

# Jambudwip Marine Fishery, India

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## 1 Static Analysis - Collective action

The island of Jambudwip is flat, swampy and covered with dense forests and is situated in the Bay of Bengal about seven miles off shore. This island is completely uninhabited except during the fishing season. The fishing season lasts for four months from October to February when the sea is relatively calm. During the fishing season, fisherfolk from different parts of West Bengal, Bihar, and Orissa come here, to set up their temporary camp (Khunti). There are 17 fishing units camps in south western part of Jambudwip giving a total population of 243 hailing from 30 different villages of West Bengal, Bihar, and Orrisa. The leader of each unit is called bahardar and he is responsible for recruiting his personnel from different villages either on share or on salary basis. These people are more dependent on the vagaries of nature and earn their livelihood from the sea where life is always in danger and the yield is largely beyond their control. They have developed a certain amount of fatalism in their world view. The element of insecurity and uncertainty combined with the unique situation of social deprivation of living away from family for 4-5 months, impart a tone of urgency and depth to their ritualistic efforts and beliefs. In addition, they have numerous rituals connected with the different stages of fishing operations. With the beginning of southern wind, when the sea becomes rough and the humidity in the atmosphere increases, these fisherfolk wind up their camps and go back to their native village. The key resources (natural infrastructure) in the Jambudwip island are sea, forest, and the creatures both in the sea (primarily fish) and the land. The key resource relevant to the commons dilemma faced by the fisherfolk is fish. There are different rules set by the panchayat.

This case study is part of the original Common-Pool Resource (CPR) database. A summary of the original CPR coding conducted in the 1968 by Edella Schlager and Shui Yan Tang at Indiana University may be found under Institutional Analysis CPR.

### 1.1 The Commons Dilemma

Potential over appropriation / poor coordination of appropriation. There is no mention of government intervention in this system. This island becomes a transient society for the fisherfolk during the fishing season. The potential commons dilemma of over exploitation of fisheries arises as there are no rules to avoid the over exploitation of fisheries. There are no formal institutions surrounding fisheries. However, they do have conventions of the fisherfolk they abide by to maintain a spirit of co-operation. These informal institutions are in place primarily to resolve conflicts. In case of breaches of this convention, an ad hoc panchayat is formed. A panchayat is a group of individuals elected by the community to act as the decision makers most in event of conflicts. The panchayat is not necessarily formed by bahardars (leaders of units) only as some intelligent and smart members of the different

fishing units are also included. Panchayat includes eight members: four bahardars and four ordinary members. These members are not elected nor are they fixed. Some influential members are just informed to gather on a fixed date at a fixed place to settle the dispute. The conflicts mainly arise in connection with fishing activities and can be classified into two broad categories: intra-unit conflict and inter-unit conflict. The nature of conflicts that take place are mostly in connection with the setting of net. The problem leading to over appropriation of fisheries seem to be a provisional problem, a soft human-made infrastructure provision problem.

Potential under-provisioning of public infrastructure: Since the island of Jumbudwip is totally isolated and uninhabited for the most part, there is no hard human-made public infrastructure in place. This case is interesting in that there is no employment of hard human-made public infrastructure by the fisherfolk. The fisherfolk come there by boat (private hard infrastructure), set their camps, catch fishes for four months, and go back to their natal villages. So, the concern of provisioning of hard human-made public infrastructure is irrelevant here. However, the provisioning of soft infrastructure is of serious concern. As aforementioned, there is provision of soft human-made infrastructure in terms of conventions of different units of fisherfolk. However, these soft infrastructures are mostly to resolve conflicts. There is no mention of any institutional arrangement regarding appropriation of fisheries which could lead to the problem of over appropriation. Because of seasonal fishing, it is hard to identify the scarcity of resources. In the source document, there is no mention of scarcity of resources. When the fisherfolk do not catch an expected amount, they develop a certain level of fatalism in their world view and attribute it to ill luck because of blunders in rituals, vagaries of nature, or unfavorable seas, but never to the scarcity of resources. Hence, there is under-provision of soft infrastructure regarding appropriation of resources.

The bahardar is responsible for recruiting his crewmember. He recruits his personnel from different villages either on share or on salary basis. Those on salary basis are usually those who are from distance and are not close kin whereas the crewmen on share system are close kin and belong to same village as bahardar. In share system, the profit and loss are equally borne, but in salary system, the profit and loss are borne by the bahardar alone whereas the crewmen just enjoy their fixed salary. There is a potential problem of free-riding here. If the bahardar is really skilled, experienced, and hardworking, the members on share may take a free ride. Regardless, he is going to get a share of profit. So, there is incentive for less skilled members to work not as hard. This could be interpreted differently as well. Since, its a share system, they have incentives to work harder to yield more profit. Similarly, the members on salary do not have incentive to work extra hard because they get fixed salary regardless of profit or loss. However, they may not get recruited for the next season if the bahardar is not satisfied with their work.

## 1.2 Biophysical Context (IAD)

Natural infrastructure (NI): The island of Jambudwip has varying climate throughout the year. Only four months, from February to October, in a year is suitable for fishing. The sea is relatively calm and the proportion of humidity in the atmosphere is favorable. However, after February, when the southern wind begins, the sea becomes rough and the proportion of humidity increases in the atmosphere making the stay of fisherfolk unpleasant. The primary reason for the fisherfolk to resort to Jambudwip is the proximity of the fishing grounds. The main consideration for selecting a site camp (Khunti) is the presence of a creek where they can safely harbor their country boats, supply of drinking water, and where

there is sufficient supply of fuel. It is equally important the camp is situated a little away from the sea line so the camp is not disturbed during high tidal period. For setting the net, the two major considerations are the soil condition of the sea bed and the route of the movement of the shoal of fish. It is important that the fisherfolk have the knowledge of the sea and the sea fish, calculate tide and ebb which largely affect their catch. They have developed some working principles on an inductive basis with some of their own rationales in correlating the tide and ebb with the lunar system. The fisherfolk are religious, hence, their livelihood activities are connected with a series of rituals right from the moment they sail to the island, during preparation, setting up camp, setting net, and the closing of the fishing season.

Hard human-made infrastructure: Boats and nets are the primary pieces of physical infrastructure that the fisherfolk used for fishing. They have rituals connected to them. The boat is worshipped when setting the keel of the boat by a caste priest of the owner with flowers and fruits. The boat is worshiped again after it is built completely. Each unit have two boats: one big anchored in the sea where the net is set, and other small is used to carry the catch to the shore. Each boat is placed under the care of one known majhi who should have minute knowledge of the immediate environment. Only two types of boats used: a) the saranga (dugout canoe) made out of single timber. There is no use of single nails and b) The Nauka (plank boat) used for transport. Iron nails are used to join the planks. The boat is painted using coal tar. Boats are expensive. In most cases, the boats are rented.

The raw materials to make nets is hemp thread. Net making follows a very meticulous process and is considered the job of the males. Just like the boat, some rituals are connected with the preparation of a net. At the time of the ritual some fresh fishes are also strewn over the net with the magical idea that it will bring more fish in the net. There is an increasing trend of using nylon thread as well. However, it is only used to prepare gill nets because nylon is expensive and gill netting does not require a lot of nylon thread. In addition to boat and net, the fisherfolk use a fish carrying basket, hanger, bamboo knife, bamboo mat for different purposes.

### **1.3 Attributes of the Community (IAD)**

Social Infrastructure. Fisherfolk from different parts of West Bengal, Bihar, and Orrisa venture to the island of Jambudwip. There are 17 fishing unit camps in south western part of Jambudwip with a total population of 243 hailing from 30 different villages of West Bengal, Bihar, and Orrisa. Nearly all of them are East Bengal refugees and are Kaibarta (Jaladas) by caste except for 15 persons belonging to different non-fishing and fishing castes. The group of appropriators featured in this case are fairly homogeneous. A majority of them are Hindu, but there are few Muslims as well. These people are landless and upon their return to their natal villages, they engage in different non-caste occupations as their secondary profession. The leader, bahardar, recruits individuals from different villages on share or salary basis. Those on share are mostly relatives and from same villages. Those on salary basis are from different villages. These fisherfolk maintain a spirit of co-operation with members in their unit and other units.

There are other social ties that are essential for commercial purposes. All the bahardars operate under the dadan system (money lending system). The mahajans or dadandars (money lenders) lend their money to bahardars through their agents to different bahardars free of interest, but the bahardars have to supply the catch of the whole seasons to the agents

of their respective mahajans who manage to extract exorbitant profit. If the bahardars cannot pay in one season, it is carried over to the next. One bahardar can be associated with only one lender. In addition, to resolving conflicts, it is the responsibility of the panchayat to control the free movement of personnel from one unit to other in the same fishing season once bayna (advance money) is already accepted. Bahardars develop ceremonial or fictional kinship with people who reside in the vicinity of the fishing ground so he can keep his belongings with them in case he cannot carry all to his natal village.

**Human Infrastructure:** Marine fishing is a specialized undertaking that requires considerable preparation, skills, tact, and experience. The knowledge of the immediate environment, tides and ebb, lunar system, etc is also important. Constructing a boat from scratch, webbing net from hemp, making a bamboo knife, basket, and mat also require a specific set of skills. The human infrastructure of these fisherfolk is high because they have all the skills required for marine fishing. In addition, due to long association with the sea and its creature, they have developed some clear idea of the characteristics of these creatures and an institution of magicians (ojha). They have some rituals but those are not solely guided by superstitions as some rational considerations are evident.

#### 1.4 Rules in Use (IAD)

The fisherfolk from West Bengal, Bihar, and Orrisa have successfully sustained their custom of fishing in the island of Jambudwip for generations. Being away from their natal villages and families for four months in a totally isolated and uninhabited island, and effectively maintaining a livelihood is their way of life. These people have successfully maintained a spirit of co-operation, both within their units and in between units. However, there are conflicts at times. Even though there are not specified formal and informal institutions for appropriation of resources, the panchayat system through their informal institutions has been effective in resolving conflicts and maintain cooperation.

**Position Rules:** Bahardar is the leader of the unit. He is responsible for the entire unit during the fishing season. Manjhi (steerer) of the boat is responsible for taking care of boat and locating where the nets are to be set. Khuntir majhi is responsible for management of the fishing unit at the fishing ground. Paki (cook) is responsible for feeding the unit. Priest is responsible for commencing rituals. In the island, the fisherfolk perform the rituals themselves. Mahajans are the money lender and they control the entire fishing economy. There are very few of them

**Boundary Rules:** Only male can be a part of fishing crew. Manjhi (steerer) is the only boat operator. Bahardar and Mahajans do not communicate directly. They always communicate via agents.

**Choice Rules:** Only bahardar can recruit individuals for the fishing trip. The day and the time of the voyage is selected in consultation with the Bengali almanac by their caste priest. Personnel on salary basis cannot move from one unit to other in the same fishing season after accepting the bayna (advance money). The panchayat can have only one member from Bihar. Rest seven has to be from West Bengal.

**Aggregation Rules:** Only the panchayat can decide who is at fault in an event of conflict.

**Scope rules:** No one should do anything on the shore before this ritual is performed. After taking bath, and circumvallating the tree seven times, the bahardar performs ritual on the first day of their arrival.

**Information Rules:** There is no information.

**Payoff Rules:** If there is a fine involved, the panchayat decides the amount. If there

is a conflict, mostly quarreling, between elder and younger member. The younger member must touch the feet of elder and apologize. Bahardar should give certain percentage of his yield to the Mahajans (lender).

### **1.5 Summary**

Fisherfolk from different villages in West Bengal, Bihar, and Orrisa venture to the island of Jambudwip to catch fishes. Jambudwip is isolated and uninhabited except during the fishing season that last from October to February. Bahardar is the leader of unit and there are 17 fishing units in total. Fisherfolk spend four months in the island in isolation. They resort to rituals connected with different stages of fishing operation. There are no appropriation rules, but the panchayat is responsible for maintaining several informal institutions they have to resolve conflicts and maintain co-operation within the unit and amongst the units. Based on the source document, there is not sufficient information on whether this case was deemed to be a success or not.

## **2 Case Contributors**

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