவைகுறைத்து இதய நோய் ஏற்படும் வாய்ப்பை குறைக்கிறது. வைட்டமின் சத்து அதிகசிவில் உள்சிதுபாறை மீன்களில் கால்சியம் அதிகசிவில் உள்சிதால் எலும்புகளில் வசிர்ச்சிக்கு உதவுகிறது.

காரல் மீன்

தாய்மார்களின் பால் சுரப்பை அதிகபடுத்த பெரும்பாலும் உண்ணப்படுகிறது. ஆஸ்துமாவை குணப்படுத்துகிறது. தமிழ்நாட்டில் அதிகசிவில் பிடிபடும் இந்த மீன் கருவாடாக விற்கப்படுகிறது.

கத்தாழை மீன்

இந்த மீனில் காணப்படும் காற்றுப்பை மருத்துவ அறுவை சிகிச்சைகளுக்கு பிறகு தையல் போட பயன்படுத்தப்படுகிறது. இதைப் பயன்படுத்தி அறுவை சிகிச்சை செய்தால் பக்க விசைவுகளின்றிகாயம் குணமாகும்.

திருக்கை மீன்

மண்ணிற்குள் புதைந்து வாழக் கூடிய வகையான திருக்கை மீன்கள் 500 க்கும் மேற்பட்ட வகைகள் உள்சின. ஒமேகா 3 சத்து அதிக அசிவில் உள்சிது. உயர் ரத்த அழுத்தத்தை குறைக்கும். இதன் செவுள்கள் உலக சந்தையில் நல்ல விலைக்கு விற்கப்படுகிறது.திருக்கை கருவாடு தாய்மார்க்கு பால் சுரப்பை அதிகப்படுத்த உதவுகிறது.

கணவாய்

கணவாய் மீனில் இருக்கும் வைட்டமின் 3 ரத்தத்தின் சக்கரை அசிவை, சமசீராக வைப்பதற்கு உதவியாக இருக்கிறது. இந்த மீன்கைசி வாரத்திற்கு ஒருமுறை எடுத்துக் கொள்வதால் உடலில்ஏற்படும் அலர்ஜி, முடி உதிர்வு, தசைகளின் தசிர்வு, தோள் பட்டை வழி போன்ற பிரச்சனைகளுக்குஇது ஒரு சிறந்த மருந்தாகும். அதிக சுண்ணாம்பு சத்து கொண்டது. எலும்பு சம்பந்த பிரச்சினைகைசிதடுக்கிறது.

இறால்

அதிக புரதசத்து கொண்டுள்சிது. கால்சியம், பாஸ்பரஸ், பொட்டாசியம், தயாமின், ரிபோ ஃபிசேவின் மற்றும் பல வைட்டமின்கள் உள்சின. எலும்புகள் சிதைவு ஏற்படாமல் இருக்க இது உதவுகிறது.

நண்டு

வைட்டமின் ஏ சத்துக்கள் அதிகமாக உள்சிதால் கண் பார்வை அதிகரிக்கிறது. ரெட்டினால்,

ரேட்டினியோகி அமிலம், மீடா கரோட்டின் ஆகிய தாதுக்கள் ஆரோக்கியத்தை பாதுகாப்பதில் முக்கிய இடம் பிடிக்கின்றன. கருவிழி, சிதைவு, கண் புரை போன்றவற்றை தடுப்பதில் சிறந்த பலன் தருகிறது. அதிக சூடுதன்மை கொண்ட நண்டு சூப் சளி, இருமல் போன்ற உபாதைகளுக்கு மிகவும் நல்லது.

சங்கு, சிப்பி, ஆளி

குளிர்ச்சி தன்மை உடைய இந்த மீன்கள் மனிதனுக்கு வரக்கூடிய மூலவியாதி வரவிடாமல் தடுக்கிறது. மூல வியாதி உள்சிவர்களுக்கு அந்த நோயை குணப்படுத்தும் வழிவகுக்கிறது.

சிங்கிறால்கள்

அதிக புரதசத்து கொண்டுள்சிது. விட்டமின்கள், தாதுக்கள் அதிகம் உள்சிது. மிகவும்விலையுயர்ந்த இந்த மீன் வெளிநாட்டு சந்தையில் பிரபலமானது. பெரும்பாலும் சமைக்காத நிலையில் உணவாக உண்ணப்படுகிறது.

நன்னீர் மீன் வகைகள்

கட்லா மீன்

இது நன்னீரில் கிடைக்கும் மீன். இந்த மீன் வேகமாக வசிரக்கூடியது. அதிகபட்சம் 40 கிலோ வரை எடை கொண்டிருக்கும். இதில் அதிகசிவு துத்தநாகம் மற்றும் கந்தகம் நிறைந்துள்சிது. இது சரும ஆரோக்கியம் மற்றும் நோய் எதிர்ப்பு மண்டலத்திற்கு நல்லது.

ரோகு மீன்

இந்தியாவின் வடக்கு மற்றும் மத்திய பகுதிகளில் இந்த மீன் அதிகம் கிடைக்கும். இதில் ஏராசிமான புரதம் மற்றும் ஒமேகா 3 ரக கொழுப்பு அமிலம், வைட்டமின் ஏ, வைட்டமின் பி மற்றும் வைட்டமின் சி நிறைந்துள்சிது. கெண்டை மீன் வகைகளில் மிகவும் சுவை நிறைந்தது.

கெளுத்தி மீன்

இந்த மீனில் குறைந்த அசிவு கலோரி அதிக புரதம், வைட்டமின் பி 12 செலினியம், ஒமேகா 6 கொழுப்பு அமிலம் நிறைந்துள்சிது. உடல் எடையை குறைக்கவும், மன நல ஆரோக்கியத்தை மேம்படுத்துவதிலும் முக்கிய பங்காற்றுகிறது. இதய கோசிாறு ஏற்படுவதை தடுக்கும் திறன் கொண்டுள்சிது.

விரால் மீன்

விரால் மீனில் அல்புமின் என்ற புரத சத்து உள்சிதால் உடலில் உள்சி காயங்கைசி வேகமாக ஆற்றுவதற்கு உதவுகிறது. கர்ப்பிணி பெண்கள் ஊட்டச்சத்து குறைபாடு உள்சி குழந்தைகள் விரால் மீன் சாப்பிட்டு வந்தால் அதிக அசிவு சத்து கிடைக்கிறது. கர்ப்பிணி பெண்களுக்கு சுக பிரசவம் ஆகவும்வழி செய்கிறது. இந்த மீன் குழந்தைகளுக்கு ஞாபக சக்தியை அதிகரிக்கிறது. நேரடியாக காற்றை சுவாசிக்கும் விரால் மீன்கள் ஏரிகள், ஆறுகள், சதுப்பு நிலங்களில் வாழ்கிறது.அதனால்நீண்ட நாட்கள்உயிர் வாழ்கிறது.அதிக புரதம் விரால் மீனில் இருப்பதால் உடலில் உள்சி தசைகளின் செயல்பாட்டுக்குபெரிதும் உதவுகிறது. இசிமையாக இருக்க இந்த மீன் உதவுகிறது.

அயிரை மீன்

அதிக புரதச்சத்து, விட்டமின்கள், தாதுக்கள் நிறைந்தது. இசிமையாக இருக்கவும்,ஆண்களின் இனப்பெருக்க தன்மையை வலுப்படுத்தவும் இந்த மீன் உதவுகிறது.

திலாப்பியா/ ஜிலேபி மீன்

நீர்க் கோழி என்று அழைக்கப்படும் இந்த மீன் மிக அற்புத சுவை கொண்டது. வைட்டமின் 12,6 மற்றும் பார்தோனிக் அமிலம் போன்ற வைட்டமின்கள் உள்சிது. பாஸ்பரஸ் அதிகம் கொண்ட மீன் எலும்பு வசிர்ச்சி, உடல் வசிர்ச்சிக்கு உதவுகிறது.

மீன்களில் உடலுக்குத் தீங்கு விசைவிக்கும் எந்தப் பொருள்களும் இல்லை என்பதால் மீன் அனைத்து வயதினருக்கும் ஏற்ற, சிறந்த ஓர் உணவாக உள்சிது. பால் சுறா, நெய் மீன் போன்றவை பாலூட்டும் தாய்மார்களின் பால் சுரப்புக்கு உதவுகின்றன. நோய் எதிர்ப்புத் திறனை அதிகரிக்கின்றன. பொதுவாகவே மீன் உணவுகள் பார்வைத் திறனை மேம்படுத்தக்கூடியவை. சிலருக்கு மட்டும் சில மீன் வகைகசிால் ஏதாவது ஒவ்வாமை ஏற்படலாம். அவர்கைசித் தவிர மற்ற அனைவருக்கும் ஆறு, ஏரி, கடல் மீன்கள் என அனைத்து மீன்கைசியும் உணவில் சேர்த்துக் கொள்சிலாம் வாரத்தில் இரண்டு நாள்கசிாவது உணவில் மீன்கைசிச் சேர்த்துக்கொள்வது அவசியம்.அதிலும் குறிப்பாக ஒமேகா–3 கொழுப்பு அமிலம் நிறைந்துள்சி மீன்கள் உணவில் தவறாமல் இடம்பிடிப்பது நலம்.

Mr.Vijayakarthikeyan
Senior Technician

உங்கள் வீட்டிற்கு RCCB /ELCB ஏன் அவசியம்?

மின்சார கருவிகசிஏல் பூமியின் ஏற்படும் மின் கசிவு மற்றும் மின்சார அதிர்ச்சியால் மனிதர்களுக்கும் விலங்குகளுக்கும் ஏற்படும் காயத்தைத் தடுப்பது RCCB /ELCBயின் கடமை.

RCCB என்றால் என்ன?

Residual current Circuit breaker (RCCB) என்பது மின் கசிவினால் ஏற்படும் தவறில் இருந்து மனிதனை பாதுகாக்கப்பயன்படுத்தப்படும் ஒரு மாறுபட்ட மின்னோட்டத்தை (current) உணரும் சாதனமாகும். மேலும் இன்சுலேஷன் தோல்வியின் காரணமாக எழும் சிறிய மின்னோட்டக் கசிவிலிருந்து (leakage of Current) பாதுகாப்பை வழங்குகிறது.

MCB ஏற்கனவே வழங்கப்பட்டிருக்கும் போது RCCBஏன்?

மின்சாதனம் / கேபிள் அல்லது மனிதனால் ஏற்படும் தற்செயலான தொடுதல் போன்றவற்றின்போது ஏற்படும் இன்சுலேஷன் செயலிழப்பின் காரணமாக பூமியில் மின்கசிவு ஏற்படுகிறது. குறைந்த அசிவிலான கசிவை MCB யால் கண்டறிய முடியாது என்பதால்,எந்த நடவடிக்கையும் எடுக்க முடியாதுஅவ்வாறு நடவடிக்கைகள் எடுக்கப்படாவிட்டால், அது சாதனத்திற்கு சேதம் அல்லது உயிரிழப்புக்கும் வழி வகுக்கும். மனிதனுக்கு மின்சார விபத்து பாதுகாப்பில் RCCB முக்கிய பங்கு வகிக்கிறது.

ஒருவர் தனது வீட்டில் RCCB/ELCB ஐ நிறுவுவது மட்டுமல்லாமல், அடிக்கடி ட்ரிப்பிங் செய்வதில் அது தனிமைப் படுத்தப்படாமல் சரியாக வேலை செய்வதை உறுதிசெய்து கொள்சி வேண்டும். RCCB ட்ரிப்பிங்கிற்கு காரணமான அமைப்பில் உள்சி குறைபாட்டைக் கண்டறிவதற்கான காரணத்தைக் கண்டறியும் நுட்பத்தைக் கற்றுக்கொள்சி வேண்டும்.

கசிவு மின்னோட்டம் (Leakgage CurrenT) எர்த் கம்பி வழியாகச் செல்ல வேண்டும். இல்லை யெனில் மின்சாதனத்தைத் தொடும் எவருக்கும் உடனடி அதிர்ச்சியுடன் உடல் வழியாகச் செல்ல முயற்சிக்கும். ஆகவே RCCB முக்கியமானது.

அதே சமயத்தில் வீடுகளில் தற்போது RCCB/ELCB தான் வீட்டு மின் உபகரங்களின் மனிதனின் பாதுகாப்பிற்க்கு பயன்படுத்துகிறோம. அதில் ELCB/ RCCB ட்ரிப் எதனால் ஆகிறது. மேலும் என்ன என்ன பிரச்சனைகள் வரும் அதை நாம் எப்படி சரி செய்வது என பார்க்கலாம்.

மேலும் சரியான தரத்தில் சரியான விகிதத்தில் காப்பர் கம்பி அடுப்புக்கரி/ உப்பு கொண்டு சிபுயூவீ சுஷிணு ஹிறு EARTHING (GROUNDING) செய்ய வேண்டும்.

மின் கசிவிற்கான காரணங்கள்

Loose connection and full load problems

சமீபத்தில் எனது வீட்டின் பிரதான ELCB (எர்த் லீக்கேஜ் சர்க்யூட் பிரேக்கர்) இடையிடையேஅடிக்கடி ட்ரிப் ஆனது. என்னவென்று ஆராய்ந்தால் வீட்டின் எலெக்ட்ரிக்ல் கனெக்கூடினில் ஏதோ தவறு நடந்திருக்க கூடும் அல்லது அதிக அசிவிலான மின்னோட்டம் பாய்ந்து இருக்க கூடும்.

வீட்டின் எலெக்ட்ரிகல் கனெக்கூடின் Loose ஆக இருந்தாலும் இந்த பிரச்சனை வரலாம். மின்சாரத்தை அனைத்துவிட்டு அனைத்து அவுட்லெட் சுவிட்சுகளிலும் ஏதேனும் Loose கனெக்கூடின் இருக்கிறதா என்று பார்க்கவேண்டும். சர்க்யூட் பிரேக்கருடன் வழக்கமாக இணைக்கப்பட்டிருக்கும் மின்சார சர்வீஸ் வயரைச் சரிபார்த்து. அது Loose கனெக்கூடின் ஆக இருக்கிறதா என்பதை பார்க்கவும். இணைப்பு கம்பிகளில் ஏதேனும் யிலிலிவிள ஆக இருப்பதைக் கண்டால், அவற்றை சரி செய்ய வேண்டும்.

Short Circuit

ஷார்ட் சர்க்யூட். ஓவர்லோட் சிஸ்டத்துடன் ஒப்பிடும்போது இது மிகவும் தீவிரமான பிரச்சனை ஆகும். ஒரு ஓவர்லோட் வயர் மற்றொரு ஓவர்லோட்டால் சூடான வயர் அல்லது நியூட்ரல் கம்பியுடன் தொடர்பு கொள்ளும்போது ஒரு ஷார்ட் சர்க்யூட் ஏற்படும். ஒன்று அல்லது அதற்கு மேற்பட்ட கம்பி ஷார்ட் சர்க்யூட் ஆனாலும் இந்த ELCB/ RCCB ட்ரிப் ஆகலாம். ஆனால் தவறுகளீ சிகண்டறிவது கடினம்.

நீரின்றி அமையாது உலகு என்று கூறினார் வள்ளுவர் தற்போது அது மின்சாரத்துக்கும் பொருந்தும். தனித்தனியே இரண்டும் மகத்துவம் வாய்ந்ததுதான். ஆனால், மின்சாரமும் நீரும் இணையும்போது அது ஓர் அபாயகரமான கூட்டணியாக மாறுகிறது.

நாம் கடல் நீரை நம் மீன் பொரிப்பகம் மற்றும் அனைத்து அலுவல்களுக்கும் உபயோகிக்கிறோம். கடல் நீர் மிக நல்ல மின் கடத்தி (GOOD CONDUCTOR) நம் நண்பர்கள் உயிரை இந்த ELCB/ RCCB காப்பாற்றி இருக்கிறது.

சர்க்யூட் பிரேக்கர் ட்ரிப் ஆகும் போது, நமக்கு நாமே கேட்டுக்கொள்சி வேண்டிய மிக முக்கிய மான கேள்வி, மின் வயரிங் அமைப்பில் ஏற்பட்ட பிழையா அல்லது சர்க்யூட்டில் நாம் செருகிய உபகரணங்களில் சிக்கல் உள்சிதா என்பதைச் சரிபார்க்க, நாம் பின்வருனவற்றைபின்பற்ற வேண்டும்.

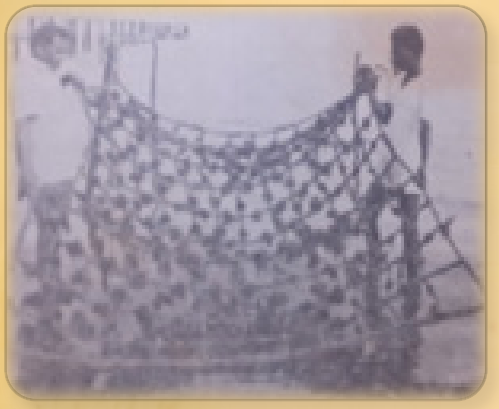
1. சர்க்யூட்டில் செருகப்பட்ட அனைத்து சாதனங்களின் மின் இணைப்பை அணைக்கவும்.
2. சர்க்யூட் பிரேக்கர் பேனலுக்குச் செல்லவும்.
3. சர்க்யூட் பிரேக்கர் ON செய்யும் போது அது உடனடியாக மீண்டும் பிரேக்கர் ட்ரிப் ஆனால் பிரச்சனை மின் சாதனங்களில் இல்லை. மாறாக வீட்டில் உள்சி மின் வயரிங்களில் உள்சிது என்பதை நீங்கள் அறிந்து கொள்சி வேண்டும்.
4. அது மீண்டும் ட்ரிப் ஆகவில்லை என்றால், நாம் முன்பு செருகாத அனைத்து மின் சாதனங்களீ சி இயக்க வேண்டும். உதாரணமாக விசிக்கு. ட்ரிப் ஆகவில்லை என்றால், நாம் அவுட்ஞீட்டில் செருகும் சாதனங்களில் ஒன்றில் சிக்கல் உள்சிது என்பதற்கான அறிகுறியாகும்.
5. நாம் ஒன்றன் பின் ஒன்றாக, பழுதடைந்த சாதனத்தை அடையாசிம் காணும் வரை, ஒவ்வொரு சாதனத்தையும் மீண்டும் மீண்டும் செருகவும். அனைத்து உபகரணங்களும் நல்ல வேலை நிலையில் இருந்தாலும், சர்க்யூட் பிரேக்கர் தொடர்ந்து ட்ரிப் ஆனால் புதிய மின் சாதனத்தை பயன்படுத்த வேண்டும்.

நமது அலுவலகம் மற்றும் வீடுகளில் படிப்படியாக இந்த RCCB/ELCB மாற்றிக் கொண்டு வருகிறோம். மிக நன்றாக பயன் தருகிறது.

நினைவுகளில் மலர்ந்தது

1989 ஏப்ரல் 25–ல், நான் மத்திய கடல் மீன் ஆராய்ச்சி பிராந்திய நிலையத்தில்கடைநிலை ஊழியராக சேர்ந்த பொன்னான நாள்.

நான் கடல்பாசி பிரிவி (Algology Section), Dr.கலியபெருமாள் அவர்கள் தலைமையில் Dr. ரீட்டா ஜெயசங்கர் அவர்களின் கீழ் வேலை பார்த்தேன். அச்சமயத்தில் கடல்பாசி பிரிவில் கடல் பாசியின் வகைகள்,அவை கிடைக்கும் இடங்கள், மற்றும் கடல்பாசியின் பயன்கள் பற்றிய ஆய்வில் நானும் கடைநிலை ஊழியராக கலந்து கொண்டேன். மேலும் னுச. ரீட்டா ஜெயசங்கர் அவர்களின் கீழ் ஆஅைசடி யடபயடஆஅைசடி யடபயட (Phyto plankto nமற்றும் Zooplankton) வளர்ப்பு பற்றிய ஆய்வில் நானும் கடைநிலை ஊழியராக கலந்து கொண்டேன். மேலும் Dr.கலியபெருமாள் அவர்களுடன் லட்சத்தீவுகளில் மினிக்காய் தீவிற்கு செல்ல வாய்ப்பு கிடைத்தது மினிக்காய் தீவில் தங்கியிருந்தபோது *gracilaria edulis* கடல்பாசி வளர்ப்பு முயற்சியை மேற்கொண்டு வெற்றிகரமாக முடித்தோம்.



நான் வரை 1989–1994 மண்டபம் பிராந்திய நிலையத்தில் வேலை பார்த்த காலங்களில் எனக்கு பேருதவி செய்த என் மேலதிகாரிகளனைவருக்கும் என் மனமார்ந்த நன்றியை தெரிவித்துக்கொள்கிறேன். அதுபோல் என்னுடன் வேலைபார்த்த அனைத்து நண்பர்களையும் இந்த 75–வதுபவள விழா நன்னாளில் நினைவு கூர்கிறேன்.

கடல் பாசி வளர்ப்பில் லட்சத்தீவு மினிக்காய் தீவில் Dr.கலியபெருமாள் சாரும் நானும்.

A.YESUDHAS, UDC,
DIGHA RS of ICAR-CMFRI, WEST BENGAL

மு. இராஜ்குமார்
விஞ்ஞானி

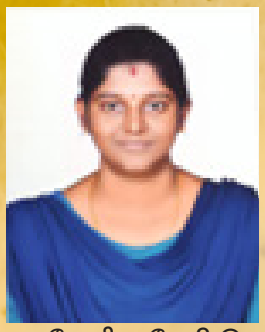
உயிரும் தமிழே உள்சிமும் தமிழே!!!

அ வுக்கு அடுத்து ஆ
வருவதேன்?
அரசனும் ஆண்டியாகலாம்
என்பதை அறிந்திட...
இ வுக்கு அடுத்து ஈ
வருவதேன்?
இருப்பவன் ஈய வேண்டும்
என இயம்பிட...
எ வுக்கு அடுத்து ஏ
எதையும் ஏன் என்று
சிந்தித்து பார்க்க....
ஐ மட்டும் எதோடும் சேராமல்
தனித்து நிற்பதேன்?

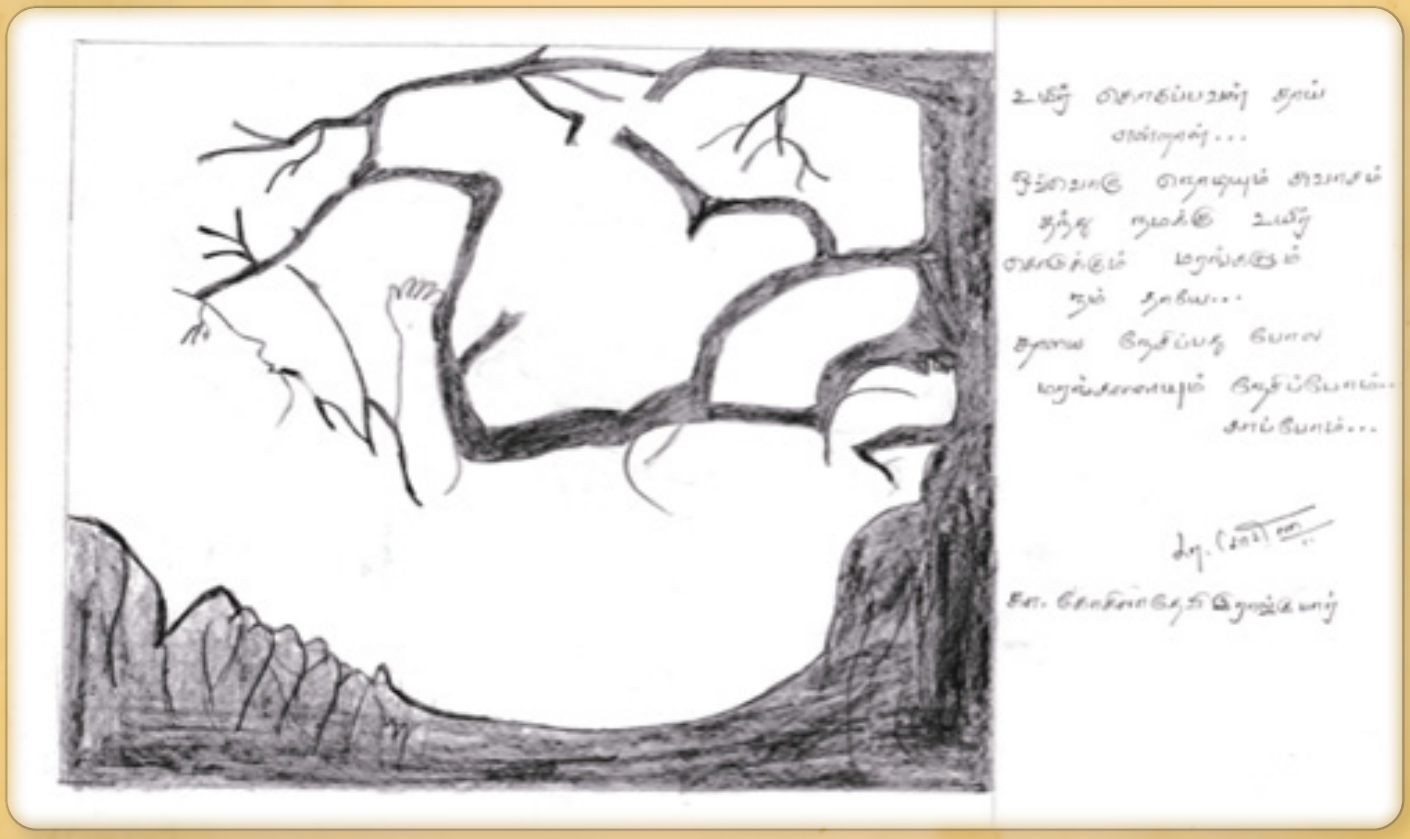
அதற்கு நான் (ஐ) என்ற அகம்பாவம் இருந்தால் தனிமைப் படுத்தப்படுவாய் என்பதை உணரத்த. எனவே, நான் (ஐ)

தான் என்கிற குணம் ஒரு மனிதனை தனிமைப்படுத்தி ஒரு பெரிய பள்சித்தில் தள்ளி விடும்.

ஒ வுக்கு அடுத்து ஓ
வருவது ஏன்?
ஒற்றுமையே ஓங்கும்
என்பதை உணர்த்திட...
தமிழே அழகு மொழி
தமிழனாய் அகம் மகிழ்கிறேன்.



கா.கோகிலாதேவி இராஜ்குமார்



உயிர் கொடுப்பவள் தாய்
என்றாள்...
ஒவ்வொரு நொடியும் சுவாசம்
தந்து நமக்கு உயிர்
கொடுக்கும் மரங்களும்
நம் தாயே...
தாயை நேசிப்பது போல
மரங்களீ சியும் நேசிப்போம்...
காப்போம்...

கா.கோகிலாதேவி இராஜ்குமார்

நான்கில் நன்று

புறக்கனி

மடையன்

சுயநலக்காரன்

முட்டாள்

ஒய்வாக இருப்பவன்

சேரக்கூடாத நட்பு

பொய்யானவன்

துரோகி

பொறாமைக்காரன்

மமதை பிடித்தவன்

கடினமாக நடக்காதே

அனாதை

ஏழை

முதியவர்

நோயாளி

கொடை தடுக்காதே

மனைவி

பிள்ளீ சி

குடும்பம்

சேவகன்

ஆபரணமாக அணி

பொறுமை

சாந்தம்

அறிவு

அன்பு

வெறுக்காதே

தாய்

தந்தை

சகோதரன்

சகோதரி

குறைக்கவும்

உணவு

சோம்பல்

தூக்கம்

பேச்சு

தூக்கிப்போடு

துக்கம்

கவலை

இயலாமை

கஞ்சத்தனம்

சேர்ந்து இரு

வாக்கை நிறைவேற்றுபவன்

மனத்தூய்மை உள்சிவன்

கண்ணியமானவன்

உண்மையானவன்

செய்

தியானம்

நூல் வாசித்தல்

உடற்பயிற்சி

சேவை

மு. இராஜ்குமார்

விஞ்ஞானி

மு. இராஜ்குமார்
விஞ்ஞானி

சங்கு சதை தொக்கு

தேவையான பொருட்கள் :

சங்கு சதை	–1/2 கிலோ
கடுகு	– 1 தேக்கரண்டி
சோம்பு	– 1 தேக்கரண்டி
சின்ன வெங்காயம்	– 100 கிராம்
பட்டை	– 2 சிறியது
பிரிஞ்சி இலை	– 1
ஏலக்காய்	– 2
கிராம்பு	– 3
கல்பாசி	– சிறிதசிவு
தக்காளி	– 4 பெரியது
இஞ்சி	– 1 துண்டு
பூண்டு	– 10 பல்
காஷ்மீரி மிசிகாய் தூள்	– 1 தேக்கரண்டி
மல்லித் தூள்	– 2 தேக்கரண்டி
மஞ்சள் தூள்	– 1/2 தேக்கரண்டி
கறிமசால் தூள்	– 1 தேக்கரண்டி
மிசிகாய் தூள்	– காரத்திற்கு ஏற்ப
உப்பு	– தேவையான அசிவு
நல்லெண்ணெய்	– 5 தேக்கரண்டி
கறிவேப்பிலை	– சிறிதசிவு
மல்லி இலை	– சிறிதசிவு

செய்முறை:

1) சங்கு சதையை நன்கு சுத்தம் செய்து எடுத்துக் கொள்சி வேண்டும். பின்பு அதில் சிறிதசிவு மஞ்சள் சேர்த்து கழுவி கொள்சி வேண்டும்.
2) ஒரு வாணலியில் 5 தேக்கரண்டி நல்லெண்ணெய் ஊற்றி கடுகு, சோம்பு, கறிவேப்பிலை, பட்டைபிரிஞ்சி இலை, ஏலக்காய் கிராம்பு, கல்பாசி ஆகியவற்றை போட்டு வதக்கவும்.
3) சிறிதாக நறுக்கிய சின்ன வெங்காயத்தை சேர்த்து பொன்னிறமாக மாறும் வரை வதக்கவும். நறுக்கிய தக்காளி சேர்த்து குறைந்த தீயில் 5
4) நிமிடம் மூடி வைத்து வதக்க வேண்டும். தக்காளி நன்கு மசிந்தவுடன் இஞ்சி மற்றும் பூண்டை இடித்து அதில் சேர்க்கவும். பச்சை வாசம் மாறும் வரை வதக்கவும்.
5) அதை தொடர்ந்து மசால் பொடி ஒவ்வொன்றையும் சேர்த்து எண்ணெய் பிரிந்து வரும் வரை வதக்கவும்.
6) சங்கு சதையை சேர்த்து நன்கு வதக்கவும். தேவைகேற்ப உப்பு சேர்க்கவும்.
7) தேவையான அசிவு தண்ணீர் சேர்த்து சங்கு சதை வேகும் வரை மூடி வைக்கவும். (20 நிமிடம்) தண்ணீர் குறைந்து தொக்கு பதம் வரும் வரை வேக விட வேண்டும்.
8) 1 தேக்கரண்டி மிசிகு பொடி சேர்த்து கிசிரவும். அதை தொடர்ந்து மல்லி இலையை பொடியாக நறுக்கி தூவி விட்டு இறக்கவும்.

சங்கு சதை தொக்கு தயார்...

I.Rajendran , Former Principal Scientist,

மண்டபமங்கை

பாக்நீரிணையும்,மன்னார் வளைகுடாவும்
இணைந்து பிடித்த நிலமங்கை
தன் இயற்கைச்செல்வத்தை மனுக்குலத்துக்கு ஈந்த
மண்டபமாம் தொட்டிலில் தாலாட்டும் குழந்தையாக
மத்திய கடல்மீன் ஆய்வு மையம்;
துள்ளிக்குதிக்கும் மணலையும்,நீர்க்காடுகளாய் கடற்பாசிகளும்,
வெள்ளி ஊற்றாய் பட்டொளியாய் ஓடும்
கடல்மீன் கூட்டமும்,கடல்மீன் அறிவியலாருக்கு அன்றும், இன்றும், என்றுமாக ஆய்வுச்சங்கதியாய் வலம்வர
தன்நிறை ஆய்வில் உவகை கண்டார் பலஅறிஞர்கள்.
இக்கடல்மட்ட கந்தர்வபுரியாம் மண்டபம் முகாம்
கடல்மீன் ஆய்வகத்துக்குக் கிடைத்த சொர்க்கபுரி;
கருவேலங்காட்டுக்குயில் இசையோடு கலந்த
கடல்தென்றலாய், பாலைவனப சுஞ்சோலையாய்
மண்டப சொர்க்கபுரியில் அந்நாள் ஆய்வுக்கான
களவாமீன் இனப்பெருக்கத் திட்டப்பணி ;
கடற்பாசி, தரவைத்தண்ணீர் மனவளம் சேர்க்கும்;
பயணியர் இல்லமுகடு,வடதென்கடல்களை முகத்துக்கு நேர்காட்டும்; மாலை இளகுளிர் தென்றல் மற்றும் நள்ளிரவுப்பனி ஆண்டு முழுதும்.
மனஅமைதி வேண்டிவரும் மக்கள்
தியானக்கூட்டங்களில் மனநிறைவு பெறுவர்;
வஞ்சமில்லா வலசை மக்கள்;
"இதுயாரு வீட்டு வீடு" எனவீட்டுப் பெருமையை
நிலைநாட்டும் பேச்சுவழக்கு;
மனித இனம் மட்டும் இல்லாமல்
மற்ற உயிர்களையும் "வருவாக" "போவாக" எனவாஞ்சையாய் விழிப்பது;
தண்ணீரை "அள்ளும்" வழக்கு,
நீரை " எடுப்பதிலிருந்து"
விலகி தங்கமாக மதிக்கப்படும் நீருக்குக் காட்டும் பெருமை.
"ஊரணிநீர்" உயிர்காக்கும் மாமருந்து ஆதலால்,
நீருக்குக் கொடுக்கும் மதிப்பும் மரியாதையும் பெருவகையாய்,
இவர் வாழ்வில் இடம் உண்டு.
சிலபலமீட்டர் ஆழமாய், சிலபல கடல்மைல்களே தொலைவு உள்ள

கடல்கள் சூழ்ந்த மண்டபம்;

அதுவே சொல்லொனா கடல் உயிர்களின் இருப்பிடம்.

நுண்ணியதாவர / விலங்கு பிளாங்டன்கள் முதல் திமிங்கலம் வரை ; அவைகளின் ஆதியும் அந்தமும் குறித்து முடிவிலா அறிவியல் ஆய்வு; சொல்லப்பட்ட ஆய்வறிக்கைகளோ சிலதுளிகள் என எண்ணவைக்கும்

கடல்வாழ்உயிர்களின்புதிர்கள்.

முட்டையிலிருந்து கோழிவந்ததா அன்றி கோழியிலிருந்து முட்டைவந்ததா என்ற நினைவுபோல,

கடலிலிருந்து உயிர்கள் வந்ததா,

இல்லை நிலத்திலிருந்து கடலுக்குப் போனதா உயிர்கள் எனமனத்

தடு மாற்றத்தினால்,

ஆகப்பெருநிலை கொண்ட கடல் உயிரினங்கள் நில உயிர்களையே

பெருமூச்சிரைக்க வைக்கும்.

"பாறை"க்கு நடுவில்உள்ள "கணவாயி" லிருந்து புறப்பட்ட "கொடுவா" "களவா" க்கள் "சூரைத்" தேங்காயாய் வானத்து இடியால் சிதறிஓடும்.

கண்ணாடி கடல்நீர் அணையதன்னக பாசிக்காடுகள்

மற்றும் பவளப்பாறைகளைப் புடம்போட்டுக் காட்டும்.

கண்ணாடி மிதவையில் அவைகளைக் காண கண்கள் கோடிவேண்டும். தூரப்பார்வைக்கு பச்சைக் கம்பளமாய்

கிட்டப்பார்வைக் கோமாசிலா அமுதநீர்போல்வறியதாய்

தன்வலிமையில் அம்மீன்களின் துடிப்பில்

இல்லாது கண்ட உவகையில்; இப்பூமியில்

மட்டும்அத்துடிப்பு இல்லாப் போனதேனோ ?

மண்டப மல்லியின் மகிமை;

மண்டப "ருசி" யான பார் போற்றும் இறால்

பன்னாட்டுச் சந்தையில் தன்ஆளுமை;

மற்ற மாநில ஊர்திகள் பேச்சாளைக்குத் தவமாய்,

வாரி அள்ளி மீன்களை உடனுக்குடன்

தன்னகம் நோக்கிப் பறக்கவைக்கும் அப்பேய்ச்சாளையின் ருசி;

இங்ஙனம் அமுத மீன் சுரப்பியாய் ஆண்டுதோறும்

நாட்டுமக்களுக்கு தன்உ திரமாய்க் கொடுத்துவரும்

மண்டப மங்கையின் இளமை ஏனோ இதுகாரும் மங்கவில்லை.

T.Rajeswari

W/o Vijayakarthikeyan

சூப்பரான வீட்டு ஸ்பெசல் நண்டு ரசம்

சளி, இருமல், தலைபாரத்தால் அவதிப்படுபவர்களுக்கு நண்டு ரசம் நல்ல நிவாரணம் தரும். இன்று நண்டு ரசம் செய்வது எப்படி என்று பார்க்கலாம்.

தேவையான பொருட்கள்:

நண்டு – 250 கிராம்.

கொத்தமல்லி – சிறிதளவு

அரைக்க

சாம்பார் வெங்காயம் –2

தக்காளி –2

பச்சைமிளகாய் – 3

பூண்டு – 4 பல்

இஞ்சி சிறிது

நல்லெண்ணெய் – 4 டீஸ்பூன்

உப்பு – தேவைக்கு.

தாளிக்க:

கடுகு, மிளகு, சீரகம், சோம்பு – தலா 1/2 டீஸ்பூன்,

கறிவேப்பிலை, எண்ணெய் – சிறிது.

செய்முறை:

நண்டை நன்றாக சுத்தம் செய்து வைக்கவும்.

கொத்தமல்லி, வெங்காயம், தக்காளியை பொடியாக நறுக்கி கொள்ளவும்.

கடாயை அடுப்பில் வைத்து நல்லெண்ணெய் ஊற்றி சூடானதும் அதில் அரைக்க கொடுத்த பொருட்களை ஒவ்வொன்றாக போட்டு பொன்னிறமாக வதக்கி அரைத்து கொள்ளவும்.

மண்சட்டியில் அரைத்த விழுது, சிறிது தண்ணீர், நண்டு சேர்த்து, உப்பு போட்டு 10 நிமிடம் வேகவிடவும்.

நண்டு நன்றாக வெந்ததும் மற்றொரு கடாயை அடுப்பில் வைத்து எண்ணெய் ஊற்றி சூடானதும் அதில் தாளிக்க கொடுக்கப்பட்டுள்ள பொருட்களைபோட்டு தாளித்து நண்டு ரசத்தில் கொட்டி கலந்து இறக்கவும்.

கொத்தமல்லி தூவி சூடாக சூப் போல் பரிமாறலாம் அல்லது சாதத்துடனும் பரிமாறலாம்.

சூப்பரான நண்டு ரசம் ரெடி.

N. ராமமூர்த்தி, SSS(Rtd)

நல்ல பெயரை வாங்க வேண்டும் ஊழியரே

நல்ல பெயரை வாங்க வேண்டும் ஊழியரே
நம் ஆராய்ச்சி என்னும் நிலையத்தில் நாளை உயரும் முல்லைகளே
நல்ல பெயரை வாங்க வேண்டும் ஊழியரே

அறிவூட்டும் தலைமை விஞ்ஞானி அவர் நல்ல வழிகாட்டும் தலைவன்
ஆராய்ச்சிவூட்டும் விஞ்ஞானி அவர்கள் தவழ்ந்து செல்லும் கடல் அலைகள்
நம் ஆராய்ச்சியாளர்களை கொண்டு நாம் நடை போடுவோம்
நாளை நமக்கு உருவாகும் நல்ல எதிர்காலம் ஒன்று (நல்ல)

நாம் கண்டுபிடிப்பை பேசுவோம் நாம் வெற்றிகண்டதை பாடுவோம்
மலர் போல சிரிப்போம் திருக்குறள் போல் வாழ்வோம்
மனதோடு சோம்பலை நாம் வளர்த்தாலும் பாவம்
உண்மையான ஆராய்ச்சியே தெய்வீகமாகும் (நல்ல)

விழிபோல எண்ணி நாம் நிலையம் காக்க வேண்டும்
தவறானபேர்க்கு நேர்வழி காட்ட வேண்டும்
நம் ஆராய்ச்சி நிலையத்தில் நாம் எல்லோரும் மன்னர்
விஞ்ஞானி அப்துல்கலாம்ஜி அய்யா அந்நாளில் சொன்னார் (நல்ல)

அச்சம் என்பது மடமையடா

அச்சம் என்பது மடமையடா
அஞ்சாமை நமது நிலைய தொண்டரைய்யா
ஆறிலும் சாவு நூறிலும் சாவு நமது
ஆராய்ச்சியை வளர்ப்பது கடமைய்யா (அச்சம்)

கடலின் அலையை மறித்து தெறித்து ஆராய்ச்சியை
அறிந்தார் நம் விஞ்ஞானி
கடலின் விளிம்பில் மீன்கூண்டு அமைத்து
இசைபட வாழ்கின்றோம் நம் நிலையத்திலே (அச்சம்)
கருவினில் வளரும் மழலையின் உடலில்
தைரியம் வளர்த்தோம் பிள்ளை இதயத்திலே
கழங்கம் விழைத்தாள் பெற்றோர் மானம்
காத்திட எழுவான் நம் பிள்ளை (அச்சம்)
வாழ்ந்தவர் கோடி மறைந்தவர் கோடி
மக்களின் மனதில் நிற்பவர் யார்
மாபெரும் ஆராய்ச்சியை மக்களிடம் செழுத்தி
சரித்திரம் படைத்து நிற்போமே (அச்சம்)

TO M.Selvaraj
MRC of CMFRI, Mandapam

மண்டபம் நினைவுகள்

(ஜூலை 1974 முதல் ஆகஸ்ட் 1986 வரை மண்டபம் கேம்ப் மத்திய கடல் மீன் ஆராய்ச்சி நிலையத்தில் தொழில்நுட்ப அலுவலராக பணிபுரிந்து பின் தூத்துக்குடி அலுவலகத்திற்கு மாற்றப்பட்டு மார்ச் 2009 ல் ஓய்வு பெற்றேன்)

மண்டபம் கேம்ப் நம் அலுவலகத்தில் பணிபுரிந்த பொழுது அந்த இடம் எனக்கு தனிப்பட்ட முறையில் மிகவும் பிடித்திருந்தது. அந்த காலத்தில் ஒரு ஊரில் பள்ளிக்கூடமும், ஒரு ஆஸ்பத்திரியும், 2ம் ஆபீஸ் வளாகத்தில் இருந்தால் யாரும் அந்த இடத்தை விட்டு, வேறு ஊருக்கு மாறுதல் கேட்க மாட்டார்கள்.

1988க்கு பின் P.S.B.R.ஜேம்ஸ் (ADG) அவர்கள் மத்திய அரசு பள்ளிக்கூடம் நம் அலுவலகத்திற்கு கொண்டு வந்தாலும், அதில் பெரும்பாலன பாடங்கள் இந்தியில் இருந்ததால் நம் அலுவலக ஊழியர்கள் அதனை பயன்படுத்த முடியவில்லை. பிற மத்திய அரசு ஊழியர்கள் பயன்படுத்துகின்றனர்.

மண்டபம் கேம்ப் வரலாறும் அதன் சிறப்புகளும் 1947இல் நம் மத்திய கடல் மீன் ஆராய்ச்சி சென்னையில் ஆரம்பிக்கப்பட்டது. பின் 1949இல் இராமநாதபுரம் மாவட்டம் மண்டபம் கேம்புக்கு மாற்றப்பட்டது.

மண்டபம் என்பது ஒரு சிறு மீனவ கிராமம். அங்கு இராமேஸ்வரம் கோவிலுக்கு செல்லும் வழியில் சேதுமன்னர் ஒரு கல் மண்டபத்தை காட்டினார். அதனால் அந்த ஊருக்கு மண்டபம் என்ற பெயர் வந்தது.

இரண்டாவது உலக யுத்தத்தில் பிரிட்டிஷ் அரசாங்கம் தங்கள் கப்பல் படையை அங்கு வைக்க பல சிறிய வீடுகள் காட்டினார் வீரர்களுக்கு மருத்துவ சிகிச்சை அளிக்க வலுவான அனைத்து வசதிகளும் கொண்ட ஒரு ஆஸ்பத்திரியை காட்டினர். அந்த ஆஸ்பத்திரி தான் நம் ஆபீஸ் இருக்கும் இடமாகும்.

நம் ஆராய்ச்சி நிலையம் அங்கு வரக்காரணங்கள்:

இந்த இடம்மிகவும் இயற்கையான அழகு மிகுந்த பூமியாகும். இரு பக்கமும் கடல் உள்ளது. வருடம் முழுவதும் மீன் பிடித்தல் நடக்கும். இராமேஸ்வரம் முதல் தூத்துக்குடி வரையுள்ள மன்னர் வளைகுடா உலகத்திலேயே அதிக உயிர்க்கோள்() உற்பத்தி இடமாகும். வருடம் முழுவதும் மீன் பிடித்தல் தொடர்வதால் மீன் ஆராய்ச்சிக்கு ஏற்ற இடம் ஆகும்.

பவளப்பாறைகள், கடல் பாசிகள், கடற் புற்கள், கடல் பசு, டால்பின் ஆகியவை நிறைந்த இடம் ஆகும்.

மு. குபேரகணேசன், Ex.பீல்டு மேன்,

மண்டபம் கேம்ப்பில் 1982 ல் இருந்து வேலை பார்த்து வந்தேன். ஆரம்பத்தில் பிஷ் பார்மில் வேலை பார்த்தேன். பின்னர் மியூசியம் ுஅக்குவேரியமில் வேலை பார்க்க ஆரம்பித்தேன். அக்குவேரியத்தில் 12 தொட்டிகளில் உயிர் மீன்கள் வளர்த்து வந்தேன். அப்போது சீனி உலகு என்பவர் வேலை பார்த்து வந்தார். அவருடன் நானும் அக்குவேரியத்தில் வேலை பார்த்து வந்தோம். தொட்டிகளை கழுவுவது, மீன்களுக்கு உணவளிப்பது போன்ற வேலைகளை பார்த்து வந்தோம்.

அதில் தாமரை காத்தான் மீன்கள் இருந்தன. அவற்றை தனியாக எடுத்து தொட்டியில் போட்டு சத்துள்ள உணவாகிய மண்புழு உணவாக கொடுத்து வளர்த்து வந்தோம். அவை பெரிதாக வளர்ந்து முட்டையிடும் பருவத்துக்கு வந்தன. பழைய அஸ்பேஸ்டாஸ் சீட் துண்டை நூலில் கட்டி கண்ணாடியில் சாய்த்து வைத்திருந்தோம். அதில் தாமரை காத்தான் மீன் முட்டையிட ஆரம்பித்தது. ஓட்டில் ஆண் மீன் ஒரு திரவத்தை ஓட்டில் பூசியது. அதன் மேல் பெண் மீன் முட்டையிட ஆரம்பித்தது. சுமார் 200முட்டைகள் வரை இட்டது. 10நாள் கழித்து முட்டைக்குள் குஞ்சுகள் வளர்ந்து பொரிக்கும் பருவம்

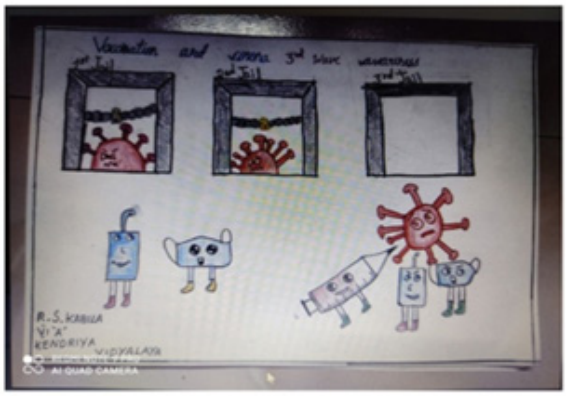
அடைந்தது. அந்த சீட்டை அப்படியே எடுத்து ஏரேஷன் கொடுத்து வைத்திருந்த தொட்டியில் கட்டிவிட்டு ஏரேஷன் கொடுத்தோம். மறுநாள் காலையில் பார்க்கும் போது 100குஞ்சுகள் வரையாவஉா டிரவ ஆகி இருந்தன. அதற்கு உணவாக கோப்பிபோட்ஸ் என்ற நுண்ணிய உயிரினத்தை கொடுத்து வந்தோம். மீன் குஞ்சுகள் வளர ஆரம்பித்தன. 15 நாட்கள் கழித்து மஞ்சள், கருப்பு, வெள்ளை நிறங்கள் வர ஆரம்பித்தன.

இதே முறையில் த்ரீ ஸ்பாட் டாம்செல் பிஷ் இரண்டு தனியாக தொட்டியில் வளர்த்து வந்தேன். அவை பெரிதாக முட்டையிடும் பருவத்தை அடைந்தன. இதற்கும் தாமரை காத்தான் மீனுக்கு எப்படி குஞ்சு பொறிக்க வைத்தோமோ அப்படியே இதற்கும் குஞ்சு பொறிக்க வைத்தோம். அதற்கு உணவாக கோப்பிபோட்ஸ் என்ற நுண்ணிய உயிரினத்தை கொடுத்து வளர்த்தோம். கோப்பிபோட்ஸ்க்கு உணவாக கிளோரெல்லா வை கொடுத்து வளர்த்தோம். கோப்பிபோட்ஸ் வேறு நீர் நிரப்பி வைத்திருந்த தொட்டியில் கலெக்ட் பண்ணி த்ரீ ஸ்பாட் டாம்செல் பிஷ் மீன் தொட்டியில் ஊற்றி வளர்த்தோம். அவை மூன்று புள்ளிகளுடன் பெரிதாகிவிட்டது.

நாங்கள் செய்த இந்த மீன் பொறிப்பதற்கு வேறு யாரிடமும் அட்வைஸ் கேட்கவில்லை. எங்கள் சுய அறிவுக்கு உட்பட்டது. அதற்கு பின்னர் அந்த மீன் குஞ்சுகள் 10mm வரை வளர்ந்தன. அதன் பின்னர் விஞ்ஞானிகள் அனைவரும் வந்து எடுத்து சென்றனர். இது முழுக்க முழுக்க கிளாஸ்ஐஏ அக்குவேரியம் ஊழியர்களின் முயற்சி மட்டும் தான். 2006ல் குபேரகணேசன் ஆகிய நான் ஓய்வு பெற்றுவிட்டேன்.

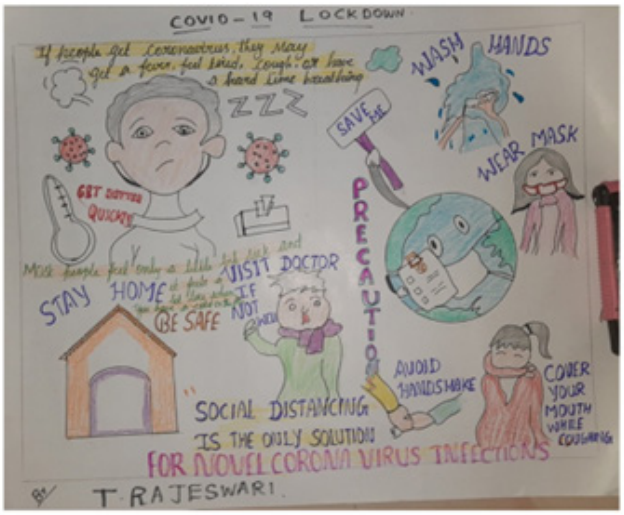
Corona awareness during 2019-2021

R.S.Mithra, D/o.Dr. Raju Saravanan



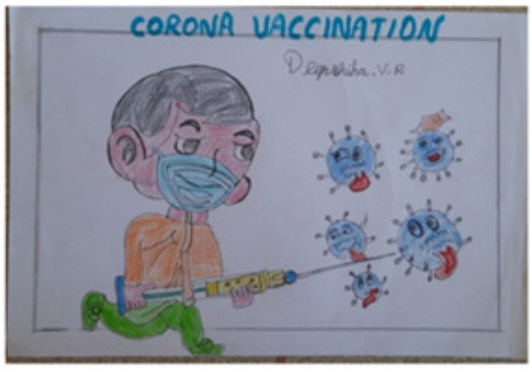
R.S.Kabila, D/o.Dr. Raju Saravanan

R.Pranitha D/o.Dr.P.Rameshkumar



T.Rajeswari, W/o.Vijayakarthikeyan

T.Rajeswari, W/o.Vijayakarthikeyan



V.R.Deepshiha D/o.Vijayakarthikeyan

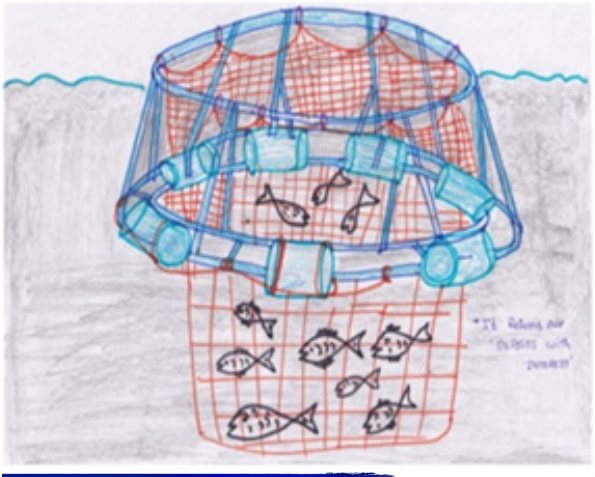
M.A. Fathima Rilwana D/o. Afrin Rani

Ragavan S/o M.VALARMATHI

M.A. Fathima Rilwana D/o. Afrin Rani

A.Meenakshy D/o.K.K.Anikuttan

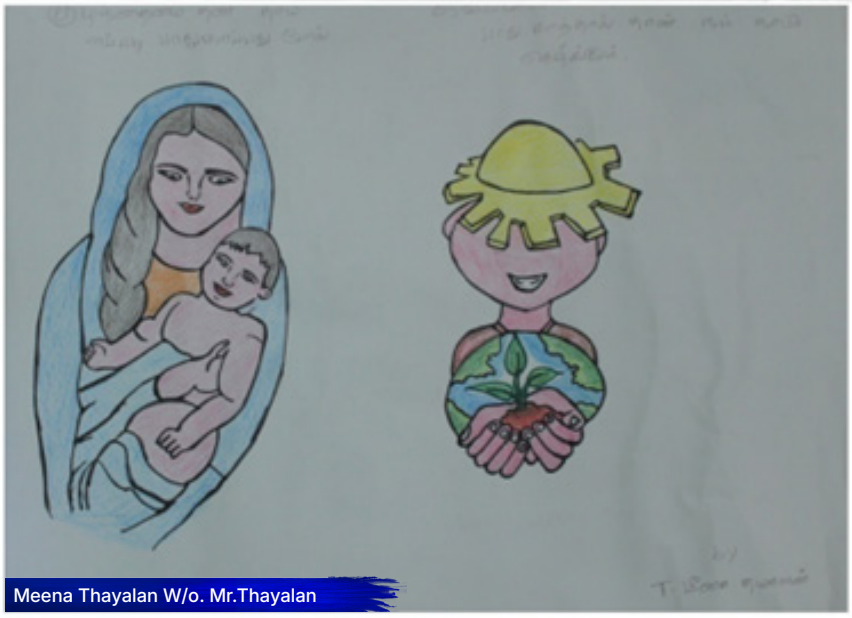
A.Gangesh S/o.K.K.Anikuttan



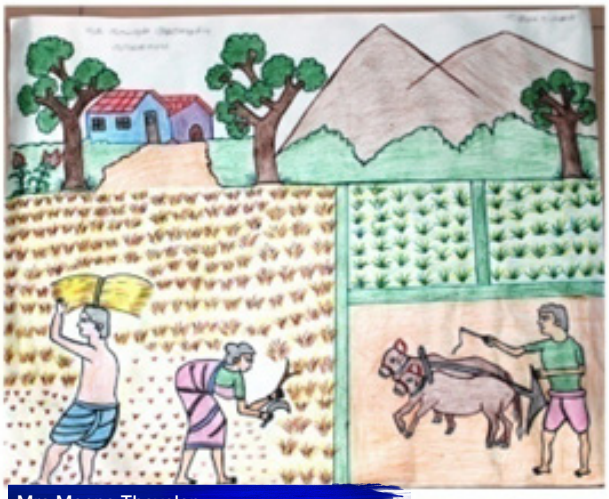
Ragavan S/o M.VALARMATHI

Mrs.NIRUBA THIRUMALAISELVAN

Hamsavahini, D/o.Ishwarya Murugan



Meena Thayalan W/o. Mr.Thayalan



Mrs.Meena Thayalan

A.Meenakshy D/o.K.K.Anikuttan

कविता

Mrs.Vrinda Anikuttan

माँ

माता, माँ, अम्मा, बस लगे एक लफ्ज़, पर तू ऐसी शख्स, खुशी मुझको मिले, यही तेरा लक्ष्य।

माँ रात की रोशनी है, जो अंधेरे में उजाला देती है, माँ वो दिया है, जो दूसरों के लिए जलती है, भगवान का दूसरा रूप है माँ।

चाहे लिखो कविता हज़ार, गाओ माँ का गौरव गान, बेमानी है सारा कुछ जो, जीते जी दे न पाए मान।

वृंदा अनिकुट्टन

डॉ. के. के. अनिकुट्टन, वरिष्ठ वैज्ञानिक, मंडपम क्षेत्रीय केंद्र की पत्नी

A.Meenakshy D/o.K.K.Anikuttan

R.Pranitha D/o.Dr.P.Rameshkumar

STAFF RECREATION CLUB ACTIVITY PHOTOS













Staff Recreation club
ICAR-Central Marine Fisheries Research Institute
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CERTIFICATE OF PARTICIPATION

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Dr.G.Tamilmani
President

Dr.P.Rameshkumar
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CMFRI
Azadi ka Amrit Mahotsav


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மண்டபம் பிராந்திய மத்திய கடல் மீன் ஆராய்ச்சி நிலையம்
"தை" பொங்கல் திருவிழா–2022
10-01-2022 திங்கள் மாலை 04 மணி முதல் விளையாட்டு போட்டிகள்
சிறுவர் முதல் பெரியவர் வரை | CMFRI குடியிருப்பு வளாகம்
11-01-2022 காலை 11 மணி முதல் | CMFRI விளையாட்டு மைதானம்
முற்பகல் 11 மணி தமிழ் இசை – இசை குழுவினர், மதுரை | முற்பகல் 12 மணி பொங்கல்
மற்றும் விளையாட்டு போட்டிகள் | பிற்பகல் 1 மணி பொங்கல் விருந்து
பிற்பகல் 2 மணி விளையாட்டு போட்டிகள் | பிற்பகல் 3 மணி பரிசளிப்பு விழா
பிற்பகல் 4 மணி நிறைவு விழா
HAPPY PONGAL
அனைவரும் குடும்பத்துடன் கலந்து கொண்டு விழாவை சிறப்பிக்க வேண்டுகிறோம்


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புத்தாண்டு (யுகாதி, தமிழ் மற்றும் விஷு)
13.04.2022
AMBEDKAR JAYANTHI
அம்பேத்கர் பிறந்தநாள் விழா
14.04.2022


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Staff Reaction Club
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