

## Northern Luzon Aquatic and Marine Resources Research and Development



### 12<sup>th</sup> Commodity R & D Review for Fisheries

**Title** : **ASSESSMENT OF LAMBAKLAD FISHERY IN ILOCOS SUR**

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**Project Location** : **Ilocos Sur**

**Project Duration** : **2006**

## ***Abstract***

The study was conducted on the 5 lambaklad operating towns of Ilocos Sur, particularly in Sta. Lucia, Sta. Cruz, Santa, Vigan City and Caoayan.

The main data gathering instrument used in the study was the questionnaire checklist, however owing to the big number of the fishermen involved in the operation of the project, respondents was pre – determined using the Slovin's Formula. The questionnaire checklist was eventually designed to answer the following objectives: 1. to determine the socio – demographic and economic profiles of lambaklad fishermen 2. To find out the catch of lambaklad 3. To determine/identify the problems encountered in the implementation of the lambaklad project. 4. To determine possible solutions to the problems encountered in the lambaklad operation 5. To find out the cost – benefit obtained from the project.

Results of the study revealed that a total of 204 fishermen were involved in Ilocos Sur's lambaklad fishery. From the total number of fishermen involved 135 were considered and became the respondents of the study; which comprised of 128 males and 7 females.

As to the socio – economic and demographic profile of the respondents, majority of them (21.48%) falls under 41 – 45 years age bracket, mostly married (69.63%) with 4 – 6 dependents and finished high school.

Study shows further that most of the respondents were involved in the project for 4 – 6 years, and had been to fishing using other gears for at least 19 years.

On their monthly income derived from their participation in project, 51.85% says they received 2,500 or even lower and only 7.41% received 7,501 – 9,999. The same trend was observed on the respondents' monthly income in operating/using other types of fishing gears wherein 36.30% received 2,500 and lower monthly income and 8.15% received 7,501 – 9,999, monthly income. On the fishermen other sources of income, 53.33% received 2,500 and lower and only 5.19% received 7,501 – 9,999 monthly income.

The study also shows that 45.19% of the fishermen spent about 1 – 2 hours in the project and only 22.96% consumed 5 – 6 hours/day in the project. The hours spent in the project as a result of the study gives 37.04% of the respondents 3 – 4 hours fishing time using other types of gear. However, majority of the respondents (25.18) were involved in the lambaklad operation for 6 – 10 days per month while only 8.15%

were involved for more than 26 days and above per month. In the operation of other fishing gears, 41.48% responded to have 16 – 20 days per month in the use of other gears; while only 6.67% answered that they are using other types of fishing gears for only 26 above days per month.

Result of the study further reveals that the most abundant species being caught by lambaklad in terms of the kilograms generated is skipjack, followed by frigate tuna and the least is shark.

The study also shows that limited fish catch and limited operations due to inclement weather conditions and lack of fishermen support in the establishment of are serious problems encountered by the fishermen in the establishment and operation of the lambaklad project. On the other hand, the following solutions to the problems encountered by the fishermen involved in the operation of the lambaklad project are the most preferred: **1.** Develop the lambaklad project to become more productive, **2.** To educate them with the importance of the lambaklad project, and **3.** To establish a priority fishing season.

The study further reveals that the establishment of the project, creates additional livelihood for the fishermen, and eventually increase the income of the respondents and the fish production of the locality.

The study finally shows that the lambaklad project is being utilized for social and economic considerations and primarily utilized as a venue to develop cooperation and teamwork, self reliance and empowerment and for civic action. While on its economic utilization, income from lambaklad operation is being used specifically for food/medicine, for education and for house improvement.

## **INTRODUCTION**

The Coastal areas of the Philippines are rich in pelagic fishes such as tuna and the like and other migratory species. Hence, Filipinos have tried to construct, imitate and modify different types of fishing gears so as to exploit the vast resources of our coastal waters.

One of these gears that gained popularity for the past few years is the “Lambaklad” or Otoshi – Ami. Today, lambaklad is one of the many gears being considered as best for catching pelagic species of fish, since it offers large quantities or volume of fish catch which sum up to 100 kg/day at the average. Lambaklad is very economical compared to other fishing gears in terms of fuel consumption. It also offers fishermen ample time to attend to their other activities since the gear is a “wait and see type” requiring only 1 – 3 hours of hauling operation. However, lambaklad assessment in terms of its catch composition and economic significance including the socio-demographic and economic profile of its participants is not yet established.

In Ilocos Sur there are already 6 Lambaklad units which are currently operated in the coastal towns of Sta. Cruz, Santa Lucia, Santa, Vigan City, and Caoayan. The introduction of the gear is very vital to the economic recovery of the fishermen involved in its operation.

However this study seeks to find out the socio-economic conditions of the fishermen involved in the operation of the gear and the effectiveness of it in terms of its catch composition.

## OBJECTIVES

1. To determine the socio – demographic and economic profiles of lambaklad fishermen in terms of :
  - a. Age
  - b. Educational Attainment
  - c. Number of Dependents
  - d. Number of Years in Fishing
    - d.1 other fishing gears
    - d.2 Lambaklad
  - e. Total Income
    - e.1 income from lambaklad
    - e.2 income from other fishing gears
    - e.3 income from other sources aside from fishing
2. To find out the effectiveness of lambaklad in terms of catch composition
  - a. Abundance
  - b. Species
3. To determine/identify the problems encountered in the implementation of the lambaklad project.
4. To determine possible solutions to the problems encountered in the lambaklad operation
5. To find out the cost – benefit ratio obtained from the project.

## **REVIEW OF RELATED LITERATURE**

Lambaklad (Lambat na Baklad) is the Filipino term for “Otoshi – Ami” a Japanese term for the largest form of fish trap (A.Q. Santiago III. 1998.). The gear is used in the capture of pelagic species such as tunas and other migratory types of fishes (B. Fernando. 1998) Lambaklad fishery in Ilocos Sur started in Mindoro, Vigan City. In Sta. Cruz, Ilocos Sur, according to Mr. Rey Cabradilla, lives of fishermen in the area including vendors were uplifted when the lambaklad project started.

## **METHODOLOGY**

The study is conducted on the coastal towns of Ilocos Sur specifically on the lambaklad operating towns of Sta. Cruz, Sta. Lucia, Santa, Vigan City and Caoayan. Questionnaires were floated in order to obtain data from the fishermen involved in lambaklad operation.

Due to the big number of fishermen involved in the project, it was necessary to trim down the respondents into a smaller population. Thus, sample size for the respondents was determined using the Slovin’s formula.

After all the questionnaires were floated, a span of 1 week was given to the respondents to answer or fill in the questionnaires. After such duration, the questionnaires were retrieved for statistical analysis.

Interviews were also conducted with the respondents to determine the veracity of the answers given.

## RESULTS AND DISCUSSIONS

**Table 1. Population and sample of the lambaklad fishermen in Ilocos Sur**

Lambaklad Site	Population	Sample
Mindoro, Vigan City	52	34
San Pedro, Vigan City	27	18
Santa	45	30
Caoayan	23	15
Sta. Lucia	25	17
Sta. Cruz	32	21
Total	204	135

Based on table 1, respondents of the study come from the 6 lambaklad sites in the province which comprise 34 from Mindoro Vigan City, 18 from San Pedro Vigan City, 30 from Santa, 15 from Caoayan, 17 from Sta. Lucia and 21 from Sta. Cruz with a total of 135 respondents drawn from a total of 204 fishermen involved in Ilocos Sur's lambaklad operation.

**Table 2 Socio – economic variables of lambaklad fishermen**

Socio – Economic Variables	Frequency	Percentage
<b>SEX</b>		
Male	128	94.81
Female	7	5.19
Total	135	100
<b>AGE</b>		
60 – Above	1	0.74
56 – 59	12	8.89
51 – 55	15	11.11
46 – 50	24	17.78
41 – 45	29	21.48
36 – 40	19	14.07
31 – 35	17	12.59
26 – 30	12	8.89
20 – 25	5	3.70
Below 20	1	0.74
Total	135	100
<b>CIVIL STATUS</b>		
Single	32	23.20
Married	94	69.63
Widow/er	9	6.67

Total	135	100
<b>EDUCATIONAL ATTAINMENT</b>		
College Graduate	12	8.89
With Units in College	18	13.33
H.S. Graduate	55	40.74
Did Not finish High School	21	15.56
Elementary Graduate	22	16.30
Did not finish elementary	7	5.19
Total	135	100
<b>NUMBER OF DEPENDENT/S</b>		
10 – above	2	1.48
7 – 9	12	8.89
4 – 6	56	41.48
1 – 3	44	32.59
0	21	15.56
Total	135	100

Table 2 shows the demographic profile of respondents from the six lambaklad operation sites. The table reveals that out of 135 respondents there were 128 males and 7 females which are distributed in different age bracket; majority of the respondents fall under the age bracket of 41 – 45 which represent 21.48 percent of the population, while 1 or 0.74 percent falls under the age bracket of 60 and above which represent the least age bracket of the respondents.

On the civil status of the respondents, majority are married with 94 as the frequency and represents 69.63 percent of the respondents, while only 6.67 are widow/er which is the least percentage on the civil status of the respondents.

The table also reveals that 40.74 percent of the respondents finished high school, while 5.59 percent of the respondents did not finished elementary level.

On the number of dependents, 41.48 percent of the respondents have 4 – 6 dependents and only 1.48 percent of the respondents have 10 or more dependents.



**Table 3a Number of years of respondents in lambaklad operation.**

No. of Years	Frequency	Percentage
7 – 9	10	7.41
4 – 6	68	50.37
1 – 3	57	42.22
Total	135	100

**Table 3a** shows that 50.37% of the respondents were in the project for 4-6 years, 42.22% was involved in the project for 1 – 3 years and only 7.41% responded that they were on the project for 7 -9 years. This further explains that the lambaklad operation is still in its early stage of operation.

**Table 3b Number of years in the operation of other fishing gears**

Number of years	Frequency	Percentage
19 above	42	31.11
16 – 18	11	8.15
13 – 15	3	2.22
10 – 12	38	28.15
7 – 9	14	10.37
4 – 6	19	14.07
1 – 3	8	5.93
Total	135	100

Table 3b reveals that out of the 135 respondents, 42 percent says that they were at least operating or active in the operation of other fishing gears for at least 19 years; 28 percent were in the operation of other fishing gears for 10 -12 years and only 2.22 percent of the respondents were operating other type of fishing gears for 13 – 15 years. This further illustrates that most of the fishermen engaged in fishing with the use of other fishing gears for almost longer than that in the operation of lambaklad.

**Table 3c Monthly income earned by the respondents for their participation in the lambaklad project.**

Monthly Income	Frequency	Percentage
10, 000 Above	0	0
7,501 – 9,999	10	7.41
5, 001 – 7, 500	19	14.07
2,501 – 5,000	36	26.67
2,500 and Below	70	51.85
Total	135	100

On the monthly income of the respondents on their involvement on the lambaklad project; table 3c shows that 51.85% received 2,500 and below, 26.67% received 2,501 – 5,000 and only 7.41% received 7,501 – 9,999 monthly income. Respondents income is based on how frequent is their participation on the operation of the project.

**Table 3d Monthly income of respondents derived from operating other types of fishing gear.**

Monthly income	Frequency	Percentage
10, 000 Above	0	0
7,501 – 9,999	11	8.15
5, 001 – 7, 500	29	21.48
2,501 – 5,000	46	34.07
2,500 and Below	49	36.30
Total	135	100

Table 3d shows the monthly income of the respondents derived from operating other types of fishing gears aside form lambaklad. The table reveals that 36.30% of the respondents generated an income of 2,500 and below; while 34.07% received a monthly income of 2,501 – 5,000 while no one received an income of 10,000 or higher.

**Table 3e Fishing time in lambaklad**

Fishing hour /day	Frequency	Percentage
7 above	0	0
5 – 6	31	22.96
3 – 4	43	31.85
1 – 2	61	45.19
Total	135	100

Table 3e shows the fishing time spent by fishermen in the lambaklad project. The table reveals that 45.19% of the respondents consumed 1 – 2 hours, 22.96% spent about 5 – 6 hours and 0 % 7 or more hours in the project. This further indicates that lesser time was spent in the lambaklad operation than the other activities.

**Table 3f Fishing time with the use of other fishing gear aside from lambaklad**

Fishing hour /day	Frequency	Percentage
7 above	12	8.89
5 – 6	37	27.40
3 – 4	50	37.04
1 – 2	36	26.67
Total	135	100

Table 3f represents the time spent by the fishermen in other types of fishing gear aside from lambaklad. Wherein 37.04% of the respondents say that they spent 3 – 4 hours in using other types of fishing gear; 27.40% spent 5-6 hours and only 8.89 % spent 7 hours or more.

**Table 3g Number of fishing day per month in lambaklad and other fishing gears**

Number of Fishing day/month	Frequency	Percentage
<b>A. Lambaklad</b>		
26 above	11	8.15
21 – 25	18	13.33
16 – 20	22	16.30
11 – 15	26	19.26
6 – 10	34	25.18
1 – 5	24	17.78
Total	135	100
<b>Other Fishing Gears</b>		
26 above	9	6.67
21 – 25	14	10.37
16 – 20	56	41.48
11 – 15	23	17.04
6 – 10	20	14.81
1 – 5	13	9.63
Total	135	100

Table 3g shows the number of fishing day per month in lambaklad project and other fishing gears. The table reveals that in lambaklad project, majority of the respondents were involved in its operation for 6 – 10 days per month while only 8.15% were involved for more than 26 days and above per month.

The table also shows how many days per month the fishermen were involved in the operation of other types of fishing gears; 41.48% of them responded that they have 16 – 20 days per month with the use of other gears; while only 6.67% answered that they are using other types of fishing gears for only 26 above days per month.

**Table 3h Types of fishing gear used by the respondents 3 years before and after the establishment of the lambaklad project.**

Fishing Gear	Before		After	
	Frequency	Percentage	Frequency	Percentage
Gill Net	60	44.44	60	44.44
Troll Line	23	17.037	13	9.63
Pole and Line	17	12.6	12	8.88
Cast Net	15	11.11	10	7.407
Drive in Net	10	7.407	13	9.63
Tuna Drift Gill Net	15	11.11	0	0
Long Line	14	10.37	9	6.66
Others	12	8.88	7	5.19

Table 3h represents the fishing gear used by the fishermen 3 years before and after the establishment of the lambaklad project. The table reveals that gill net is the major type of fishing gear used by the fishermen before and after the establishment of the project followed by troll line and the least is other types of fishing gear which is comprised of filter net, fyke net, round haul seine and baby round haul seine and crab lift net. The table also shows that there is a decline on the use of other types of fishing gear after the establishment of the project. The table further reveals that almost 9% of the respondents are no longer using other types of fishing gear; this indicates that they are already focused on their participation on the lambaklad project.

**Table 4 Lambaklad particulars in the six Different areas of operation**

Area of Operation	Santa	Caoayan	San Pedro VC	Mindoro VC	Sta. Lucia	Sta. Cruz
No. of yrs of Operation	2	4	2	7	2	6
Name of Operator	NGO/PO	NGO/PO	NGO/PO	NGO/PO	Linda Habon	NGO/PO
Capital	1.5 Million	1.7 M	1.7 M	1.2 M	1.7 M	1.3 M
Source of Capital	NGO/LGU Counter-parting	NGO/LGU Counter-parting	NGO/LGU Counter-parting	NGO/LGU Counter-parting	Private	NGO/LGU Counter-parting
No. of Fishermen Involved	45	23	27	52	25	32
Size of Lambaklad						
Leader						
Length	500m	500 m	500 m	500 m	500 m	500 m
Mesh size	1k	1k	1k	1k	1k	1k
Depth	27 m	27 m	27 m	27 m	27 m	27 m
Playground						
Length	300 m	300 m	300 m	300 m	300 m	300 m
Mesh size	8 k 9 k	8 k 9 k	8 k 9 k	8 k 9 k	8 k 9 k	8 k 9 k
Depth	30 m	30 m	30 m	30 m	30 m	30 m
Collecting Chamber						
Length	200 m	200 m	200 m	200 m	200 m	200 m
Mesh size	12 k	12 k	12 k	12 k	12 k	12 k
Depth	50 m	50 m	50 m	50 m	50 m	50 m

Table 4 shows that lambaklad is being operated in 6 different locations in the province of Ilocos Sur, majority of them are being operated by NGOs and POs except one in Sta. Lucia where the project is operated privately. The table also reveals that funding of the lambaklad project was through Government Agencies, Local Government Unit counter-parting except Sta. Lucia. The table also reveals that all lambaklad projects are almost the same in the construction/specification of the different parts and materials used. This is due to that fact that these lambaklad projects were constructed by almost the same person and agency.

**Table 5 Species and weight of fish caught by lambaklad (kg)**

Species	Santa	Caoayan	San Pedro	Mindoro	Sta. Lucia	Sta. Cruz
Caranx	80	4	3.5	4	0	15
Sword Fish	50	75	0	0	30	110
Yellow fin tuna	50	50	20	0	20	125
Frigate tuna	0	0	100	30	15	500
Skipjack	500	100	0	20	10	200
Spanish Mackerel	300	25	15	50	20	100
Sailfish	10	23.5	0	0	0	0
Dolphin Fish	100	8.5	0	0	0	0
Garfish	0	2.5	0	0	0	125
Big-eyed crevally	150	25	15	2	20	200
Shark	30	0	0	0	0	0
Stingray	50	0	0	0	0	0
Sardines	100	0	0	0	0	0

Table 5 shows that the most abundant species caught by lambaklad in terms of the kilograms generated is skipjack, followed by frigate tuna and the least is shark. This data signifies that the lambaklad project is best suitable for the capture of tunas and tuna like species.

**Table 6 Problems encountered in the establishment and operation of the lambaklad project in the area**

Problems Encountered	Mean	Description
1. Lack of fisherman support in the establishment of the project	2.95	Serious
2. Lack of financial support from the LGUs	2.34	Less Serious
3. Fisherman are reluctant in the establishment of the project	2.44	Less Serious
4. Limited number of fishermen involved	2.21	Less Serious
5. Lack of participation among members of the lambaklad project	2.49	Less Serious
6. Low price of fish product	2.50	Less Serious
7. Un-equal sharing of lambaklad production	2.15	Less Serious
8. Limited fish Catch	3.95	Very Serious
9. Limited operations due to inclement weather conditions	4.02	Very Serious
10. Political intervention	1.74	Not a problem
11. The public decline from the establishment of the lambaklad project	2.13	Less Serious

Legend:

Scale	Description
4.21 – 5.00	Most Serious
3.41 – 4.20	Very Serious
2.61 – 3.40	Serious
1.81 – 2.60	Less Serious
1.0 – 1.80	Not a problem

Table 6 reveals that the problems encountered by the fishermen in the establishment and operation of the lambaklad project, limited fish catch and limited operations due to inclement weather conditions acquired a mean of 3.95 and 4.02 respectively, which when described it means that the problem is very serious, while lack of fishermen support in the establishment of the project acquired a mean of 2.95 which means that the problem is serious, problems 2 – 7 acquired a mean range from 2.15 – 2.5 which means that these problems are less serious and political intervention is not a problem at all.

Other problems encountered:

1. Lack of interest on the part of the leaders (President or Manager)
2. The operation of the lambaklad project was not perfectly because of some problems encountered.
3. No exact measurement of the lambaklad.



**Table 7 Possible Solutions to the problems encountered**

Possible Solutions	Rank
1. Organize and educate fishermen on the importance of the lambaklad project	2
2. Contributions and solicitations was being done to raise funds to support the project	5.5
3. Developed open and voluntary membership scheme	5.5
4. Established a profit sharing system which is not bias to all people/agencies and associations concern.	4
5. Develop or improved the existing project to improve fish production	1
6. Established priority fishing season	3
7. Established a non-political and non-partisan membership	7

Table 7 shows the following solutions to problems encountered by the fishermen involved in the operation of the lambaklad project. It shows that the most preferred solutions to problems of limited catch is to develop the lambaklad project to become more productive, and the possible solution to the problem in the lack of cooperation and participation of fishermen is to educate them with the importance of the lambaklad project, and the possible solutions to limited operation due to inclement weather condition is to establish a priority fishing season.

**Table 8 Productivity status of the lambaklad project**

Status	Mean	Description
1. Productivity status of the area after the installation of the lambaklad	3.63	Moderately Productive
	Frequency	Percentage
2. Average Catch in the project area after the establishment of the lambaklad		
a. More catch than before	48	35
b. Similar catch than before	51	38
c. Lesser catch than before	36	27
Total	135	100
3. Average fishing income after the establishment of the project		
a. above average	34	25
b. average	59	44
c. below average	42	31
Total	135	100
4. Benefits obtained from the lambaklad project		
a. higher income	42	31
b. Create additional livelihood	54	40
c. Increase fish production in the locality	39	29
Total	135	100

	Rank
5. Utilization of the lambaklad project	
<b>a. Social</b>	
Cooperation/Teamwork	1
Prestige/Trust	5
Confidence/Esteem	4
Civic Action	3
Self Reliance/Empowerment	2
<b>b. Economic</b>	
For Education	2
For House Improvement/appliances/vehicle	3
For establishing enterprise	5
For food medicine	1
For savings	4

Table 8 shows the productivity status of the lambaklad projects as being perceived by the fishermen involved in its operation. The table reveals that 38% of the fishermen responded that similar average number of catch can be extracted in the area after the establishment of the project, while 35 % say that the area offers more catch than before, while only 27% stated lesser catch than before.

The table also shows that 44% agrees that they receive an average income after the establishment of the project, while 31% say that the their income reaches below average after the establishment of the lambaklad project and 25% perceived above average income after the establishment of the project.

The table further reveals the benefits obtained by the fishermen in the establishment of the project, 40% of the respondents believe that the project creates additional livelihood for them, 31% of the respondents believe to be benefited with higher income while 29% of them estimates an increase in the fish production of the locality.

The table finally shows that the lambaklad project is being utilized for social and economic consideration. The table shows that the project is being utilized primarily as a venue to develop cooperation and teamwork, self reliance and empowerment and for civic action. While on its economic utilization income from lambaklad operation is being used specifically for food/medicine, for education and for house improvement.

## **Conclusions and Recommendations**

### ***Conclusions:***

Based on the results of the study the following conclusions were advanced:

1. There are 204 fishermen involved in the operation of lambaklad and majority of them belong to the age bracket 41 – 45 years; who were mostly high school graduates and have 4 – 6 dependents with at least 4 – 6 years in lambaklad fishery and 19 and above fishing years using other types of fishing gears with monthly income of 2,500 and below derived from their participation in lambaklad operation, fishing with the use of other fishing gear and other sources of income other than fishing.
2. That the most abundant fish species caught in terms of weight is skipjack closely followed by frigate tuna and big-eyed crevally.
3. Limited catch and limited operation due to inclement weather conditions were very serious problems encountered by the fishermen.
4. Fishermen's income derived from the operation of lambaklad was primarily used for education, house improvement, and for food and medicine.

### **Recommendations:**

Based on the conclusions of the study the following recommendations were forwarded

1. There should be set policies in the recruitment to would be members of the lambaklad project to ensure the smooth relationship among members and thereby improving the implementation of the project.
2. Tuna and tuna like species are the most abundant species being caught by the lambaklad project; therefore, the gear should be designed in such a way that it will not catch regulated and prohibited species.
3. There should be an established fishing season and project linkage/s in order to maintain or improve fish product prices and marketing. To offset income lost during inclement weather conditions, and additional livelihood project during inclement weather should also be established.
4. Educate fishermen on the proper utilization of their income.

### **Literature Cited**

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2. Rey Cabradilla. An Interview. (2006)
3. A.Q. Santiago 1998.