

MONITORING SOCIO-ECONOMICS OF THE ICRM PROJECT PATHEW DISTRICT, CHUMPHON PROVINCE

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I. INTRODUCTION

This socio-economic survey is the second conducted in Pakklong Sub-District, Pathew District, Chumphon Province, with the first survey conducted on 7-11 January 2002. The results of the pre-survey indicated the need to give clarification on the parameters as they form part of the guideline for the design and implementation plans for each activity. The objective of the second survey is to compare the parameters with the first survey. The result of this survey will be used as indicator on the success or failure of the project operation.

The second socio-economic survey was conducted on 12-14 December 2006 in the project area. Rapid survey was employed it is essential and conducive for outsiders to learn, in a short period of time, about a community, and the area or an activity or the possible specific problems encountered in a community. The result will constitute the essential step for the commencement of any project involving community development. It is also applicable as a milestone for the project operation, as it can be used as means of measuring the degree of achievement within the period of a project's operation.

II. OBJECTIVES

The objectives of the survey are:

- To identify the present socio-economic conditions after the project operation
- To monitor changes in socio-economic status and environmental conditions in the project area
- To identify the degree of contribution by the project in fisheries resources management to the local people

III. METHODOLOGY

1. Components of the target group sampled

The component of the target group includes the head or members of a household engaged only in fisheries and/or both fisheries and agriculture. It also includes the head or members of a household earning income through the fisheries sector.

2. Size of the sample groups

The number of fishing households is the targeted number used to establish the number of the sample groups for the socio-economic survey. The total number of samples in this survey is the same as with the Pre-survey, i.e., 48% of the total fishing households (Provincial Operation Center: POC, 2003) assigned to represent the Pakklong Sub-district. Random sampling was the method employed to identify a respondents in Pakklong-Sub-district's six villages: village no. 1 (Thungmaha), village no. 2 (Bosamrong), village no. 3(Thumthong), village no. 5 (Ban Numpu), village no. 6 (Ban Bonrai), and village no. 7 (Ban Koh Tiep).

3. Design of the questionnaire

The set of questionnaires comprised four parts: Part I is related to the general information of the respondents; Part II is mainly concerned with the fisheries sector and the respondent's engagement in that sector; Part III emphasized on the people's participation and group establishment; and Part IV emphasized on the people's participation in the ICRM-PD project.

4. Data analysis

A number/code is run on the questionnaire to enable the data to be re-checked or for validation purposes. Each question in the questionnaire is given a code or identification number for easier collation of the data for analysis and interpretation.

A simple identification manual has been developed as a handy and simple way to understand the raw data, which are analyzed in terms of percentage and presented in tables or in matrix form. The tabulated data is a simple and easy way of understanding the socio-economic and environmental conditions of the community in Pakklong Sub-district.

IV. RESULTS OF THE SURVEY

1. The actual size of the sample

This survey was carried out by interviewing a sample group of 83 fishermen from six villages in Pakklong Sub-district, Prathew District, Chumphon Province. Samples in Moo 1, Moo 2, Moo 3, Moo 5, Moo 6 and Moo 7 were 27, 5, 14, 13, 9 and 15, respectively (Table 1). These are 50%, 21%, 70%, 87%, 35% and 43%, respectively of the total fishing households in each village (Provincial Operation Center Chumphon: POC, 2003). The total number of samples is 48% of the total fishing households in six villages.

Table 1. Number of fishing households and sample size

Village No	Moo 1	Moo 2	Moo 3	Moo 5	Moo 6	Moo 7	Total
Total number of fishing households	54	24	20	15	26	35	174
% of total fishing households (%)	50	21	70	87	35	43	48
Number of samples (persons)	27	5	14	13	9	15	83

2. Part I: General Information

2.1 Migration, marital status and educational level

The result indicated that the percentage of local respondents was higher than non-local respondents in each village. Moo 5 and Moo 7 had more non-local respondents than the other villages (38% and 33%, respectively, Table 2).

Most respondents in the six villages are married, about 78% to 93% (Table 2) followed by single (7%-20%). Widows and divorcees were low and found only in Moo 5, Moo 6 and Moo 7.

As for their educational level, 13.33% of Moo 7 respondents have not studied. Most respondents from Moo 1, Moo 2, Moo 5 and Moo 6 graduated from primary school levels, about 70% to 100% (Table 2). About 42.86% of Moo 3 respondents graduated from primary school level equivalent to junior school level.

Table 2. Place of birth, marital status and educational level of respondents, Pakklong Sub-District

Village No.	Place of birth		Marital status (%)				Educational Level (%)				
	Non-locals	Locals	Single	Married	Widow	Divorce	Have not studied	Primary school	Junior school	High school	no answer
Moo 1	19.00	81.00	11.11	88.89	0	0	0	70.37	3.70	18.52	7.41
Moo 2	20.00	80.00	20.00	80.00	0	0	0	80.00	20.00	0	0
Moo 3	21.00	79.00	7.14	92.86	0	0	0	42.86	42.86	7.14	7.14
Moo 5	38.00	62.00	7.69	84.62	7.69	0	0	100.00	0	0	0
Moo 6	11.00	89.00	11.11	77.78	0	11.11	0	77.78	11.11	11.11	0
Moo 7	33.00	67.00	0	93.33	6.67	0	13.33	46.67	0	6.67	33.33

2.2 Occupation

The occupation of the respondents was categorized into four groups, namely: fisheries, agriculture, fisheries and agriculture, fisheries and labor. Fisheries was a major occupation of respondents from Moo 1, 3, 5, 6 and 7 at 89%, 93%, 85%, 89% and 80%, respectively (Table 3). The second major occupation of the respondents was fisheries and agriculture, especially for 60% of Moo 2 respondents.

Table 3. Occupation of respondents, Pakklong District (%)

Village No.	Fisheries	Agriculture	Fisheries & Agriculture	Fisheries & Labor	Total
Moo 1	89	0	7	4	100
Moo 2	20	20	60	0	100
Moo 3	93	7	0	0	100
Moo 5	85	0	15	0	100
Moo 6	89	0	11	0	100
Moo 7	80	0	13	7	100

2.3 Source of daily income

Table 4 shows the percentage of Moo 1, 3, 5, 6 and 7 respondents earning their income from the fisheries sector at 92%, 93%, 100%, 89% and 93%, respectively. About 60% of Moo 2 respondents have their main source of income from agriculture sector while 20% derive their daily income from fisheries, and 20% from fisheries & agriculture.

Table 4. Source of respondents' daily income (%)

Village No.	Fisheries	Agriculture	Fisheries & Agriculture	Fisheries & Labor	Total
Moo 1	92	0	4	4	100
Moo 2	20	60	20	0	100
Moo 3	93	7	0	0	100
Moo 5	100	0	0	0	100
Moo 6	89	0	11	0	100
Moo 7	93	0	0	7	100

3. Part II: Fisheries Sector

3.1 Fishing gear and fishing grounds

The results also showed that the main fishing gear used by the respondents are large cast net, anchovy falling net, Indo-pacific mackerel gill net, mullet gill net, crab gill net, crab trap, squid trap, and shrimp trammel net. Their fishing grounds are divided into four zones, as in the Pre-survey.

- Zone I: From Khao Bangbird Mt. to Khao Thumthong Mt.
- Zone II: From Khao Thumthong Mt. to Ko Aeung island.
- Zone III: From Ko Aeung island to Ko Rang island.
- Zone IV: From Ko Rang island to Ko Khai island.

3.2 Main types of fishing gear

The main fishing gears, which the respondents used such as the large cast net, anchovy falling net, Indo-pacific mackerel gill net, mullet gill net, crab gill net, crab trap, squid trap, and shrimp trammel net, were their own investments. The large cast net was the most popular gear used by 50% of the respondents (Table 5) followed by anchovy falling net and crab gill net at 11.21% and 10.34%, respectively.

Table 5 also showed that the large cast net is heavily used in fishing Zone III (31.90%), where the mullet gill net, crab gill net, crab trap and shrimp trammel net were also used. Anchovy falling net is favorably used in Zone II and Zone III.

Table 5. Zoned fishing grounds and main type of fishing gears used (%)

Type of fishing gear	Zone				Total
	I	II	III	IV	
Large cast net	12.07	5.17	31.90	0.86	50.00
Anchovy falling net	2.59	3.45	3.45	1.72	11.21
Indo-Pacific mackerel gill net	3.45	0	4.31	0	7.76
Mullet gill net	0.86	0.86	6.90	0	8.62
Crab gill net	4.31	0	6.03	0	10.34
Crab trap	0.00	0	6.03	0	6.03
Squid trap	0.86	0.86	0	0.86	2.59
Shrimp trammel net	0.00	0	3.45	0	3.45
Total	24.14	10.34	62.07	3.45	100.00

3.3 Length of fishing boats

Some of respondents own more than one fishing boat. The main type of fishing boats are: in-board powered boat and long-tailed boat categorized into four lengths, <6 meter, 6-9 meter, 10-12 meter and >12 meter. Most respondents of Moo 1 used in-board powered boat and long-tailed boat both with length 6-9 meter at 35% and 27.5%, respectively (Table 6). Most Moo 2, Moo 5, and Moo 7 respondents used long-tailed boat with length 6-9 meter at 100%, 92.31% and 83.33%, respectively. About 42.86% of Moo 3 respondents used in-board powered boat with length 10-12 meter.

Table 6. Type and length of fishing boats used by respondents (%)

Village No.	In-board powered boat				Long-tailed boat			
	<6m	6-9 m	10-12 m	>12 m	<6m	6-9 m	10-12 m	>12 m
Moo 1	0	35.00	7.50	12.50	5.00	27.50	12.50	0
Moo 2	0	0	0	0	0	100.00	0	0
Moo 3	0	14.29	42.86	0	0	35.71	7.14	0
Moo 5	0	0.00	7.69	0	0	92.31	0	0
Moo 6	0	33.33	25.00	0	0	33.33	8.34	0
Moo 7	0	5.56	5.56	0	0	83.33	5.56	0

3.4 Main types of fishing gear by village

Table 7 shows that the main types of fishing gear used in Moo 1, Moo 3 and Moo 6 are the large cast net about 51.22%, 65% and 81.82%, respectively. About 57.14% of Moo 2 respondents used the mullet gill net. Large cast net and crab gill net were used in Moo 5, 36.84% and 26.32%, respectively. The fishing gears used by Moo 7 respondents are the crab trap (38.89%) and large cast net (27.78%).

Table 7. Main types of fishing gears employed in the villages (%)

Village No.	Large cast net	Anchovy falling net	Indo-Pacific mackerel gill net	Mullet gill net	Crab gill net	Crab trap	Squid trap	Shrimp trammel net	Total
Moo 1	51.22	17.07	9.76	2.44	14.63	0	4.88	0	100
Moo 2	42.86	0	0	57.14	0	0	0	0	100
Moo 3	65.00	30.00	0	5.00	0	0	0	0	100
Moo 5	36.84	0	21.06	5.26	26.32	0	5.26	5.26	100
Moo 6	81.82	0	9.09	0	0	0	0	9.09	100
Moo 7	27.78	0	0	16.67	5.55	38.89	0	11.11	100

3.5 Catch distribution

Table 8 and Table 9 show the catch distribution of respondents that have been recorded from two groups, through the middlemen and retail by the fishermen themselves.

The results showed that respondents from Moo 3 and Moo 5 favored to sell fresh squid, 7.76% and 6.03%, respectively. About 15.52% of Moo 1 respondents favored to sell dried squid. Moo 1 respondents usually sold fresh fish and crabs, 7.76% and 6.04%, respectively (Table 8).

Table 8. Catch by species (%)

Village No.	Squid		Fish		Shrimp		Crab	
	fresh	dried	fresh	dried	fresh	dried	fresh	meat
Moo 1	4.31	15.52	7.76	1.72	0	0	6.04	0
Moo 2	2.59	0	3.45	0	0	0	0	0
Moo 3	7.76	3.45	0.86	5.17	0	0	0	0
Moo 5	6.03	0.86	4.31	0	0.86	0	4.31	0
Moo 6	2.59	5.17	0.86	0	0.86	0	0	0
Moo 7	4.31	0	2.59	0	1.72	0	3.45	3.45
Total	27.59	25	19.83	6.89	3.44	0	13.8	3.45

Table 9 shows that most respondents sell their catch through the middlemen, but Moo 1 and Moo 5 respondents indicated that they sold their catch by themselves.

Table 9. Catch distribution (%)

Village No.	Squid		Fish		Shrimp		Crab	
	middleman	fisherman	middleman	fisherman	middleman	fisherman	middleman	fisherman
Moo 1	19.83	0	8.62	0.86	0	0	6.03	0
Moo 2	2.59	0	3.45	0	0	0	0	0
Moo 3	11.21	0	6.03	0	0	0	0	0
Moo 5	6.90	0	3.45	0.86	0.86	0	4.31	0
Moo 6	7.76	0	0.86	0	0.86	0	0	0
Moo 7	4.31	0	2.59	0	1.72	0	6.90	0
Total	52.60	0	25.00	1.72	3.44	0	17.24	0

3.6 Income, costs and profit from fishing

Table 10 shows the income, costs and profit per trip conducted by the respondents categorized into eight fishing gears, i.e., large cast net, anchovy falling net, Indo-pacific mackerel gill net, mullet gill net, crab gill net, crab trap, squid trap and shrimp trammel net. This result illustrates that the respondents receive significant incomes using each fishing gear. Costs represent use of fuel, labor and food, but do not include fix cost such as cost of the equipment.

Income of shrimp trammel net has been the highest (9,625 Baht), followed by the anchovy falling net and large cast net, 6,043.08 and 3,743.64 Baht, respectively.

Table 10. Income, costs and profit per fishing trip by fishing gear (Baht)

Fishing gear	Income	Costs	Profit
Large cast net	3,743.64	1,345.00	2,398.64
Anchovy falling net	6,043.08	3,569.23	2,473.85
Indo-Pacific mackerel gill net	2,038.89	359.44	1,679.45
Mullet gill net	1,842.00	284.50	1,557.50
Crab gill net	2,541.67	631.67	1,910.00
Crab trap	1,071.43	189.29	882.14
Squid trap	2,584.33	1,266.67	1,317.66
Shrimp trammel net	9,625.00	275.00	9,350.00

3.7 Sources of credit

About 75% of Moo 2 respondents accessed the loan service from the Government (Village Fund). Each village obtained credit from BAAC (Bank for Agriculture and Agricultural Cooperative), especially the Moo 1 respondents (Table 11).

The fisher's group is the main source of credit for Moo 5 and Moo 7 respondents (66.67% and 47.83%, respectively). About 52.94% of Moo 3 respondents and 30.77% of Moo 6 respondents accessed loans from the fish traders. Only few respondents borrow money from commercial banks, other groups and relatives/friends.

Table 11. Source of credit and loans (%)

Village No.	Government	BAAC	Commercial Banks	Fisher's groups	Other groups	Fish-traders	Relatives/friends	Total
Moo 1	2.38	33.33	0	16.67	11.91	23.81	11.90	100
Moo 2	75.00	25.00	0	0	0	0	0	100
Moo 3	23.53	17.65	0	0	0	52.94	5.88	100
Moo 5	0	6.67	0	66.67	6.67	13.32	6.67	100
Moo 6	15.38	23.08	7.69	23.08	0	30.77	0	100
Moo 7	4.35	13.04	0	47.83	8.69	26.09	0	100

3.8 Problem and needs

There were various problems and needs identified by the respondents in the villages. These included: high price of fuel (increasing cost), and reduction and decline of aquatic resource (26.30% and 32.22%, respectively, Table 12). These were followed by lack of potable water (water pipe line for consumption) and illegal fishermen encroaching the area (11.18% and 7.24%, respectively).

Table 12. Problems and needs identified by respondents (%)

Problems and Needs	Moo 1	Moo 2	Moo 3	Moo 5	Moo 6	Moo 7	Total
Illegal fisherman encroaching the area	3.94	0	0	0.66	1.32	1.32	7.24
High price of fuel, increasing cost	7.89	1.32	3.94	2.63	3.29	7.23	26.30
Water pollution of shrimp farm and dirty beach	1.32	0.66	0	3.29	0.00	0.66	5.93
Reduction and decline of aquatic resource	13.15	2.63	5.92	2.63	4.60	3.29	32.22
Increasing number of small scale fishing boats	2.63	0	0.66	0.66	1.32	0	5.27
High wind and monsoon	1.32	0	0	0	0	0	1.32
Boat ports not enough	2.63	1.32	0	0	0.66	0	4.61
Lack of capital, agriculture land, low rubber price	0.66	1.32	0.66	0	0	0	2.64
Lack of potable water, water pipe lines for water consumption	3.29	0.66	1.97	0.66	0	4.60	11.18
Decreasing income	3.29	0	0	0	0	0	3.29
Total	40.12	7.91	13.15	10.53	11.19	17.10	100.00

4. Part III: People's Participation in Fishermen's Groups

There are eight existing fishermen's groups, namely: Fish Culture, Saving, Farmer's Group, Fisher's Group, Women, Village Fund, Volunteer, and Crab Bank.

The respondents are members of the various groups in each village. The Fisher's Group is the primary group with most respondents in Moo 1, Moo 5, Moo 6 and Moo 7 participating (39.39%, 100%, 62.50, and 50%, respectively, Table 13). Most Moo 2 respondents are members of the Farmer's Group. About 55.56% of Moo 3 respondents are members of the Village Fund. Crab Bank is a new group established in Moo 7.

Table 13. People's participate in fishermen's groups (%)

Village No.	Fish culture	Saving	Farmer's Group	Fisher's Group	Women	Village fund	Volunteer	Crab Bank	Total
Moo 1	24.24	6.06	21.21	39.39	6.06	3.04	0	0	100
Moo 2	0	0	100.00	0	0	0	0	0	100
Moo 3	0	0	11.11	22.22	0	55.56	11.11	0	100
Moo 5	0	0	0	100.00	0	0	0	0	100
Moo 6	12.50	12.50	0	62.50	12.50	0	0	0	100
Moo 7	0	0	0	50.00	0	11.11	5.56	33.33	100

5. Part IV: Attitude of fishers towards the Integrated Coastal Resources Management Project in Pathew District

5.1 Knowledge on the Integrated Coastal Resources Management Project in Pathew District

Most respondents know about the Integrated Coastal Resources Management Project in Pathew District, especially those from Moo 1, Moo 3, Moo 6 and Moo 7 (81.48%, 71.43%, 77.78% and 100%, respectively, Table 14). The percentage of respondents who know and participate in project is 74.70%.

Table 14. Respondents' knowledge about the ICRM-PD project (%)

Village No.	Knowledge		
	Aware	Not Aware	Total
Moo 1	81.48	18.52	100
Moo 2	40.00	60.00	100
Moo 3	71.43	28.57	100
Moo 5	46.15	53.85	100
Moo 6	77.78	22.22	100
Moo 7	100.00	0.00	100
Total	74.70	25.30	100

5.2 Respondents' interest in the activities of the ICRM Project

The Integrated Coastal Resources Management Project in Pathew District (ICRM-PD) conducted 16 activities. The activities that the respondents most appreciated are the installation of Artificial Reefs (ARs), mangrove reforestation, and crab bank (13%, 12%, and 11%, respectively, Table 15).

Table 15. Respondents' degree of appreciation of the project activities

Activity	%
1. Fisheries data collection	7
2. Women's activity	6
3. Crab Bank	11
4. Organization and functioning of Pakklong Fishermen Group (PFG)	6
5. Zoning arrangement	9
6. Various workshops, training courses and study tours	7
7. Local seminars	3
8. Mangrove reforestation	12
9. Flower planting	5
10. Experiment on Babylonia shell culture	4
11. Experiment on cage culture feeding	2
12. Experiment on swimming crab culture	3
13. Installation of Fish Enhancement Devices (FEDs)	6
14. Installation of Artificial Reefs (Ars)	13
15. Eco-tourism	2
16. Local enforcement unit	4
Total	100

These activities were implemented by the fishermen themselves and have benefited them. The results also showed that the respondents' interest and their involvement in each activity were in various proportions.

5.3 Evaluation of the project operation

The project was good and offered much help in fisheries resource management and community development.

Based on the ICRM-PD activities, most respondents agreed that the project has helped in fisheries resource management (76%), although some 5% of the respondents thought that the project was not of help in the management of the fisheries resource (Table 16).

Most respondents agreed that the community development was getting better (71%) while 24% thought that there was no change in community development (Table 16).

The results however, indicated that the respondents were mostly pleased and agreed that the project was good and helpful in fisheries resource management and community development.

Table 16. Evaluation of the project operation (%)

Project	fisheries resource management	community development
Yes (getting better)	76	71
No change	19	24
No (getting worse)	5	5
Total	100	100

5.4 Income

Household income increased compared with those in 2002

After the project operation, 42% of the respondents thought their household income did not change compared with their 2002 income, however, 32% believed that their income increased a little from 2002 (Table 17).

In the case of household income that increased, the concerned respondents agreed that the project contributed significantly to such increases (84%).

Table 17. Attitude of respondents about household income

Household income	%	Income increase	%
Increased significantly	8	The project contributed	84
Increased little	32	the project not concern	16
No change	42	Total	100
Decreased little	13		
Decreased significantly	5		
Total	100		

5.5 Expectations from the future project operation

Most respondents expected to have more Artificial Reefs (ARs) installed (36%). Secondly, some respondents hoped the project would continue (11%). They also expressed interest in the increased installation of Fish Enhancement Devices (FEDs) as well as more activities related to fish releasing (10% each, Table 18).

Table 18. Expectations from the future project operation

Expectations	%
1. Increased installation of Artificial Reefs (ARs)	36
2. Non-stop Project and continue activity	11
3. Increased installation of Fish Enhancement Devices (FEDs)	10
4. More fish releasing activities	10
5. Mangrove reforestation	8
6. Coastal fisheries development, control trawler and illegal fisherman	6
7. Green mussel culture	5
8. Improved cage culture by feeding	5
9. Crab Bank	3
10. Introduction & training on Thai massage	2
11. Plan to treat water pollution from shrimp farms	2
12. High price of fuel	2
Total	100

V. CONCLUSION AND RECOMMENDATIONS

Part I General Information

1. Most fishers are married and obtained education from primary school levels.
2. The fishers' main occupation is in fisheries and also in fisheries and agriculture, just like in the Pre-survey, which showed that fisheries is their major occupation and has been benefiting them.
3. The fishers earn mostly their income from the fisheries sector, as also shown in the pre-survey.

Part II Fisheries Sector

4. The fishers favor to invest in the Large cast net for fishing, making them changed investment from the Indo-pacific mackerel gill net which was the main type of fishing gear in the pre-survey.
5. Crab trap and squid trap are additional fishing gears in the recent survey, and it was assumed that technology on these new gears have already been transferred to the fishermen.
6. Most fishers own long-tailed boat with length 6-9 meter and use long-tailed boat longer in length than indicated in the pre-survey. This indicates some improvements in the fishing technology they are adopting.
7. The fishers sell fresh squid and dried squid with nearly the same proportion and prefer to sell fresh fish, shrimp and crab than processing their produce. Majority of their catch is distributed through the middlemen.
8. Shrimp trammel net could provide high income for fishers but this gear could be operated only for a short period during the monsoon season, and the fishers receive the lowest income from crab trap fishing. The fishers income depend on various factors such as fisheries resource, catch price, operation cost, etc.
9. BAAC and the Government are the main sources of credits for the fishers. The proportion of the fishers accessing loans from the fishers group is increasing, showing the important role that the fishers group can play in the livelihood of the fishers and the benefits that the groups can give to the fishers.
10. Reduction and decline of aquatic resource, illegal fishermen encroaching the area and lack of potable water, water pipeline for consumption needs are still among the major problems and needs in the villages. High price of fuel, increasing cost and small scale fishing boat, requiring more boat ports are among the recent problems and needs raised during the survey.



Part III People's participation in fishers groups

11. Crab bank is a new group established in village no. 7, and most fishers signified interest in engaging themselves in this group. The proportion of members in the fishers groups is increasing signifying fishers increased awareness on the usefulness of the groups.

Part IV Attitude of fishers towards ICRM-PD

12. Most fishers know and participate in the Integrated Coastal Resource Management Project as the information was made accessible to them.

13. The fishers expressed their appreciation for the implementation of the various activities of the project that their assistance has been utilized such as in the installation of Artificial Reefs, mangrove reforestation and crab bank.

14. The fishers agree that the project has been helpful in fisheries resource management and community development.

15. Although some fishers think that their household income had no change after the project implementation, some fishers whose income had increased attributed such increase to the project operation.

16. The fishers expect to increase the installation artificial reefs and continue the project.

17. It is therefore very optimistic to say that most fishers were satisfied with the implementation of the Integrated Coastal Resource Management Project through its diversified activities.

VI. REFERENCES

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