

Utilization strategy for oceanic squids (Cephalopoda) in Arabian Sea: *A value chain approach*

Environmental and Social Safeguards Management

A. Basic information

1) Project statistics:

Component Code	:	Component 2
Code of Proposal	:	
Name of Consortium Leader/ Principal Investigator	:	Dr. K.S. Mohamed Head, Molluscan Fisheries Division
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Name of CoPI	:	Dr. Geetha Sasikumar
Consortium Partners	:	1. Fishery Survey of India (FSI), Mumbai. 2. National Institute of Fisheries Post Harvest Technology and Training (NIFPHATT), Kochi. 3. Central Institute of Fisheries Technology (CIFT), Kochi.
2. Proposed Date of Start	:	10 th February, 2009
3. Planned Duration	:	Years 3, Months 5
4. Fund requirement	:	Rs. 541.30 lakhs

5. Project objectives

- 1.Production:** To establish a new commercial jigging fishery for oceanic squids in the Central Arabian Sea and to determine the resilience of the species to exploitation. Initiate sustainability certification of oceanic squid jigging as an ecolabelled fishery.
- 2.Processing:** Develop protocols for onboard preservation and processing of oceanic squids and to enhance organoleptic characteristics of oceanic squids.
- 3.By-products value addition:** Develop value-added products from oceanic squids such as squid surimi and balls and efficient utilization of squid processing waste by developing by-products such as fish meal and chitosan.
- 4.Specific to value chain:** Determine the techno-economic feasibility of commercial distant water squid jigging operations. Formulate Model bankable project/scheme on distant-water squid jigging suitable for NABARD to accelerate the flow of credit from scheduled banks by refinance.
- 5.Market Linkages:** Develop market intelligence on global oceanic squid markets and products. Develop export and domestic marketing channels through private partnership.

6. Brief Project description:

The project “Fishable potential and exploitation strategy for oceanic squids (Cephalopoda) in Arabian Sea: A value chain approach” address the PCS of hitherto unexploited oceanic squids resources from the Central Arabian Sea. The project aims at establishing a new commercial jigging fishery by initially undertaking a resource survey in the Central Arabian Sea with the consortium partner, Fishery Survey of India (FSI), Mumbai. The exploratory survey will map the availability of the most abundant oceanic squid, *Sthenoteuthis oualaniensis* reported from the region. The information on the recruitment, generation time

and mortality parameters of the stock will be utilized to arrive at the resilience of the stock to exploitation and to estimate the fishable stock of the resource for fixing the zone-wise catch quotas (Total Allowable Catch). The estimates on biomass abundance, numerical abundance, biological characteristics and stock details thus generated will be integrated on a GIS platform for the creation of a seasonal abundance fishery map.

Further to the abundance survey, trials with distant-water squid jigging operations will be undertaken with the private partner of the consortium, M/s Sri Vinayaka, Mangalore, subsequent to modifications of their mechanized fishing vessel (>20 m OAL) for the standardization of jigging operations. The estimations on the jigging efficiency will be used to derive the techno-economic feasibility of the commercial squid jigging operation. Concurrently, efforts will be directed towards improvisation of traditional crafts (Pablo boats) for the standardization of squid dipnet operation in Lakshadweep waters in association with the Central Institute of Fisheries Research (CIFT), Kochi and Department of Fisheries, Lakshadweep.

The second and third objectives will target at standardizing technologies for post-harvest handling, product development and value-addition for developing consumer products. Package of practices for onboard handling and preservation of the resource will be developed based on GMP implementing HACCP with the involvement of NIFPHATT and CIFT. The protocols for enhancing the organoleptic characteristics of the oceanic squids applicable for other commercially exploited oceanic squids will be suitably modified in association with CIFT and NIFPHATT, Kochi. The associate partner, Marine Products Development Authority of India (MPEDA) will be involved in collecting and collating information on the oceanic squid products. Based on this, besides the development of export oriented frozen products, the proposal aims at developing value-added ready to cook/serve consumer products targeting domestic and international markets. The protocols effective in utilizing the neretic squid waste will be standardized for oceanic squids to develop by-products.

The fourth objective involves promotion of oceanic squid production by transferring the evolved production and post-harvest methods to the end users.

Based on the techno-economic feasibility for distant-water squid jigging model bankable project/scheme suitable for NABARD will be formulated to accelerate the flow of credit from scheduled banks by refinance.

Fifth objective entails assessment of consumer acceptability and develop network of buyers through private partners, M/s Lyons seafood, aiming the European markets and M/s Jeng Marine targeting Southeast Asian markets.

Finally the proposal envisages sustainability certification of commercial oceanic squid fishing operation by involving third party certifiers.

7. Environmental category issues in the subproject:

- Social
- Environmental

8. Safeguard Policies Triggered (World Bank Policies)

Safeguard Policies Triggered	Yes	No
Environmental Assessment (OP/BP 4.01)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input type="checkbox"/>	<input type="checkbox"/>
Pest Management (OP 4.09)	<input type="checkbox"/>	<input type="checkbox"/>
Cultural Property (draft OP 4.11-OPN 11.03 -)	<input type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (OD 4.20)	<input type="checkbox"/>	<input type="checkbox"/>
Forests (OP/BP 4.36)	<input type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)	<input type="checkbox"/>	<input type="checkbox"/>
Projects in Disputed Areas (OP/BP 7.60)	<input type="checkbox"/>	<input type="checkbox"/>
Projects on International Waterways (OP/BP 7.50)	<input type="checkbox"/>	<input type="checkbox"/>

B. Risk analysis and related issues

1. Risk Analysis

- Since the proposal is a multi-institutional and multi-disciplinary one, it is necessary to have good synchronization with the goals, schedules and sense of priority among partners participating in a particular activity.
- The institutes outside ICAR may need help with project implementation, particularly financial aspects.
- Since the project involves work in the high seas, it would be subject to the vagaries of nature, like cyclones and storms.
- In view of the global economic meltdown, the ex-ante analysis of the project economic and social benefits may vary.
- The project draws support from Indian entrepreneurship to develop the DWF for oceanic squids, and this assistance could vary depending on several extraneous factors.
- The facilities for frozen storage of seafood and its transportation are limited in Lakshadweep islands and the project activities in the island can suffer from this poor infrastructure.
- Timely release of grants and guidance on compliance issues are necessary for smooth implementation.

9. Impact assessment

Given below, and adequately addressed

10. Potential indirect and/ or long-term Impacts due to anticipated future activities in the project areas (assessment of anticipated conflict/ complimentary with the current as well as those proposed for the next five years in the areas of activities of the sub-project):

- Documentation of geographical distribution of oceanic squids and measures of its abundance over time and space in the central Arabian Sea.
- Information on the biological characteristics of oceanic squids and determination of the resilience of the species to exploitation, for sustaining the resources.
- Fishery management plans (FMP) for oceanic squids including zone-wise total allowable catch quotas.
- Techno-economic viability of a new commercial fishing practice viz., distant-water squid jigging in the country.

- Capacity building for redeployment of larger fishing vessels from inshore waters.
- Capacity building to harness oceanic squids by traditional fishers resulting in improved local economy
- Quantum increase in marine fish production in the country by 50,000 tonnes worth Rs.1000 crores by the establishment of a distant-water fishing fleet.
- Value-added products from oceanic squids with commercial value.
- Higher income generation for the participating beneficiaries, through emergence of domestic and overseas markets.

11. Identify the key stakeholders and describe mechanisms for consultation with and to them done/ disclosure so far done including pre-project consultations with stake holders workshop before formulating the full proposal, discussing the full proposal with some stakeholders before submission to the PIU:

CONSORTIUM PARTNERS

1. Fishery Survey of India (FSI), Mumbai.
2. National Institute of Fisheries Post Harvest Technology and Training (NIFPHATT), Kochi.
3. Central Institute of Fisheries Technology (CIFT), Kochi.

ASSOCIATE PARTNERS

1. Marine Products Export Development Authority , Kochi, (MPEDA), Ministry of Commerce
2. Dept. of Fisheries, Lakshadweep

PRIVATE PARTNERS

1. M/s Sri Vinayaka, Mangalore
2. M/s Lyon Seafoods, Aroor, Alappuzha, Kerala
3. M/s Jeng Marine, Kochi

12. Chronology of meetings/ activities held in connection with preparation of the concept note & full proposal

S. No.	Date & Location	Programme	Participants	Remarks
1	30 June, 2008	Concept note submission		
2	12 August, 2008	Interaction with MD, Sri Vinayaka, Mangalore	Mr. Jayaprakash	Discussion with Sri Vinayaka regarding mechanized vessel modification.

3	20 August, 2008	Interaction with Scientists of CIFT, Kochi and MD M/s Jeng Marine, Kochi.	Dr. P. Praveen Dr. K. Ashokkumar Dr. Susheela Mathew Mrs. K.K. Asha Mr. Jeng K.	Discussions regarding vessel modification, buyer agreements, OS marketability, OS processing, value addition
4	21 August, 2008	Interaction with Director and Quality supervisor, NIFPHATT, Kochi.	Dr. S. Girija Dr. M.K. Venu	Discussion on OS value addition, domestic marketing, infrastructure requirements
5	22 August, 2008	Telephonic interaction with MD, Lyon seafood, Alapuzha,.	Mr. Priemal Joseph	Discussion regarding buyer agreements and possible European marketing channel
6	23 August, 2008	Telephonic interaction with Director, Marketing MPEDA, Kochi.	Mr. Kuruvilla Thomas	Discussions regarding tie-up for international market intelligence.
7	25 August, 2008	Interaction with Director General and Zonal Director, FSI, Mumbai.	Dr. G.S. Rao Dr. N.G.K. Pillai Dr. V.S. Somvanshi Dr. B. Varghese	Discussion regarding squid jigging survey using FSI vessel, MV <i>Matsya Sugandhi</i>
8	27 August, 2008	NAIP Core program submission		
9	16-18 September, 2008	Interaction workshop with TAG members at CIFE Mumbai	TAG members	
10	10 October, 2008	Full project proposal submitted after modification		
11	10 November, 2008	Presentation of project proposal to TAG, at New Delhi	TAG members	
12	17 November, 2008	Presentation of project to RPC Chairman and members	RPC members	Suggestions to improve the proposal made
13	19 November, 2008	Meeting with Mr. Jayaprakash, MD, Sri Vinayaka, Mangalore	Mr. Jayaprakash	Modalities of >20m vessel conversion
14	25 November, 2008	Cost Committee Meeting at NAIP	Finance Directors and National Coordinator	Modifications on budget suggested for compliance
15	6 January, 2009	PMC meeting, New Delhi	PMC members including DG and DDG (Fy)	Foreign consultancies to be removed and final proposal to be submitted

13. Measures to Address the Issues:

The fishing charts and atlases developed out of the project work will be made available to potential Indian entrepreneurs only. Adequate care will be taken to develop ETP for squid processing waste. The MSY and TAC developed will help to prevent over exploitation of the resource. Consumer safety will be addressed through development of HACCP and GMP. Safety at high seas will be given highest priority.

14. Consultation/ disclosures to be done in future:

Local disclosure through mechanisms such as launch workshop and interfaces during the implementation stage of the subproject for sharing the results and soliciting feed-

back. The project brochures will be circulated and annual reports will be put on the web site and stakeholder training will be conducted as per the following schedule.

S.No.	Type of training	Number of Participants	Year and Duration of Workshop
1	Squid jigging – Pablo boat	30 x twice	Period of peak OS abundance - 2010 and 2011/ 10 days
2	Squid jigging in >20 OAL	20 x twice	Period of Peak OS abundance 2010 and 1011
3	Handling & processing	30	March 2011/ 3 days
4	Value added products	50	March 2011/ 7 days

The consultation/ disclosures will be done as per NAIP guidelines depending on the progress of the project. Information dissemination will also be made through mass and print media on benefits to stakeholders. Linkages with financial institutions such as NABARD will be enabled so that as when requested the entrepreneurs are adequately financed for the new fishing activities. Both print and other media will be fully utilized to attain the desired goals and objectives.



Consortium PI

National Coordinator

National Director

Annexure I

Environmental safeguard: Activities, issues, impact and mitigation measures

ACTIVITY	ISSUES	Anticipated level of Impacts		Mitigation measures (Negative)
		Positive	Negative	
Development of oceanic squid jigging method	New technique	5		
Exploratory surveys for estimation of OS biomass	Standardized techniques for deep sea resource	4		
Mapping of resource potential and biomass estimates	User friendly fishing maps/charts for commercial oceanic fishery	4		
On board resource handling, GMP, HACCP	Best preservation methods for high quality	4		
Value added products from OS	New protocols for VAP from non conventional resource	4		
	Waste from processing plant		1	Effluents have to be treated prior to discharge by standard plant hygienic processes (ETP)
By product from OS	New products	3		
Commercial squid jigging vessels using techniques developed at high resource potential zone identified	Effective utilization of oceanic resource	4		

Annexure II

Social safeguard: Activities, issues, impact and mitigation measures

ACTIVITY	ISSUES	Anticipated level of Impacts		Mitigation measures (Negative)
		Positive	Negative	
Oceanic voyages for project implantation	Safety of project staff in high seas		1	Life jackets, life boat, fire safety measures, state of art tele-communications systems will be placed. Insurance for safeguard of crew will be taken
Commercial squid jigging by private entrepreneurs	More production and enhanced entrepreneurship	4		
	More skilled job opportunities	4		