

State Level Workshop:

Maximizing the Contribution of Fish to Human Nutrition in Assam under APART The Experiences in Odisha & Assam

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Department of Fisheries, Government of Assam

Date: 23.09.2022, Venue: IIBM, Guwahati, Assam



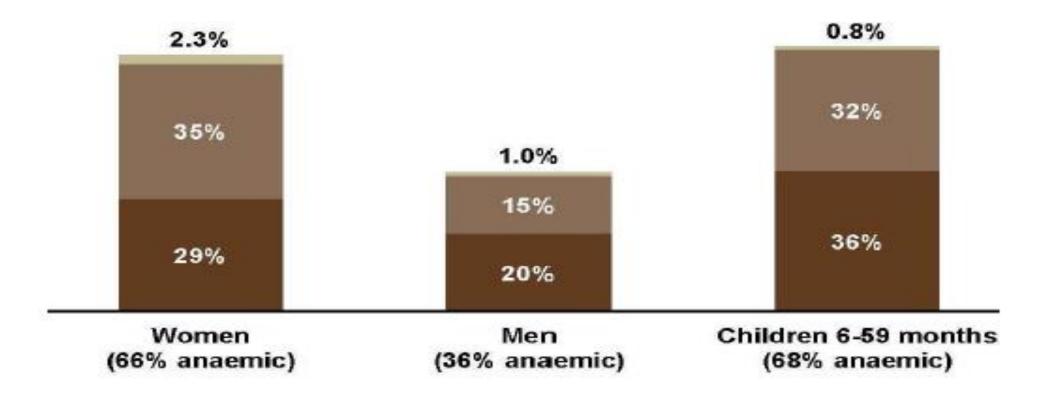




Assam: National Family Health Survey- 5 (NFHS)

Anaemia among women, men, and children

■ Mild anaemia ■ Moderate anaemia ■ Severe anaemia

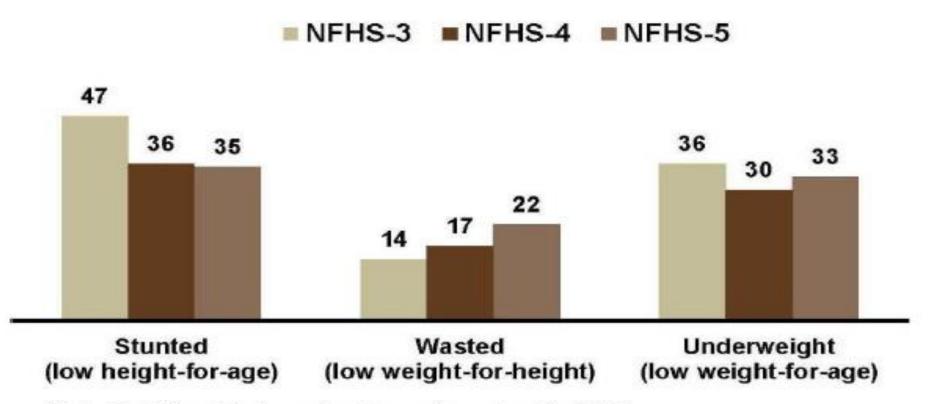




Assam: National Family Health Survey- 5(NFHS)

Trends in Children's Nutritional Status

Percentage of children under five years

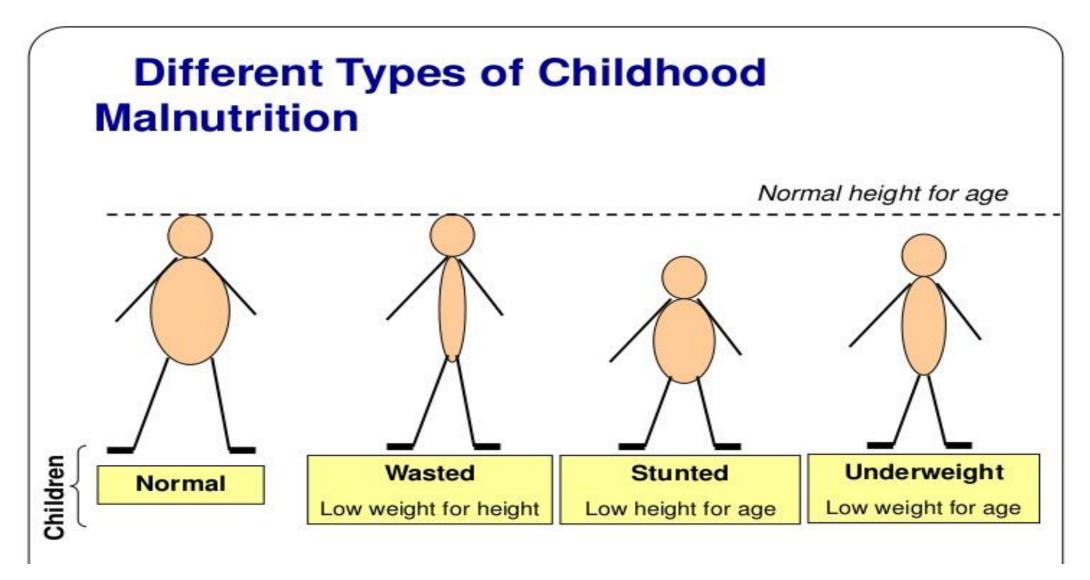


Note: Nutritional status estimates are based on the 2006 WHO International Reference Population





Types of Childhood Malnutrition



Balanced Diet



A balanced diet is one which provides all the nutrients in required amounts and proper proportions. It can easily be achieved through a blend of the four basic food groups.



What is Nutrition?

"Nutrition is the process of taking in food and converting it into energy and other vital nutrients required for life."

There are two different types of nutrients essential for the body:

- Macronutrients: we need in relatively large quantities.
- Micronutrients: we need in relatively small quantities.

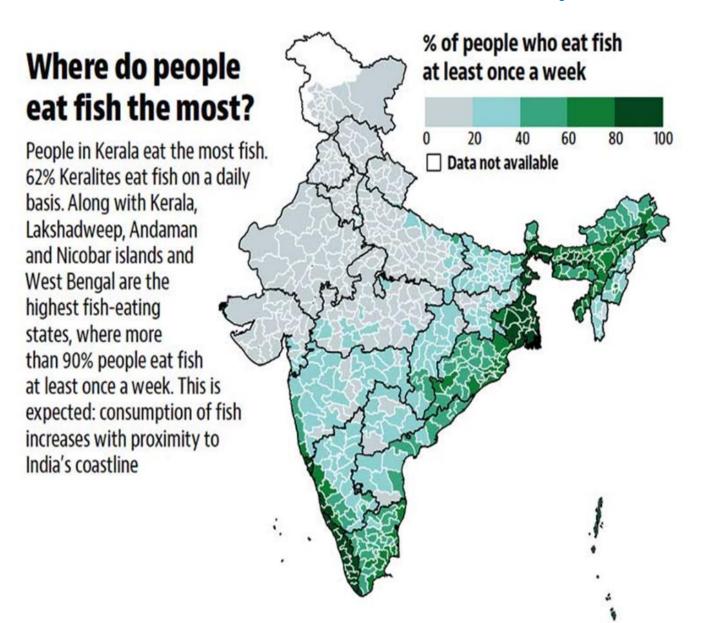
The nutrients that are essential for the body in lesser amounts are known as micro-nutrients, whereas the nutrients that are required by the body in greater amounts are known as macro-nutrients.







Fish Consumption in India



- Across India, Fish consumption 6.5 kg/person/year (below global consumption levels)
- Inequalities in fish consumption:
 - Haryana 0.3 kg/person/year
 - Lakshadweep 105.6 kg/person/year
 - Andaman and Nicobar Islands 59 kg/person/year
 - Tripura- 29.3kg/person/year
 - Kerala- 19.5 kg/person/year
 - Odisha 16 kg/person/year
 - Assam- 15 kg/person/year
- Potential to increase production
 - Marine fisheries: > 7500 km coastline
 - Inland fisheries: 30% of fisheries production in India



WHICH STATES EAT THE MOST FISH

Indians on an average consume just

6.56 kg





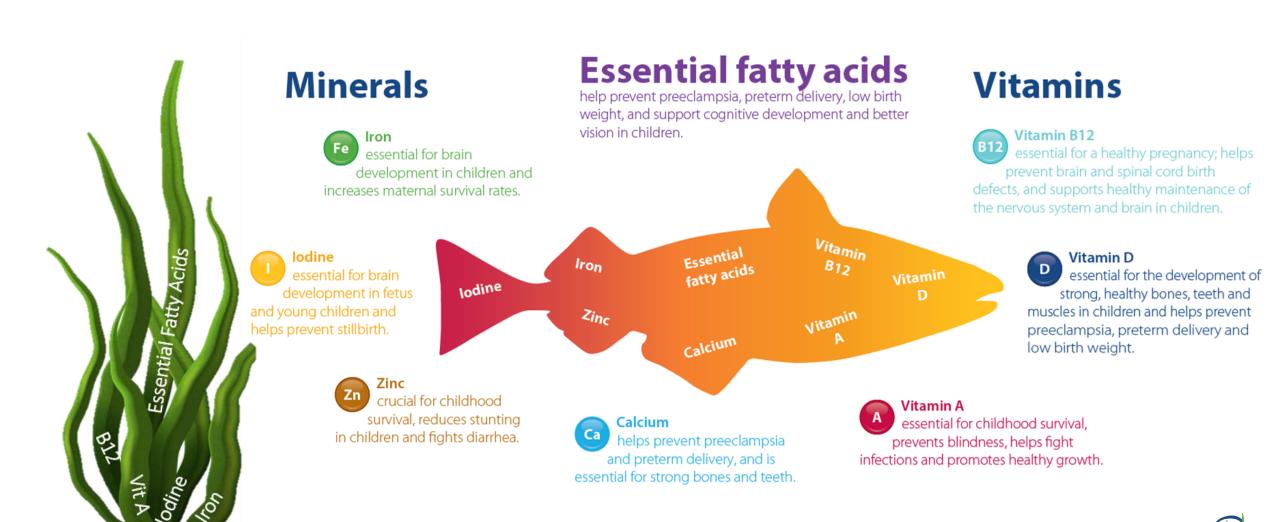
Per capita consumption during 2019-20

105.6	100
59.01	
25.45	
19.7	
19.59	
18.88	
16.47	
16.24	
11.89	
11.66	
10.87	
10.5	
10.32	
9.85	
9.6	
9.0	
8.82	
8.37	
8.07	
6.74	
6.68	
393	
352	
30	
2.9	
158	
1.07	
0.86	
0.7	
0.7	
0.47	
0.27	(753/7E)
	59.01 25.45 19.7 19.59 18.88 16.47 16.24 11.89 11.66 10.87 10.5 10.32 9.85 9.6 9.0 8.82 8.37 8.07 6.74 6.68 3.93 3.52 3.0 2.9 1.58 1.07 0.86 0.7 0.86 0.7 0.47



Source LS reply, Figs for Gos, HP, WE, Chandigarh not available

Multiple Micronutrients and EFA in Aquatic Foods







Big fish VS Small fish



WorldFish Experiences in Odisha

School Feeding Initiative

(24 schools,2400 children)



School Feeding Initiative



School Feeding Initiative







School Feeding Initiative







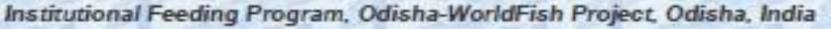




Small Fish Curry (Chuna Machha Tarkari)



















Small Fish Powder Curry (Chuna Machha Gunda Tarkari)
Institutional Feeding Program, Odisha-WorldFish Project, Odisha, India





Kalinga Institute of Social Sciences (KISS)
is a residential institute for 27,000 tribal students based in Bhubaneswar.



Small Fish in KISS Mega Kitchen





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Small Fish in KISS Mega Kitchen















Collaboration with Department of Women and Child Development (WCD), Govt of Odisha



- Participated two state level workshop organized by Department of Women and Child Development, Govt. of Odisha
- Sharing our Global and Odisha State experiences and scientific literatures on benefits of small fish nutrition
- Exposure Visit of Senior officials
- ❖ WorldFish become a member of State Level Technical Expert Advisory Group (TAG) on Nutrition with other agencies like UNICEF, WFP, ICMR-NIN, APPI, MDM - Department of S&ME, Department of H&FW, CSIR-CFTRI, CTCRI, OUAT.

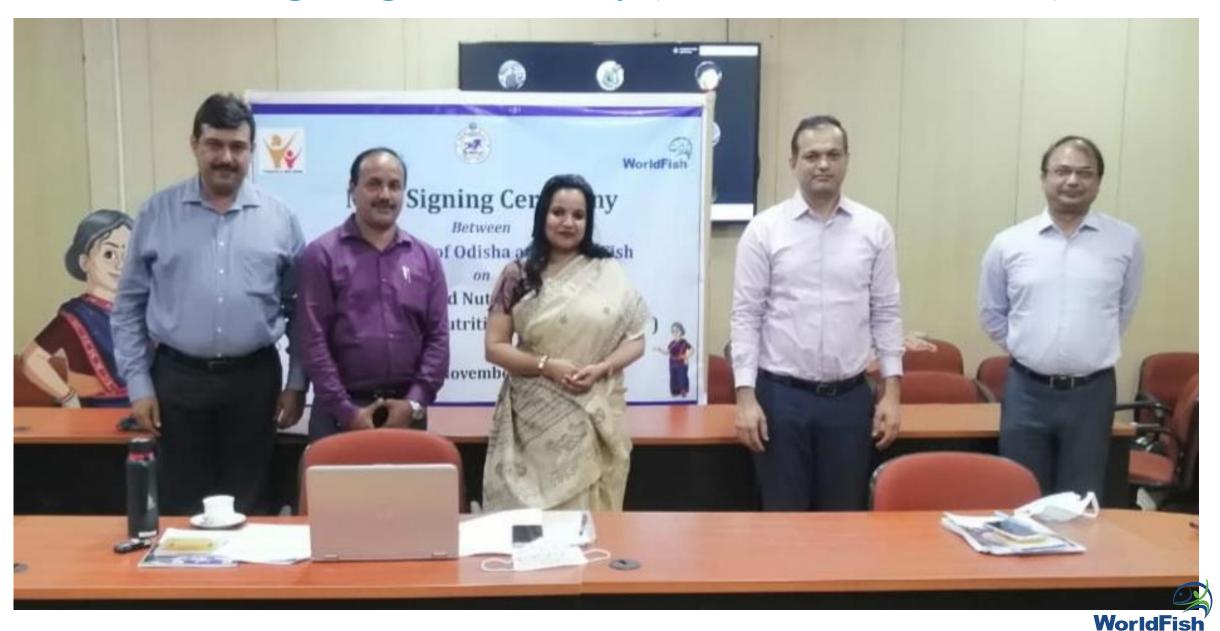


MoU Signed Dept. of WCD & WorldFish in Nov,2020 for Inclusion of Fish based Nutrition in SNP



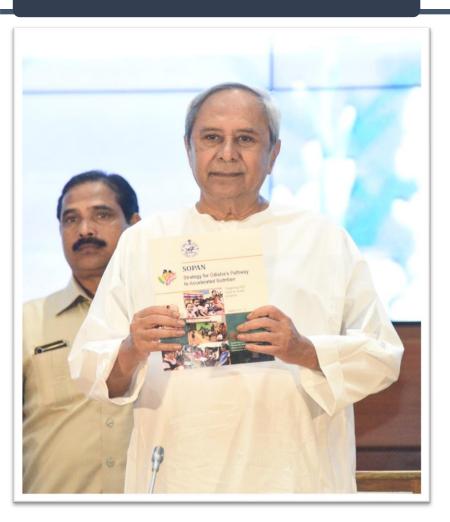


MoU Signing Ceremony (WCD & WorldFish)



Honb'le Chief Minister of Odisha released the 5-year State Nutrition Strategy SOPAN 2020-2025 which stresses Inclusion of Fish MoU between WorldFish and Women & Child Development Department signed for Piloting Inclusion of Fish in Supplementary Nutrition Program in Nov 2020

Women & Child Development Department released the SOP for Inclusion of Fish in Supplementary Nutrition Program in Nov 2020





Department of WCD &... • 11 Nov 20 : MoU on #FishBasedNutrition for children (3-6 years), pregnant & nursing women and adolescent girls was signed between @WCDOdisha and #WorldFish under the chairpersonship of the DC-cum-ACS. The technical collaboration for 5 years is expected to bring in better nutrition outcomes.







CMO Odisha and 6 others

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Standard Operating Procedure

Inclusion of dried small fish in Supplementary Nutrition Programme (SNP)

Pilot Study in Odisha, India









Piloting of Fish Inclusion in ICDS SNP





Inclusion of Small Fish in ICDS Supplementary Nutrition Programme (SNP)

Pilot Study in Odisha, India 1st April 2021 to 31st Sep. 2021



Objectives of Pilot Programme: Adding fish to Odisha Supplementary Nutrition Programme



To improve the dietary diversity and micronutrient intakes of women and children involved in the **Supplementary Nutrition Programme**.



Test the acceptability of dried fish products (e.g. taste, ease-of-use) with **tribal community** beneficiaries and Anganwandi Centre workers



Basic Information for initiating the pilot



District: Mayurbhanj

Block: Kaptipada

Coverage GP: 04 (Badabisol, Badagudgudia, Mankadapada & Kaptipada)

Total AWCs: 50

Time Line: 6 months duration (1st April to 30th Sep 2021)

Beneficiaries (Kaptipada block)	Total Sample
■ Children 3 – 6 years	1208
Pregnant/lactating Mother	470
AGs (Out of School Age 14 – 18 Years)	329
Total	2007



Target Beneficiary



	Hot Cooked Meal	Take Home Ration
Beneficiary	3-6-year old children	14-18-year old AG (Out of school & college going) 19-49-year old PLW
Product	Fish powder	Dried small fish
Quantity entitled	10 g / child / day	40g / 14-18-year old AG / day 40g / 19-49-year old PLW / day
Days entitled	5 days / week / child	3 days / week / person
Method of intake	Anganwadi Centre to add fish powder to children's daily curry as part of the Hot Cooked Meal.	Anganwadi Centre to distribute dried small fish to PLW and AG with Take Home Ration.

SBCC Material used for Training & Awareness











Programme (SNP)

Pilot Study in Odisha, India







WorldFisl

Hygienic certified dry fish packet



Hygienic certified fish powder



ICDS Beneficiaries: Children, PW, LM & AG







Dried Fish distributed to lactating women & AGs





Pilot Beneficiaries with fish-based product





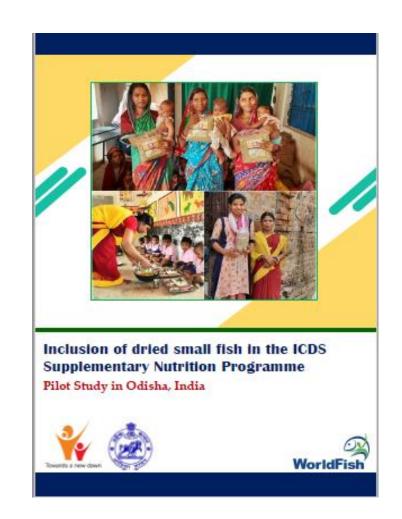
Third party evaluation by M S Swaminathan Research Foundation(MSSRF) Team, Chennai





Pilot Reports







Nutritious Small-Fish Based Recipes

dishes from pilot study in Odisha, India











Findings from the study

- The inclusion of hygienic fish powder in regular diet of children is well accepted by children as well as mother and caretaker of children
- Both the AWC workers and mothers find it easy store and incorporate the powder into regular curries
- Adolescent girls, pregnant women and lactating mother liked the hygienic dried fish.
- Continuous awareness and monitoring made the program successful
- Promotion of hygienic dried fish production at household level
- Convergence approach completed the programme successful (WorldFish, WCD, CIFT,FARD, ICAR-CIFT, MSSRF)
- Government considering to scale up the programme in a phase wise manner, till the dried fish supply in the state is sufficient
- Other state like Assam and Tamil Nadu is also considering the possibility of inclusion of small fish-based nutrition in ICDS SNP in state





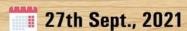




Poshan Maah-2021

Webinar on

Domestic Fish Consumption: Supporting Food and Nutritional Security in the North Eastern states





10:00 to 14:00 Hrs



Dr. C. Suvarna, IFS Chief Executive, NFDB



Dr. George Ninan Pr. Scientist, CIFT, Kochi



Dr. P. C. Das
Pr. Scientist, CIFA, Bhubaneswar



Dr. Sanjay Kr. Das Pr. Scientist, ICAR-NEH Region



Dr. Arun Padiyar World Fish, Odisha



Dr.C. K. Murthy Vice President, SIFA, Hyderabad

Organised by

NFDB North-East Regional Centre Khanapara, Guwahati-22



POSHAN MAAH - 2021



Webinar on

"Consumption of fish and other aquatic foods for improving food and nutrition security"



6th September, 2021



10:30 AM to 1:00 PM IST



Shri Jatindra Nath Swain, IAS Secretary, DoF, Gol & Chair



Dr. C.Suvarna, IFS Chief Executive, NFDB



Shri Sagar Mehra, Joint Secretary, Inland DoF, Gol





Dr. Shakuntala Haraksingh Thilsted, World Food Prize Laureate -2021



Dr. B.Meena Kumari, DDG, Fisheries, (Retd.)
Former Chairperson, NBA



National Fisheries Development Board, Ministry of Fisheries, Animal Husbandry & Dairying

Involvement of Women in Aquaculture Odisha











Solar Dried Fish by Women SHGs



- "One District One Product" program under Pradhan Mantri Formalisation of MSME Scheme
- 50 solar fish driers every year
- At least 1500 women in coastal fishing villages generate additional income from this business venture





Low-cost Solar Fish Drier

Marine small fishes such as Anchovies, Sardines are dried by Women Self Help Groups

Experience in Assam

Awareness & demonstration of fish nutrition promotion programme in Assam (World Bank Supported) 45 programme conducted





SBCC Materials Prepared under APART, Assam













AVs like in Small fish Nutrition
Tiki Mausi Mascot on Small Fish Nutrition

Awareness & demonstration of fish nutrition promotion programme under APART

- WorldFish Assam team under the APART project has conducted 45 numbers of small fish nutrition promotion awareness, piloting and demonstration activities in 11 districts of Assam from 8th March 2022 to till date.
- Districts are Morigaon, Kamrup, Nalbari, Sonitpur, Lakhimpur, Sivasagar, Jorhat, Majuli, Darrang, Barpeta &Goalpara.
- In total above 2500 participants including mothers, adolescent girls, children, caregivers, community members, ICDS staff, ASHA workers, APART field staff and community resource persons were given awareness.



Overall objectives

- Conducting mass awareness programs on the health benefits of small fish consumption and promoting the inclusion of small fish-based nutrition in the diet of women especially, pregnant, lactating and infants and young children.
- To demonstrate the different small fresh / dried fish recipes using locally available small fishes and understand their acceptability at the community level.
- To promote hygienical dressing of small fishes and consumption of whole small fish without wasting the head and bones.
- Test acceptability (eg. appearance, taste, smell, color, texture, ease-of-use) of products with women, adolescent girls and children aged under 5 years.
- Identify the traditional cooking practices of small fishbased recipes which are popular and acceptable among different communities.

Awareness & demonstration of fish nutrition promotion programme under APART





First 1000 Days of Human Life



- Pregnancy 270 Days
- First year of Childbirth 365 Days
- Second year of Childbirth 365 Days

Total
270 +365 + 365 =
1000 Days

Preparation of small fish powder in cluster level







Demonstration: Powdering the Small fish by community







Demonstration: Small fish Powder(Fresh & dried fish)





Preparation of Small Fresh Fish Powder















Fish Powder and inclusion in curry





Preparation of Small Dry Fish Powder































































Demonstration & Feeding Trials (ICDS)





Nalbari District

Small fish cleaning process















WorldFish















Demonstration & Feeding Trials







Demonstration & Feeding Trials







Demonstration & Feeding Trials - ICDS



Awareness cum Demonstration in ICDS Assam



Awareness cum Demonstration in ICDS



Topic discussed during Awareness cum demonstration programme

- Nutritional Status of State, NFHS-5
- Nutrition concepts (What is Food, Nutrition, Nutrients, food groups, types of Childhood Malnutrition, etc)
- Importance of First 1000 days of human life
- Balanced diet & role of small fish nutrition
- Benefits of Small Fish Nutrition
- Demonstration of small fish powdering process in Household level

(Optimal Nutrition, Optimal Health care & Optimal Environment)







Piloting inclusion of nutritious small fish powder in diets among preschool children of 3–6-year age group in Anganwadi Centers of Chaygaon Block in Kamrup District, Assam

Dr Sanjaya Sarma, ARIAS SOCIETY WORLD BANK FUNDED PROJECT APART









Step 1: Identification of beneficiaries

- Project Name : Chhaygaon, Kamrup Rural district
- Total Anganwadi Centers: 293
- Children 3-6 years : 7000
- Product: Small fish Powder
- Quantity entitled: 5 gm of fish powder, twice in a week (preferably on Monday & Friday)
- Total Period: 3 months from mid September to Mid December 2022
- Method intake: Anganwadi Centre to add fish powder to children's daily curry as part of the Hot Cooked Meal

Nutrition composition of dried fish and dried fish powder

Nutrient (per 100 g)	Dried Fish	Fish Powder
Energy (calorie)	680	690
Protein (g)	70.23	69.50
Fat (g)	9.02	8.20
Calcium (g)	3.99	3.91
Vitamin A (Retinol) (μg)	14.12	13.95
Vitamin B2 (ng)	0.10	9.36
Sodium (g)	1.80	1.70

Project will be implemented in convergence mode involving following partners

 District Social Welfare Office: Identify the ICDS project area and beneficiaries, preparation and distribution of HCM incorporating small fish powder and the overall implementation and monitoring of the project with the support of DOF, APART and WorldFish staff.

- Department of Fisheries, Assam: Identify the FPC and NGO to ensure supply of small fish powder.
- APART project: Coordinate all the activities with WCD, DOF, COF and WorldFish

Project will be implemented in convergence mode involving following partners

- College of Fisheries, Raha, Assam: Facilitate the training for production of hygienic small fish powder, packaging and labelling standards and the FSSAI certification of the products and quality control.
- WorldFish: Technical support and training to ICDS staff and sensitise about Standard Operating Procedures (SOP) for preparation of fish powder-based curry for pre-school children by Anganwadi worker and Sahayeka/Helpe
- Farmers Producer Group and an NGO: Supply hygienically processed fish powder to the project.

Expected output

- Increased production and utilization of small fish for human consumption.
- Freshwater small fish will be able to find good and assured market which will help small farmers under FPC.
- Increased business opportunities to FPCs for their sustainability.
- Increased awareness about the nutritional benefits of eating whole small fish and powder in community level.
- Large scale awareness on the health benefits of fish consumption so that fish particularly small fish finds place in the regular diets of people of Assam.

Expected outcome

- Improved nutrition and health, particularly micronutrients leading to good health in children of AWCs
- Helpful to scale up in ICDS and School Supplementary Nutrient Programme (SNP) in Assam
- Dried hygienic small fish may be another option to supply as Take Home Ration(THR) for consumption of Pregnant women and Lactating mothers in future.
- Small fish may be included as a part of MDM in tribal dominated residential schools and Kasturba Gandhi Balika Vidyalaya (KGVB) as a part of diversified diet for consumption by vulnerable children in future.
- Under Facility Based Care Services of Nutrition Rehabilitation Centres (NRC), Assam, controlled by health department, Small fish powder may be tried as a part of therapeutic feeding programme for nutritional betterment of severe and acute malnourished children (SAM).

Launching the Pilot Programme on 8th September 2022

In presence of DC Kamrup (R) and DSWO Kamrup (R) district, pilot programme launched in Kukurmara Anganwadi Centre, Chaygaon, Kamrup



Photo gallery















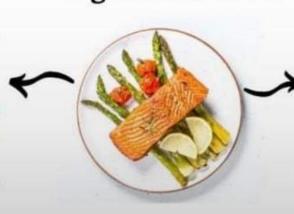




THE FISHERIES CHAMICHA HEETI

"Those whose diet includes fish but no other meat and choose to add fish to a vegetarian diet."

Compared to
following a vegan
diet, eating a
pescetarian diet
means there's less
risk of nutritional
deficiencies &
Healthy nutrients



Compared to following a
Meat based diet, eating a
pescetarian diet means
there's less risk of getting
heart disease and high
blood pressure, helps in
maintaining healthy
weight & environmentally
more sustainable



Thank You all



