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Appendix II

Report of the Planning Workshop

for

ARTISANAL FISHERIES MANAGEMENT

April 11 and 12, 1983

Jakarta, Indonesia

SPONSORED BY

THE INDONESIA DIRECTORATE GENERAL OF FISHERIES
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AND

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1. INTRODUCTION

1.1 This workshop was sponsored by the U. S. Agency for International Development (USAID) and by the Indonesian Directorate General of Fisheries (DGF). It was held at the Puncak Pass Hotel on April 11 and 12, 1983 and was attended by 14 participants from USAID, DGF, and the Agency for Agricultural Research and Development (AARD). Participants are listed in Appendix I. The workshop was opened by Mr. Bandi, Acting Director of the Office of Fisheries Production, DGF who also co-chaired the meeting with Dr. Bannerjee.

Indonesian fisheries personnel were invited to this workshop so that the USAID sub-project could be adjusted to more accurately address the needs of the Indonesian Government regarding fisheries management. More specifically, this workshop provided the opportunity to 1) find out what work has already been done in fisheries management, 2) learn what projects can be undertaken to help in managing these fisheries, and especially 3) find out the priorities for such projects.

The workshop followed an informal format in order to promote discussion. Our discussions started with a description of the Artisinal Fisheries Management Sub-Project and then followed the outline presented in Appendix II .

This report describes the main discussions, conclusions and recommendations of the workshop.

1.2 The Artisinal fisheries management sub-project is just one of several subprojects under the umbrella SMALL SCALE FISHERIES PROJECT of USAID. The goal of the Artisinal Fisheries Management Sub-Project is to "develop functional fishery management systems" for the provinces under consideration. These include all of Java and part of southern Sumatra.

1.3 What is a management system? Such a system includes all policies which affect the fishery. Such policies would include regulations, licensing requirements, incentives to fish in new areas, governmental policy regarding loans to fishermen and so forth.

For example, the present management system includes the existance of fishing zones, license requirements, loans for motorization and similar programs and policies. These are all things which require or encourage the fishermen to fish in a certain way. How they fish, where they fish, and what they fish for, of course, affects the fishery resource as well.

1.4 The management system should include: 1) the regular collection of necessary information, 2) the analysis of that information and 3) the formulation or adjustment of management policy.

2. ARTISINAL FISHERIES

2.1 This sub-project must work toward better management of the "Artisinal Fisheries". All factors which affect the artisinal fisheries may be examined. For example if large purse seiners are catching the same fish which the artisinal fishermen catch, then that must be taken into account. The purse seine data must be examined, but only in relation to the artisinal fishermen. In general the sub-project will have to rely on existing data and existing studies for the larger scale fisheries.

2.2 The question was brought up: "How will we define Artisinal Fishermen?" Various suggestions included: 1) the need to have a definition which meshed with the way in which the catch statistics are collected, 2) a definition which coincided with the FAO definition, 3) a definition based on the number of days fishing, 4) a definition based on the amount of investment required, 5) definitions based on boat size, 6) definitions based on the distance from shore fished.

2.3 In general we agreed to define the artisinal fisheries as consisting of boats of 1) Five gross tons or less, 2) Powered or non-powered, 3) Fishing within zones 1 and 2 (Within 7 miles of shore) and 4) Generally making one day trips.

2.4 It was generally agreed that there would be many exceptions to this definition, but that it was reasonably realistic. Also, it was acknowledged that considerable data would be needed from other types of fisheries in order to properly examine various effects of competition between fishing gears.

It was also agreed that it was perfectly reasonable, within the framework of the project, to make recommendations which would result in the movement of fishermen out of the artisinal fishery, provided that this helped artisinal fishermen in general. For example, recommendations which resulted in fishermen making longer trips would be well within the project framework so long as the longer trips were not detrimental to the remaining artisinal fishermen.

3. CATCH STATISTICS

3.1 The next item of discussion concerned the availability of the various types of data needed to manage the fishery. We discussed the ability of the existing catch statistics to provide the type of data needed. For example, could we get catch per unit of effort data for various types of gear and for various species groups within each gear type? While some such data is available, most participants acknoweldged that additional data was needed. In many cases the type of data which would be most helpful was not readily available.

3.2 A long discussion developed about the methods which are used to collect the existing catch statistics. It was explained that three basic types of data collection are used: those from the industrial fisheries (LL 1), which are reported directly, those from a sample of the landing places (LL 2), and those estimated using the desa (village) sampling system (LL 3).

While data from the industrial fisheries were considered to be quite good, the participants felt that the data from the major landing places could be improved somewhat. The desa sampling system seems to be the weakest and it generated the most discussion. In some provinces the desa sampling system is the method used to estimate well over 50 percent of the catch. In this system, sample villages are visited quarterly and data is collected through interviews with individual fishermen. The system relies on the fisherman's ability to remember what he has caught.

3.3 If the regularly collected catch statistics are to be useful in the management of the fisheries, they should be as accurate as possible. It was agreed that a priority task of the sub-project should be the improvement of the system of collecting catch statistics.

4. IMPORTANCE OF VARIOUS FISHERIES

4.1 After completing the discussion of the catch statistics we moved on to the subject of which artisinal fisheries were regarded as needing the most attention. We started the discussion with additional comments about the type of data which would be useful in managing the fisheries.

4.2 Fishing Gear

4.2.1 The participants pointed out that there was a need for better information about [illegible] of the artisinal fishing gear types. The following [illegible] were mentioned: 1) Information is needed about the selectivity of the different gear types for the various species. 2) [illegible] also needed about species composition for each major gear type. 3) Good measures of catch per unit of effort for the artisinal fishing gear is badly needed as well.

4.2.2 We then listed the major types of fishing gear and discussed the relative importance of new data for each gear type. The result of this discussion was Table 1 which, although still a long list, narrowed somewhat the list of gear types we should examine.

4.2.3 The group then discussed some of the existing mesh size regulations. While there are mesh size regulations, they are not enforced. The lack of enforcement is partly due to the lack of enforcement personnel, but is also due partly to the lack of good information on which to base mesh size regulations. The problem is not an easy one to solve because many of the fish which are caught with small meshes do not grow large and could not be caught with larger meshes. However there is a need to protect the young fish of larger species which could grow larger if given the chance. The fishermen in some areas have said that they will not obey minimum mesh size regulations because they depend on species which can only be caught with small meshes. Thus any enforcement of such regulations should include a provision to educate the fishermen about the purpose of the regulation. If the fishermen can be convinced that the regulation is for their benefit, then they will be more likely to obey it and could even help to enforce it.

Some of the participants also mentioned the possibility of controlling the mesh sizes at the manufacturer and import level by prohibiting the import or manufacture of mesh sizes which were harmful. This was viewed as impractical since the netting is used for many other purposes. However there may be some benefit to working more closely with the net manufacturers.

4.3 <u>Most Important Species or Species Groups</u>

4.3.1 The next discussion centered about the importance of various species or groups of species. A list of species groups which the participants thought needed attention was developed. We discussed this list quite a bit and identified which species groups needed studies regarding better management or studies to develop new or better harvesting methods (Table 2).

4.3.2 Management of the fisheries of the inshore north coast of Java presents a serious management problem for several reasons: 1) Artisinal fishermen are very dependent on these fish. 2) This area is over fished. 3) Very small mesh nets are used. 4) The catch consists of a multitude of species. 5) The catch data for this artisinal catch is not good. 6) There are limited management criteria which would be useful here.

4.3.3 There were also comments regarding existing data for some species. Both BPPL and BPPI have length frequency data for selected species. Some of this data has been analyzed to obtain information about growth of these species. In addition BPPL has biological data for many demersal species resulting from the JETINDOFISH and earlier trawl surveys.

5. BOAT DESIGN

5.1 The subject of boat design and construction was discussed only briefly. It was concluded by those present that plans exist for many appropiate boat designs, but that funds for construction and testing of these designs is lacking. It was explained that under this project we did not have funds for boat construction as such, but that we could provide technical assistance for the design and construction of fishing vessels appropriate for small scale fishermen. Some discussion followed.

5.2 There was a general agreement that perhaps it was not new designs that were needed but better construction methods. A short-term expert who would look into the improvement of existing boat construction methods might be useful.

5.3 A short discussion followed concerning the relative merits of wood versus fiberglass for fishing boats. There are very few fiberglass boats in the country. Only a few were reported from the Bali Straits and those were reported to be very good. Indonesian fishing vessels are noted for their relatively short useful life.

6. SOCIO-ECONOMIC STUDIES

6.1 It was explained that within the framework of the Artisinal Fishery Management Sub-Project AID would be able to hire a short term social anthropologist who could help us to make best use of social and/or economic information in the development of our fishery management system. This portion of the project is regarded as very important since there are many factors which can affect the fishery which originate in the fishing community. Problems of financing, of lack of technical knowhow, or socially unacceptable regulations could cause the failure of an otherwise good management system.

6.2 Our discussion was based on the sub-project outline (Appendix II). It was felt that the most important role of such an expert would be: 1) to help us avoid actions which would help a few fishermen at the expense of the others, 2) to find means of encouraging fishermen to fish in new areas, farther from shore or at different locations, 3) to examine the limitations on the marketing of fish (it was pointed out here that our project would not be a marketing project as such). 4) to examine the problems of social friction between the different groups of fishermen particularly with relation to the following: a) the placement of "rumpon" (fish attraction devices used with purse seines) and b) "Andon" (the temporary migration of fishermen to another location for a specific fishing season).

6.3 We also had a discussion about the existing methods of control of fishing with regard to social acceptance. In some areas certain types of fishing sites are "owned or leased" by the fishermen. For example milkfish fry collection sites are assigned to individual fishermen. Bagan sites are also under the control of individuals. Stake nets in some areas are site specific. The idea of leasing sites for "rumpon" was viewed as a possibility.

6.4 The problem of finding a more efficient way of getting new information to the fishermen was also discussed. Both the improvement of the extension system and increased use of the KUDs to distribute information were considered as possibilities.

6.5 In order to provide a basis for discussion about the types of information the group would like to get from the fishermen a example of a questionaire used in such studies was presented. (The sample questionaire was from the University of Rhode Island small scale fisheries project in Costa Rica.) The participants had several comments regarding the sample questionaire. Most felt that such a questionaire, designed for use in Indonesia would provide useful information. Some participants commented that the Directorate General of Fisheries already had a similar questionaire. The participants felt that a single, uniform questionaire in Indonesian should be used to avoid confusion.

7. PROJECT SITES

7.1 During the previous two months several potential project sites had been suggested. There was some concern that these site were being suggested merely because the person giving the advice was familier with the site, not because it had any particular qualities which would make it a good site. Also there has been some confusion over the role of our sub-project. Some had apparently viewed it as a fishing village development project which it is not. We explained to the participants that the purpose of the project sites was to provide specific artisinal fishing locations where we could collect information useful in the development of a management system for artisinal fisheries. It was pointed out that information from other sources would also be used.

7.2 We listed suggestions for project sites on the board and an open discussion followed. We also listed the criteria given on Table 3 and as a group ranked the sites according to these criteria (Table 3). The participants concluded that these sites would be suitable as the primary sites for the sub-project.

7.3 If for some reason these sites are not desireable, nearby sites in the same area will be used. Some secondary sites will also be needed.

8. MATCHING SITES WITH TASKS

8.1 Once the sites were selected the group discussed the sub-project tasks which would be appropriate for each site. There was much discussion about this and some new project possibilities were suggested as well. For each site we established the most likely species and types of fishing gear which would be important to investigate in relation to fishey management (Table 4).

The tasks and sites listed in Table 4 will provide a guide for developing specific sub-project tasks.

9. CONCLUSIONS OF THE WORKSHOP

9.1. A "management system" as written in the project paper should include: 1) the ongoing collection of necessary fisheries and other information. 2) A means of analyzing that information, and 3) Methods to incorporate such information into management policy (Sec. 1.4).

9.2 A working definition of artisinal fisheries was developed (Sec. 2.3, 2.4).

9.3 Improvement of the catch statistics system was identified as a priority task (Sec. 3.3).

9.4 Types of data needed for artisinal fishing gear were identified (Sec. 4.2.1).

9.5 The types of artisinal fishing gear needing the most work were listed (Sec. 4.2.2, Table 1).

9.6 Species and species groups needing the most attention were identified (Sec. 4.3.1, Table 2).

9.7 The fisheries of the inshore northern coast of Java were identified as needing special attention (Sec. 4.3.2)

9.8 A short term expert to help improve boat construction methods would be useful (Sec. 5.2).

9.9 Some specific tasks for a short term social anthropologist were suggested (Sec. 6.2).

9.10 Priority sub-project sites were defined and their suitability discussed (Sec. 7, Table 3).

9.11 Tasks suitable for each site were suggested. Sub-project tasks will be developed from this list (Sec. 8, Table 4).

APPENDICES I AND II

Appendix I: List of Participants

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Purna, Kepala
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(BALAI PENGEMBANGAN PENANGKAPAN IKAN)

Farid, Kepala
Seksi Penangkapan Balai Ketrampilan Penangkapan Ikan
Jln. Coaster, Pelabuhan
SEMARANG

Gomal, Kepala
Seksi Survey dan Eksporasi

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SUB-DIRECTORATE FOR PRODUCTION

Yunas Bandi, Kepala
Sub. Dit. Pola Produksi

Asikin, Kepala
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Dr. Thierry Boely, Population Dynamics Specialist
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Table 1. Gear types under consideration for management studies.

	NEEDS STUDY	CONSERVATION A PROBLEM	DATA IN SEMARANG (BPPI)
PAYANG	X		
MINI PURSE SEINE	X	X	X
SURFACE GILLNETS	X		
BOTTOM GILLNETS	X		
TROLL LINES	X		
DOGOL			X
TRAMMEL NETS	X		X
TRAPS (?)			
MINI BOTTOM LONGLINE	?		
BEACH SEINE		X	
BAGAN		X	

Table 2. Groups of fish species considered for study with regard to developing a better fishery management system in Java and southern Sumatra.

SPECIES GROUPS	MANAGEMENT	DEVELOPMENT	LF(1)
INSHORE NORTH COAST OF JAVA	XX		
PELAGIC			
MACKERELS (*Rastrelliger*)	X		X
SARDINE (five species)	X		X
BONITO (*Sarda orientalis*)		X	
SKIPJACK (*Kasuwonus pelamis*)		X	
SQUID (*Loligo*)		X	
ANCHOVY (*Stolephorus* and others)	X		
SCAD MACKEREL (*Decapterus*)	X		X
DEMERSAL			
SHRIMP (mostly Penaeidae)(3)	X	X(2)	
REEF SPECIES (mostly snapper and grouper, several genera)	X	X	X
SHARK (several genera)		X	
LOBSTER (*Panilurus*, *Panulirus*)		X	
POMFRET (*Formio*, *Pampus*)	X	X	X

1. LF. Some length frequency data is available for these species.
2. Development of new fishing gear for shrimp to replace the banned trawl is a high priority item.
3. The shrimp fishery in Cilacap, for example, was based on five species of *Penaeus*, two species of *Metapenaeus* and a smaller quantity of other Penaeid and other shrimp. (Zalinge and Naamin. 1975. The Cilacap based trawl fishery for shrimp along the south coast of Java. LPPL Report No. 2, 1975)

Table 3. Results of discussion of sub-project sites. Criteria listed below.

SITES	CRITERIA 1	2	3	4	7	8	9
BENGKULU							
BENKULU	7	L	Y	A(2)		10	OK
MANNA	10	L	N	P(2)		10	OK
WEST JAVA							
PELABUHAN RATU	8	M	Y	G(2)		10	OK
ERETAN	7	H	N	G(2)		10	OK
CENTRAL JAVA							
ARGOPENI	10	LM(1)	Y	P(2)	(5?)	10	OK
WONOKATO	8	H	N	A(2)	(345)	10	OK
EAST JAVA							
PRIGI	8	L	Y	G(2)		10	OK
BRONDONG	7	MH	N	G(2)	(345)	10	OK

NOTES:
1. Heavy fishing for shrimp.
2. Some research data available for this area.
3. Rumpon (fish attraction device) conflict.
4. Andon (fishermen migration) conflict.
5. Oil problems.

CRITERIA:
1. Representitive of artisinal fisheries (1=poor, 10=good).
2. Lightely, moderately, or heavily fished (L, M, H).
3. Special fishery of interest? (Y=yes, N=no).
4. Historical data available? (G=good, A=average, P=poor).
5. (Potential for gear improvement? Discussed elsewhere.)
6. (Potential for a new fishery? Discussed elsewhere.)
7. Other information of interest? (footnotes).
8. Fishermen willing to cooperate? (1=poor, 10=good).
9. Site identified as important by Indonesian Government?

Table 4. Species groups, gear types and other information identified as important at each of the sub-project sites.

SITES	TASKS: SEE CODES BELOW SPECIES GROUPS	GEAR TYPES	OTHER
BENGKULU			
BENKULU	BCD	4679	I
MANNA	BCD	4679	I,II
WEST JAVA			
PELABUHAN RATU	AEJK	2469	
ERETAN	DFGHI	(2)3457	II
CENTRAL JAVA			
ARGOPENI	D	7	
WONOKATO	DFGHI(M)	12457	II
EAST JAVA			
PRIGI	AF	3469	
BRONDONG	DFGHIN	23457	II

SPECIES GROUPS

A. Large pelagic fish.
B. Bonito.
C. " Skipjack.
D. Shrimp.
E. Snapper/Grouper.
F. Sardine.
G. Decapterus.
H. Rastrelliger.
I. Inshore north coast.
J. Aquarium fish.

Development
K. Squid.
L. Shark.
M. Scallops.
N. Other.

GEAR TYPES

1. Beach seine.
2. Payang.
3. Mini purse seine.
4. Surface gill net.
5. Bottom gill net.
6. Troll lines.
7. Trammel nets.

New Gear Development
8. Squid jigs.
9. Mini bottom longline

OTHER CONCERNS

I. Boat improvement.
II. Socio-economic study.