

Social wellbeing and commons management failure in a small-scale bag net fishery in Gujarat, India

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Abstract: Social scientists have long recognized that fishing is perceived by many coastal communities as a way of life that does much more than just provide material benefits. A corollary to this is that fishers are often reluctant to quit fishing. Marine fisheries are complex and dynamic, and are often subject to classic commons dilemmas. These dilemmas have become much more acute in recent decades as pressures on the world's small-scale fisheries have mounted. We argue that a social wellbeing approach provides a valuable perspective from which to view changing fisher perceptions of bag net fishing in the face of commons management failure in Gir Somnath District in Gujarat State, India. Fishers' perceptions of fishing as a desirable occupation are not shaped by only their job satisfaction. Ineffective governance and largely failed institutions are the factors that fishers blame for the recent crisis in their fishery. Many fishers are pessimistic about the future of fishing and do not want their children to be a part of this occupation that was vibrant until recently.

Keywords: Commons, fisher perceptions, governance, India, institutions, small-scale fisheries, social wellbeing

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1. Introduction

Many coastal communities have a strong fishing heritage, which passes from generation to generation. Fishing is much more than just a source of income, it is a 'way of life' for many coastal communities around the world (Thompson et al. 1983; Bavinck 2001; Britton and Coulthard 2013; Urquhart and Acott 2013). As Pollnac and Poggie note (2006), central to the job satisfaction of fishers and their adherence to the occupation is self-actualisation, which includes the sense of adventure, freedom, and challenge that fishing brings:

It is this role of the professional hunter – and its excitement, suspense, and freedom of activity, but also its dangers, insecurities, and frustrations – that changes with the changing occupational requirements of life in the modern world. (Hughes 1960 in Pollnac and Poggie 2008, 198)

Fishing is 'adventurous and challenging', nonetheless, fishers' perceptions vary at the same time with ever-changing occupational demands in a global context. Marine fisheries are complex and vary from region to region and over time, and so it is to be expected that fisher perceptions also vary.

This paper seeks to identify the factors which influence fishers' perceptions of fishing in Gir Somnath District in Gujarat State, India. Small-scale fisheries in many parts of the world are in transition and so fishers' perceptions of and attitudes towards fishing are also changing (Trimble and Johnson 2013; Jentoft and Chuenpagdee 2015). On the basis of ethnographic research, this paper uses a commons perspective to analyze the factors that have led to the current troubled condition of Gir Somnath's bag net fishery. That analysis is coupled with a social wellbeing approach to understanding fishers' perceptions of fishing as a desirable occupation, the future prospects of the occupation, and the various factors that shape fishers' views. The social wellbeing approach provides a multidimensional analytical lens that helps in understanding the complexity of the bag net fishery, including objective and subjective dimensions and how they are shaped by material and relational factors. The combination of a commons analysis with the social wellbeing framing paper contributes to the literature on Indian fisheries by showing the material, relational, and subjective consequences of the failure to adequately manage a fisheries' commons. The analysis provides the basis

for understanding the increasingly ambivalent ways in which fishers view their profession and heightens appreciation of the serious governance challenges the fishery faces.

The paper begins by linking the concept of commons to governance and then arguing for the complementary analytical value of the social wellbeing approach. The paper then presents findings in these areas from the fishing port of Saiyad Rajpara in Gir Somnath District. The next section discusses how institutional and governance factors have influenced the wellbeing of fishers. We argue that the failure of commons management institutions has led to a growing ecological crisis in the fishery which is, in turn, driving major changes in fisher perceptions of the viability of their occupation for future generations. The paper concludes by summarising the research outcomes and making some suggestions for improving governance of the bag net fishery commons.

Commons such as seas, public lands, and forests are often large and contain either natural or human-made resources (Ostrom et al. 1999). Commons have two distinctive characteristics: excludability, which refers to the difficulty of controlling access of potential resource users; and subtractability, where each resource user has the capacity to subtract from the welfare of others when drawing from a resource (Feeny et al. 1996; Ostrom et al. 1999; Steins and Edwards 1999; Dietz et al. 2003). Most commons are considered as degradable, whereby each user has the capacity to reduce the quantity or quality of the existing resource available to others. Ostrom et al. (1999) suggest a solution to commons problems by restricting access through assigning individual or communal rights. Generally, in commons, the rights to resources are allocated to a particular group of users who are supposed to be responsible for managing them and these users may have the right to exclude others from sharing the resources (Al-Fattal 2009). However, in most cases exclusion of beneficiaries through institutional means is likely to be costly and difficult (Ostrom et al. 1999; Basurto and Ostrom 2009; Galappaththi and Berkes 2015). Despite *de jure* property with are a *de facto* open access. For example, the Arabian Sea coast of Gir Somnath is quite prone to incursions by outsiders, especially, in recent years, seine net users from other States such as Goa and neighbouring Maharashtra. The local fishers have to bear the cost as these large vessels often harvest fish and other marine species in bulk during the peak seasons leaving the local bag net fishers with very little harvest. The local administration has taken few measures to address the issue despite frequent complaints.

Institutions and governance are crucial for the effective management of commons. Ostrom (1990) has credited effective governance as the basis for long-surviving commons institutions. The role of efficient institutions and effective governance is vital for controlling the access of potential users and in addressing the subtractability issue in commons (Pomeroy and Berkes 1997; Galappaththi and Berkes 2015). Institutions are basically structural constraints that aim to moderate uncertainties and regulate users' interactions (Chuenpagdee and Song 2012). Governance is a collaborative effort of multiple institutions (Jentoft and Chuenpagdee 2009, 2015) to solve various societal issues and create opportu-

nities through proper interactions (Kooiman and Bavinck 2005). Furthermore, Bavinck et al. (2015) illustrate that multiple sets of values, norms and rules exist in many coastal areas. Many coastal systems are believed to have legal pluralism where different sets of principles and ideas are applicable to the same system; those sets of principles may not be limited to the state legal systems only, but there may be non-state systems such as customary norms or traditional practices that have them as well (Jentoft et al. 2009; Bavinck et al. 2013).

As commons are diverse, complex, and dynamic, a holistic or multidimensional approach such as the social wellbeing perspective (White 2009; Coulthard 2012) is much needed to understand them. Maritime anthropology has long argued that fisheries provide more than just material benefits and one needs to acknowledge their subjective contributions as well as understand their complexity (Thompson et al. 1983; McGoodwin 1990; Coulthard 2012). Social wellbeing provides a way to structure the multi-dimensional analysis of fisheries. It suggests that the determinants of wellbeing have objective and subjective elements, which can be further categorized in material, relational, and subjective dimensions.

The material dimension encompasses the tangible assets that shape fisher wellbeing (White 2009). It includes food, income or assets, employment, the standard of living and access to natural resources (Coulthard 2012; Britton and Coulthard 2013). The relational dimension explicitly studies how socially constructed relationships shape the wellbeing of individuals or society as a whole (White 2009; Coulthard et al. 2011; Weeratunge et al. 2014). This aspect of wellbeing includes the variety of social interactions fishers have either with family and friends or for occupational needs such as employees of government departments, fish traders or fellow fishers. Finally, the subjective dimension of wellbeing deals with subjective quality of life, for example, perceptions, happiness, and feelings (Camfield 2006; Coulthard 2012). Fishing has profound meaning in fishers' lives. It provides an identity to fishers and it is a way of life for them. Therefore, considerable attention needs to be paid to understand the subjective meanings that fishers associate with fishing (Urquhart et al. 2011; Britton and Coulthard 2013).

This social wellbeing framing intersects in important ways with research on job satisfaction in fisheries (e.g. Pollnac et al. 2001; Bavinck et al. 2012). Both can be seen as ways of engaging with questions of value in fishing. Specifically, both direct attention to what is seen to give meaning in life, is thus valued, and thus contributes fundamentally to how wellbeing is perceived (Johnson 2017). Meaning is context-specific and reflects particular histories of development, as we show in the case we discuss in this paper. Nonetheless, the job satisfaction literature also suggests certain patterns in the value that people derive from fisheries. In countries like India with relatively high rates of poverty and uncertain alternative occupational paths, Pollnac et al. (2012) suggest that fishers may have greater reluctance to take the risk of seeking alternative employment, even when conditions in fishing are deteriorating. This contrasts with the general pattern in Global North countries and emerging economies like Thailand where both individual capabilities may be greater and securing alternative occupations more

plausible. Regardless of global region, however, the job satisfaction literature suggests that an important part of processes of fisher decision making about such moves include struggling with subjective and relational attachments to fishing or, in other words, their commitment to fishing as a way of life (Trimble and Johnson 2013). This is particularly true for fishers who have long familial and personal histories in the profession (Pollnac et al. 2012). The job satisfaction literature in fisheries argues, also, that policy has to consider the material and the subjective satisfactions that link fishers to their occupation, as they may motivate fishers to stay in fishing even when it appears economically irrational to do so (Pollnac et al. 2001; Muallil et al. 2011).

This paper seeks to understand the factors driving changing fisher perceptions of the desirability of bag net fishing as an occupation in the maritime commons of Gir Somnath District. The application of a multi-dimensional social wellbeing approach is instrumental to addressing this focus. As our research largely deals with the views of fishers regarding their emotions, lived experiences and job satisfaction, the subjective dimension of wellbeing is substantial. The two main characteristics of commons, excludability and subtractibility, are related to institutions and governance which require social interactions among multiple players. Therefore, the relational dimension of the social wellbeing approach is also a key tool to explore the satisfaction fishers get from with different institutions as they try to achieve their wellbeing. The material aspect of commons is self-evident in the fish catch and income that fishers get from the bag net fishery. Finally, we also consider the linkages between all the three dimensions of wellbeing and how these influence the perceptions of the fishers in this region.

2. Study area and methods

Gir Somnath is one among a group of new districts created in Gujarat in 2013. Its headquarters is in Veraval, which is the major fishing hub of the state. Gir Somnath District is the most important area for fish production in Gujarat. In 2014 the district landed 295,000 tonnes of fish, which was approximately 41% of the total state landings (CMFRI Annual Report 2014–2015). The district is known for its contribution to both fresh fish as well as the dry-fish economy.¹ The fishing season is officially from August 15 to June 10. The fishery is closed for the rainy season. Suitable geographical and ecological conditions, and the presence of many processing units and exporting industries at Veraval have contributed to the thriving fishing industry of Gir Somnath (Figure 1).

¹ We have defined the fresh fish and dry fish economy on the basis of the local understanding from the research sites. Income generated from fresh marine harvests such as fish, lobsters and other marine products either sold locally with limited processing or as export to international markets in the form of frozen marine products contribute to fresh fish economy. In contrast, income generated from the trading of sun dried and/or salted fish which is used either for consumption, the dry fish trade, or for fish meal is part of dry fish economy.



Figure 1: District of Gir Somnath highlighting Saiyad Rajpara and Veraval.

The data on which this paper is based were gathered in the village of Saiyad Rajpara which, along with the nearby harbours of Simar and Navabandar, are the three major bag net landing centres in the district (Johnson and Sathyapalan 2006). The bag net fishery is a stationary fishery which is widely practised in this area due to the suitable marine conditions of strong currents and a shallow seabed. The funnel-shaped bag net with a broad open mouth and closed tail end with relatively smaller mesh size is placed in the opposite direction of water current inside the water, tied with two metal pipes attached to the sea bottom. Fish flow with the water current get caught in the net and fishers haul the net before the current changes its direction.

Saiyad Rajpara is situated in the dry fish zone of Gir Somnath District, a label that refers to the area's historical focus on fishing for the dry fish trade. The bag net fishery played a major role in livelihood change in Saiyad Rajpara. Prior to introduction of the bag net fishery approximately 70 years ago by 'Machhis' from South Gujarat, food insecurity was a major concern for residents of the village. The employment of local men in the bag net fishery and their eventual adoption of the technique dramatically improved local livelihoods. Prior to the access to new markets in the early 2000s, Bombay duck (*Harpodon nehereus*) and golden anchovy were the major target species for the local fishers, which were then sun-dried and were sold in the local market as well as would get exported to other parts of the state and neighbouring State of Maharashtra for consumption. With better access to technology and new markets from the early 2000s, the bag netters in this region started harvesting other marine species such as cat fish (*Arius thalassinus*),

pomfret (*Pampus argenteus*), Jew fish (*Protonibea diacanthus*), croakers, ribbon fish, eels, penaeid and non-penaeid prawns, croakers and shrimps. These species became increasingly dominant in fisher catches and incomes and marked a change in balance of the fishery towards the greater importance of fresh fish.

The geographical location of Saiyad Rajpara justifies its fishing orientation. Situated in the southeast of the district of Gir Somnath on the Arabian coast, the village is one of the major hubs and contributors to the dry-fish economy of Gujarat. Saiyad Rajpara is predominately a homogeneous fishing village with more than 90% of the inhabitants belonging to the comparatively marginalised Hindu Koli caste. In addition to Kolis, a few non-Koli households of Muslims, Dalits (also known as untouchables in India), milkmen and barber castes also dwell in the village. Saiyad Rajpara is home to more than six thousand people, of whom the majority are directly or indirectly part of the local fishery. Most boat owners and crew are Kolis, whereas most of the Muslims are either fish traders or owners of some other petty businesses. The Dalits are mostly engaged in manual labour such as the packing of dry fish, and loading or unloading work. Agriculture is not a viable source of income for most inhabitants of the village due to insufficient and poor quality cultivable land due to the saline environment. Given the poor alternative livelihood options that are locally available, it is unsurprising that Saiyad Rajpara's inhabitants adopted fishing as their main source of income.

An ethnographic strategy of engagement with workers in their natural environment was used for the research in Saiyad Rajpara (Davis and Henze 1998; Reeve et al. 2013). The research was conducted during the last quarter of 2014 with occasional visits to the other two nearby harbours within the dry-fish zone.

Data were obtained through primary and secondary sources. The original data were collected through multiple methods. For example, the data on institutions and governance were generated through semi-structured and key informant interviews. Semi-structured interviews and participant observation were largely used to explore the perceptions and attitudes of fishers. For example, fishers were asked questions such as how do they feel about their lives as fishermen, how satisfied they were with their profession, and whether they see a bright future for their children in fishing. We asked them to rank their satisfaction level, however, the ranking exercise did not work. Many fishers found it difficult to rank their feelings and satisfaction and therefore, we just continued with semi-structured interviews. Also, informal conversations with members of the fishing community and field notes contributed to the data. Despite the limited literature available on the bag net fishery, some secondary sources, such as articles on the local fishery in various newspapers contributed to understanding the local context at the time of research.

A total of 69 respondents including fishers, boat owners, saleswomen, middlemen, fish traders, government employees, and some people in positions of authority in the fishing community were interviewed during the field work. A purposive sampling was used to identify the main respondents. The field work included two

fishing trips to understand the fishing activities, the risks involved and to observe fishers' involvement and enthusiasm during harvesting. The field work was not restricted to any particular time of a day. Depending on the arrival of fishing boats at the harbour, which did not have any specific time, participant observation with fishers, boat owners and the workers was conducted. Living in the community and participating in various cultural activities provided experience and understanding of bag net fishers' lives.

The qualitative data, generated through participant observation, semi-structured and key informant interviews, were transcribed and translated. Data were analysed through triangulation from interviews, participant observation, field notes and data collected from external sources including literature and documents (Kalikoski et al. 2002). NVIVO 10 software was used to organise and analyse the field data into various emerging themes and helped to understand the complexity of the fishery.

3. Results

3.1. Local fishers' perceptions

The bag net fishers of Saiyad Rajpara come from diverse socio-economic backgrounds. Although the legal age to get a license is 18, some teenagers become part of the fishing crew (mostly in their family boats) as early as 13 or 14. Many fishers in this village who started fishing at an early age do not have basic literacy. Of the total fishers interviewed, 58% (n=38) were illiterate and only 5% had some higher secondary and or post-secondary education. The main reasons given by the fishers about why they were in this occupation are that, (1) it was easy to follow the family tradition; (2) fishing was a lucrative occupation; (3) there were no alternatives; and, (4) they had a genuine interest in fishing. In order to explore fishers' perceptions of their job satisfaction, we interviewed fishers who were actively involved in fishing. Of the total fishers interviewed, 46% (n=37) were satisfied with their lives as fishers. In contrast, 22% manifested dissatisfaction with the occupation due to various reasons such as declining fish catches, increasing competition, and increasing risk. Figure 2 illustrates that 32% fishers have a neutral view towards their life as fishers and mentioned that this occupation is not a bad way to earn money as the opportunities and alternatives are limited in this coastal village.

The perceptions of fishers within the fishing community, however, have been changing in the last decade. We had an informal conversation with some young men in the age group between 20 and 26 who were not involved in fishing, but whose family members were associated with fishing. In response to a question about why they were not involved in fishing despite their family involvement in it, 10 of them (n=13) responded that they were encouraged by their family members to peruse education and take up other occupations outside fishing. The remaining three respondents informed us that they did not like to be in this occupation

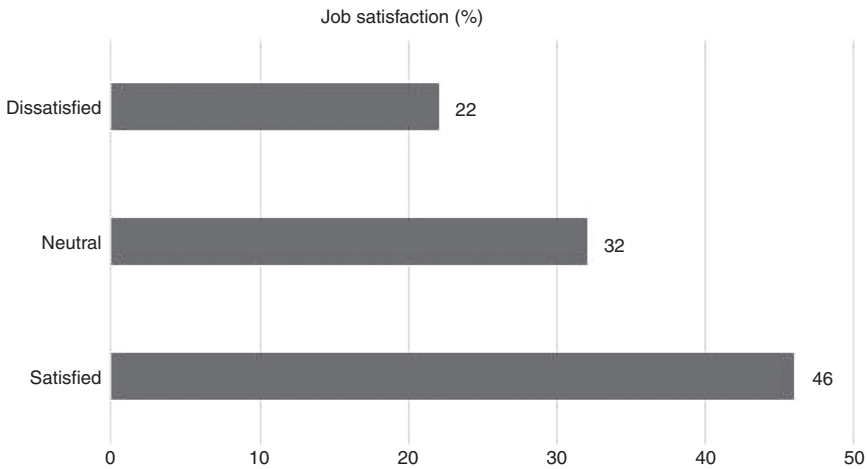


Figure 2: Fishers' job satisfaction.

because of the hard life and risky environment. According to a 75-year-old fisherman who works as a captain:

In earlier times, when I was young it used to be so much fun. There were plenty of fish and not many fishers around. We would go for a couple of days and come back with a good harvest. Currently, there are too many fishers and catches have declined drastically. We have to go far out to the sea for up to a week or so. The competition among fishers has tremendously increased. Life is not fun anymore.

Many fishers blamed weak institutions, such as the State government's Fisheries Department and the local caste samaj institution, and governance for the overall situation. As Figure 3 indicates, a larger group of fishers (37% n=37) of fishers was dissatisfied with the existing governance system than those who were satisfied with it (29%). To identify the kind of institutions of governance that exist in Saiyad Rajpara, we categorised them into formal institutions of governance, such as the Fisheries Department of Gujarat, and informal institutions of governance which include customary rules and traditional practices.

3.2. Formal governance institutions

Marine fishing often deals with multilevel governance at international, national, state and local levels. The bag netters of Saiyad Rajpara do not go up to 200 nautical miles and, therefore, international maritime law is not applicable to them. Most of the bag net fishers operate within 24 nautical miles of the coast, which is under the jurisdiction of the Government of India. As per the 1981 Maritime Zones of India Act, the central government has the authority to exercise its power

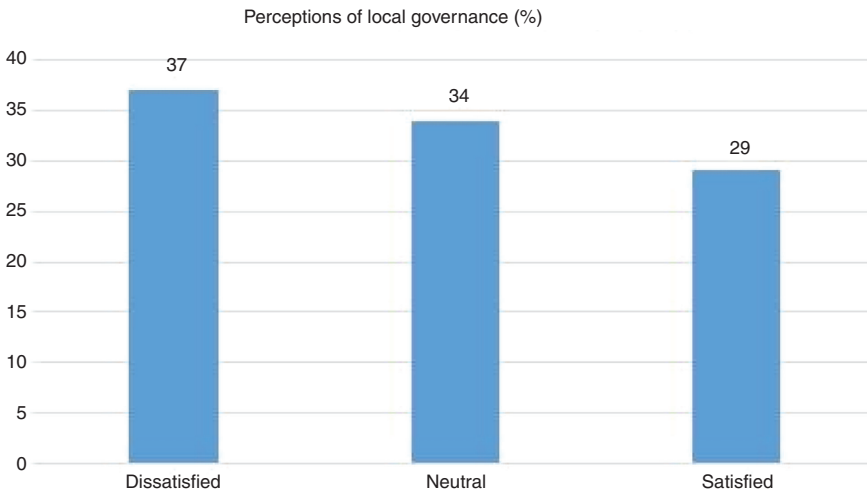


Figure 3: Fishers' perceptions of local governance.

within the territory. Therefore for safety and security reasons, occasionally fishers are asked to produce their legal documents by the Indian Coast Guard or the Indian Navy.

The State of Gujarat exercises its power through the 2003 Gujarat Fisheries Act within 12 nautical miles of the coast. Major decision-making power for the western region is vested in the regional office at Veraval. The Fisheries Department has limited capacity in monitoring and regulating the fishing activities. Of the total fishers interviewed, 68% ($n=38$) stated that they were not aware of the exact role of the Fisheries Department in this village whilst 21% fishers acknowledged the limited role of the department. The department coordinates with the Indian Coast Guard and the Police Department for maintaining law and order in the coastal region. The Police Department has a special branch, known as 'Marine Police' which provides assistance to the Fisheries Department. There is further a sub-regional office in Jafrabad in the neighbouring Amreli District that looks after the local matters and is responsible for dealing with issues in the southeast region of Gir Somnath. There is a branch office of the Fisheries Department at Saiyad Rajpara, which has limited decision-making power and responsibility.

3.3. Informal governance institutions

Historically, the harbour of Saiyad Rajpara was always governed by a local leader (the *patel*) and the caste-based institution (the *samaj*) that enforced customary rules. Since the inception of the bag net fisheries in this village approximately seventy years ago, the harbour always had a *patel* and *samaj* to manage the local fishery. However, when the study was conducted, there was no *samaj* functioning nor did the harbour have a *patel* to oversee the management of local fishery

at the harbour. Nonetheless, fishers would not start the season without performing appropriate collective rituals and all boats return to the harbour for major social occasions, such as the month long winter wedding season. All these customary rules are based on morally binding principles (Jentoft 2004). The last *patel* resigned from his post in 2011 due to some political differences within the village and since then the harbour has been functioning without a *patel*. The *samaj* and the Saiyad Rajpara boat owners association became inactive without a *patel*. The association, with the help of the *patel*, had responsibility for resolving issues of relevance to boat owners such as accidents between boats and gears resulting in damage, or the refusal of a crew member to go on a fishing trip despite having taken advance payments. Despite the freedom they have to operate without the supervision of these local institutions, many fishers regret the absence of the old customary rules and traditional practices. Nonetheless, local fishers do maintain informal understandings about appropriate behaviour in relation to others and they still follow some of the customs without being supervised or monitored. Several sub-groups have been formed in this village to resolve various issues and many fishers within a group help each other. Fishers bond either with their friends or kin or with a few influential people who have relatively high social and economic status to form these sub-groups. The relational wellbeing assessment suggests that for 89% fishers (n=37) the relationship with crew members is seen as most important as they are the immediate contacts who can offer help. Interestingly, 54% of fishers find the importance of relationships with fellow fishers quite important and some subgroups have been formed on the basis of the good interpersonal relationships. For 32% fishers, family and kinship is important as they always come to help when needed. Although the local fishers have managed to sort out myriad small issues such as conflict among fishers or delays in payment, however, several large issues such as the intrusion of outsiders still remain unresolved. Thirty-five percent (n=37) of total fishers stressed the importance of *samaj* and a *patel* to improve the ongoing issues in the fishery, while a majority of them had either neutral view or did not have any answer.

Fisheries are dynamic and so are the perceptions of fishers. Until recently, working as an employee under someone outside of fishing was considered low status and much disliked within the Koli community in Saiyad Rajpara. However, this negative perception is changing as dissatisfaction grows in the bag net fishing and as many fishers have begun to realise the importance of good education and employment outside fishing. A sixty-year-old boat owner who had two boats and whose three sons are in fishing has an interesting view on the future of his grandchildren:

I have bought land for my grandchildren near the town and also we have some more property. I am sending my grandchildren to a better school in the town and that's how I am keeping them away from this occupation and the place.

Of the total fishers interviewed, 59% (n=37) mentioned that they wanted their children to get educated, as it may help them to get a job outside fishing. Only 13% (n=37) of total fishers interviewed, mentioned that they would like to see

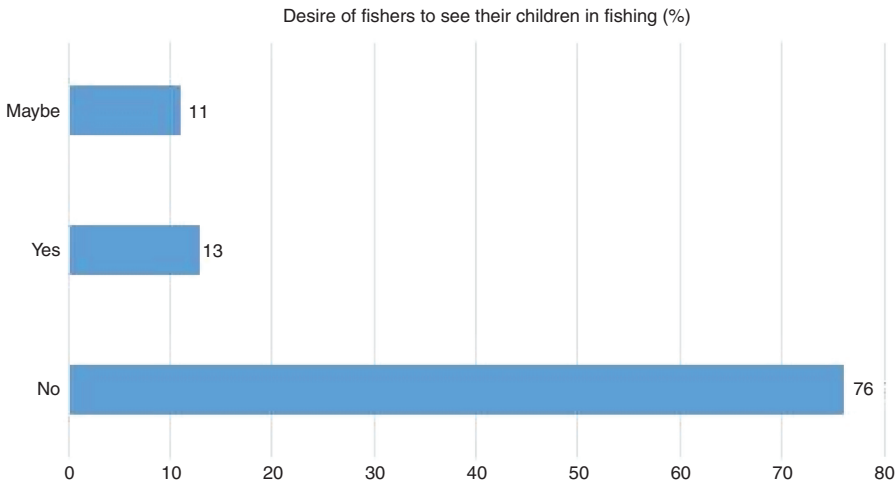


Figure 4: Desire of Fishers to see their children work on fishing.

their children in this occupation while 76% mentioned that they would like to see their children leave fishing for a better life in terms of job security and relatively less risky life (Figure 4). Some retired fishermen mentioned that they are not worried about their lives, however, they expressed their anxieties for the future generation. All the fishers, interviewed during the research, mentioned that there is no certainty whether they would get fish in the future with declining fish catches, increasing competition, increasing risk due to intensification of the local fishery and also financial pressure from the fish traders. That's why most fishers did not see a bright future for their children in bag net fishing and want them to get educated and get secure and less risky jobs. Although there are not many examples of role models who have secured jobs after completing schooling, however, a few of them have become small entrepreneurs, insurance agents and also have started working as supervisors for some of the fish traders within the fishing industry, which many fishers consider as better than fishing at the sea.

4. Discussion

Bag net fishing in Saiyad Rajpara is perceived as the most desirable source of income among the local inhabitants. Fishing has become a way of life rather than just a source of income with 46% of total fishers satisfied with it (Thompson et al. 1983; Pollnac and Poggie 2008; Aldon et al. 2011; Urquhart and Acott 2013). According to a fisherman;

“I am happy in my life as a fisherman. I am not educated and do not know much about the outside world. I rather enjoy my freedom of work, invigorating environment, and I also get fresh fish to eat...”

The socio-economic profile of fishers is one of the main reasons why fishing is so suitable for the inhabitants. First, as many fishers start fishing at an early age, they develop a psychological attachment to the occupation (Pollnac et al. 2001). Children in Saiyad Rajpara often accompany their parents to the harbour at an early age of four to five. By the time children reach puberty, most of them have already acquired the skills of using hook and line at the harbour. Second, with limited literacy and other vocational skills, the scope for the inhabitants to find an alternative source of income is narrow. Third, the lack of enough cultivable land and the saline environment makes it difficult for the villagers to invest in agriculture. When combined with the contribution of fishing to food security, these reasons explain why fishing became the most desirable occupation for local people.

Self-actualization is also an important factor in the attachment to fishing felt by the fishers of Saiyad Rajpara. As has long been noted in maritime anthropology (Acheson 1981), fishing provides a sense of independence or freedom in a natural setting, along with plenty of excitement. The fishers in Saiyad Rajpara also enjoy the sense of freedom and natural environment despite the risk involved in this occupation. Some fishers, who are highly satisfied with the occupation, consider boats as their homes and they miss venturing out to sea and the marine environment during the off-season. Arguably, the independence and freedom of fishing that is particularly strong in the small-scale, family-based mode of fishing in Saiyad Rajpara is reinforced by dominant norms in Gujarati culture. Gujaratis generally value business acumen and entrepreneurialism and the small-scale fishing enterprises of Saiyad Rajpara can be seen as manifesting that orientation. Gujarati entrepreneurialism and independence is echoed in the practice of fishing.

In short, it is not just the material benefits that fishing has brought to Saiyad Rajpara, but also its subjective fulfillment of various emotional and psychological factors which explain how fishing has contributed to wellbeing there. Changing socio-ecological circumstances, however, have increasingly influenced the perception of many fishers in Saiyad Rajpara. Stiff competition from fellow fishers due to increases in the number of boats from 100 to 500 during the period from 2000 to 2014 was one of the main fisher complaints. In addition, there has been an increase in the frequency of trespassing of outside seiners and trawl netters into what residents of Saiyad Rajpara consider their territorial waters, which extend beyond the Gujarat Government's established maritime jurisdiction of 12 nautical miles. Consequently, local fishers began to experience declining fish catches in the last four to five years. As is evident elsewhere in the world, these circumstances have reduced the desirability of fishing (Britton and Coulthard 2013; Trimble and Johnson 2013).

Weak institutions and ineffective governance are to be blamed for the decline in the fish catch which ultimately has had an adverse impact on the wellbeing of the local fishers in Saiyad Rajpara. There is a Gujarat Fisheries Department branch office in Saiyad Rajpara that has six low-ranked employees and a temporary officer-ranked position. The department is mainly responsible for the entry level task of processing of licenses, documentation of boat movements at the

harbour, spreading awareness among the fishers, distributing subsidies and other government schemes and issuing alerts during rough weather. The centralised system of fisheries management in Gujarat has allocated hardly any decision-making power to that office. Moreover, the Fisheries Department does not have a permanent office space and it runs its office from a rented room and often has to move. Without permanent office infrastructure and a regular Fishery Officer position, the low ranked contractual employees struggle to perform their regular activities. The neglectful attitude of the State Government confirms the findings of Finkbeiner and Basurto (2015) that a state or a nation may not take interest in providing enough administrative and other supports to relatively low revenue small-scale fisheries. With inadequate human resources and limited administrative power, the branch office of the Fisheries Department struggles to contribute to the management of the local fishery.

The role of traditional non-state institutions is equally important for the survival of small-scale fisheries. Sustainability of small-scale fisheries requires collective social action and cooperation from local institutions in addition to a supportive government (De la Torre-Castro and Lindstrom 2010; Kosamu 2015; Nunan et al. 2015). Hence, the absence of a *patel* and a *samaj* has made it harder to address current governance problems, even if the local institutions alone are not responsible for the crisis. Further, the absence of these local institutions at the harbour has limited collective social activities and effective discussion of fishing issues, with the result that fishers are functioning and managing their issues independently either by building good relationships with the crew members or by forming sub-groups through the collaboration with friends or family members or fellow fishers. As good governance involves interaction among multiple institutions and balanced power relation between the state and local institutions (Berkes and Seixas 2005; Lockwood et al. 2012; Jentoft and Chuenpagdee 2015), the absence of the *samaj* and *patel* is a significant problem. Without them, legitimate institutional linkages between fishers and the state are absent. In other words, local-level institutional breakdown has the potential to compromise fishers' relational wellbeing, with material and subjective implications.

The exclusion of potential resource users from a commons is always a challenge (Al-Fattal 2009; Galappaththi and Berkes 2015) and Saiyad Rajpara is no different. The local harbour is overcrowded and fishers are facing tough competition from fellow fishers due to skyrocketing boat numbers. Outsiders from neighbouring villages are using the local harbour, and many have permanently settled in this village. Several retired fishermen blamed this on the failure of local-level informal governance institutions to control numbers. Some of the native Koli fishers of Saiyad Rajpara labelled the new area of settlement of outsiders as 'Bangladesh'. Many fishers complained about their struggle to moor their boats in the harbour due to the same reason. Kalikoski et al. (2002) stress the need to control access to resources to prevent commons from overexploitation. Without effective local governance institutions, the basis for control is considerably weakened.

The bag net fishery of Saiyad Rajpara is also experiencing the commons issue of subtractability. As Coulthard et al. (2011) observe, resource users tend to engage in destructive and illegal fishing practices in the absence of effective institutions and governance arrangements. Despite the clear regulation in the 2003 Gujarat Fisheries Act on the yearly fishing ban in the inland and territorial waters from the 10th of June until the 15th of August, which is the fish breeding season, some fishers still harvest Bombay duck during that period. Also, the Fisheries Act prohibits the use of bag nets with a mesh size less than 40 mm. However, many fishers in this region use bag nets with a mesh size less than 40 mm at the cod end to harvest paste shrimps (*Acetes indicus*). Such fine mesh nets also capture juvenile fish. It is illegal to harvest brood fish (Figure 5) or juveniles without prior permission as per the Fisheries Act, yet this is not uncommon in this region. In fact, fishers get extra cash for harvesting brood fish from some individual buyers as many people like to consume fish eggs and are ready to pay more for that. Harvesting and trading of undersized fish are forbidden in the Fisheries Act. Fishers in this dry fish zone harvest, although not intentionally, undersized fish which are processed into fishmeal or poultry feed. It is evident that the material aspect of wellbeing has become the priority for the fishers in this region with the resultant heightening of subtractability and threat to the welfare of other users.

Some scholars argue that commons management involves building institutional legitimacy and the ability to enforce rules and regulations (Jentoft 2000, 2004; Acheson 2006; Berkes 2015). The *de jure* marine resource within 200 nautical miles belongs to India which is *de facto* an open access to its citizens as elsewhere in the world (Al-Fattal 2009). Where exclusion of resource users is



Figure 5: Gravid (egg-bearing) lobsters traded at the local harbour.

difficult due to low government capacity and inadequate enforcement, *de facto* open access may result despite existing formal or informal rules and regulations (Cinti et al. 2010; Finkbeiner and Basurto 2015). This is the case in Gujarat where the state has complete authority to regulate access to its marine resources but is not able to implement the 2003 Gujarat Fisheries Act among its citizens. For example, the Fisheries Department has the authority not to process new boat licences if a harbour is at overcapacity (# 9C. Clause 2, 2003 Gujarat Fisheries Act). This rule has never been enforced in Saiyad Rajpara. The inadequate resources and limited decision-making power reflect the inefficiency of the Fisheries Department in enforcing the guidelines in the Fisheries Act. The outcome of an unhealthy interplay among marine ecology, fishing technology and inadequate governance is a degraded ecosystem (Dietz et al. 2003), which the local fishery has already started experiencing.

The signs of decline in marine resources for many years have been evident in Saiyad Rajpara and elsewhere in the State of Gujarat (Johnson 2001; Armitage and Johnson 2006; Bhathal 2014). As has been shown elsewhere (Alonso et al. 2015), weak institutions and ineffective governance coupled with increasing population pressure and soaring market demand have led to declines in marine harvests in Saiyad Rajpara. With limited alternate livelihood options available to the local people, fishers' rational economic behavior (Dimech et al. 2009; Johnson 2010) to achieve material benefits has adversely affected marine resources. The complaints of many fishers about the decline in fish catches within the last four to five years mirrors the decline in overall marine fish catches in Gujarat. As the Central Marine Fisheries Research Institute notes for Gujarat, some species are on the verge of collapsing (CMFRI 2015).

Fishing contributes greatly to the material wellbeing of fishers in terms of income, food and standard of living (Coulthard 2012; Britton and Coulthard 2013). However, two boat owners from Saiyad Rajpara have gone bankrupt due to successive low harvests and have been working as crew in other boats for the last three years. Small fish traders also have been experiencing lower incomes in the last three to four years. Despite the chances of earning more from fresh fish, many fishers depend on the dry-fish trade to survive due to declining catches of large pelagic species. The decline in fish catches has adversely affected the wellbeing of fishers and has raised speculation about the survival of the fishing community in the future, especially in the context of limited employment alternatives available.

Fishers' perceptions of fishing as a desirable occupation are not shaped by only their job satisfaction. As a manifestation of subjective wellbeing, job satisfaction is influenced by material benefits such as fish catch and related income (Sweke et al. 2016), but also by a range of complex factors which may be shaped by governance (Slater et al. 2013). With catches in decline, bag net fishers increasingly feel that they are not receiving sufficient material benefits to compensate for their work, which has intensified as the fishery has gone into decline, and the risks they take. Fishers are also frustrated by local institutional weakness, particularly its failure to stem greatly increased trespassing by seiners

from neighbouring states into waters adjacent to Saiyad Rajpara. This failure can be read as a clear shortcoming in the relational dimension of fisher wellbeing, driven by institutional failure and limited controls on access and subtractability (Figure 6).

The excludability problem is particularly acute: outsiders mostly use mobile gears such as trawl nets or seine nets and move around the sea in search of good harvest, unlike the use of stationary bag nets by Saiyad Rajpara's fishers. Despite frequent complaints, the Fisheries Department has not taken any effective measure to safeguard local interests. The absence of a local fisher organization has meant that fisher complaints can be more readily ignored by Fisheries Department officials. In a context where competition among local fishers was already stiff, the frequent trespassing by outsiders and declining fish catches have adversely affected fishers' perceptions of fishing as a desirable occupation for the next generation.

Despite their satisfaction with fishing as a source of income, the existing fishery crisis in Saiyad Rajpara has had a major impact on local perceptions. Many

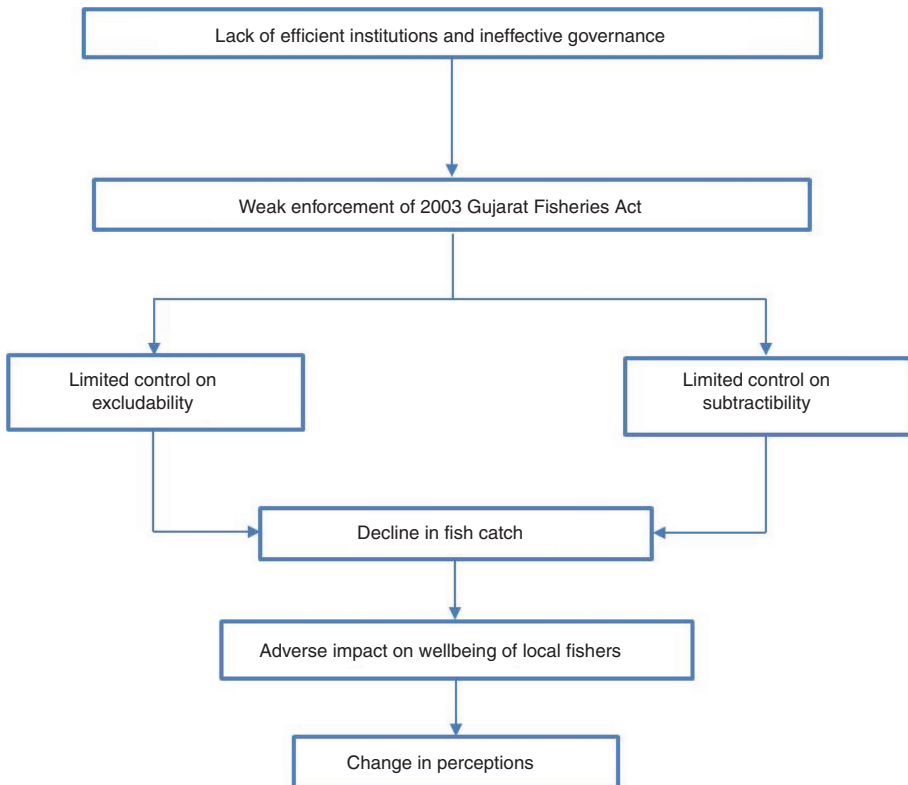


Figure 6: Factors shaping fishers' perception.

local fishers believe that their life is stuck,² and there is no escape, due to their limited ability to find an alternative livelihood options. A fisherman in Saiyad Rajpara said;

“Our life is stuck in this village and there is no escape from this life. Life was good in earlier times but we do not see a future in fishing anymore. Being an educated fisher, I feel frustrated...”

With declining fish catches they struggle to make enough money to maintain their quality of life. Thus, material wellbeing is adversely affected due to institutional failure and both are combining to negatively influence fisher subjective wellbeing. Fishers are worried about the future of their families. Therefore, a majority of fishers (76% of total interviewed) do not want their children to fish. This finding is similar to results in the Philippines (Aldon et al. 2011) and Uruguay and Brazil (Trimble and Johnson 2013) which finds that many fishers feel that their children would be better off if they left fishing. The local fishers in this context also feel that with better education, their children can get professional jobs and live more comfortable and relatively less risky lives.

5. Conclusions

Fishers' perception of the bag net fishery of Saiyad Rajpara, which was once considered as the most desirable source of income, have been increasingly negatively influenced by changing socioeconomic circumstances. Since the inception of the bag net fishery approximately seventy years ago, fishing has contributed to food security and also has generated income for thousands of people in this region. It has become a way of life for people in Saiyad Rajpara. However, changes in the fishery that have intensified in the last decade are having a profound impact on the fishers of Saiyad Rajpara.

The interplay between commons theory and the social wellbeing approach has contributed to understanding some of the complexities of local experience in Saiyad Rajpara. Local and state governance institutions failed to anticipate and address excludability and subtractibility challenges in the fishery. This has led to an unbridled pursuit of material wellbeing both by residents of Saiyad Rajpara and by outsiders, with serious consequences for the subjective wellbeing of fishermen, though perhaps less for fisherwomen, as we note above. In terms of the exclusion failure, the desire to achieve material wellbeing in terms of cash or better living standard has attracted many people to join fishing within the last decade, especially after access to new markets in the early 2000s. The number of fishing boats in the village sharply increased during the boom

² This grim assessment appears more nuanced when women's views are taken into account. As we explain in more detail elsewhere (Johnson et al. 2017), recent ecological transitions in the Saiyad Rajpara fishery have in some ways eased women's lives materially. This suggests that the effects of the deepening crisis are not completely uniform.

period. Furthermore, with increasing competition, fishers in Saiyad Rajpara have adopted some unsustainable fishing practices, heightening the subtractability problem. Increasingly, the pressures and tensions of fishing in a resource constrained context are impinging on the subjective self-actualization satisfactions of fishing. Experienced fishers told us that they missed the excitement and enjoyment they used to have of going to sea prior to the early 2000s. Stiff competition from fellow fishers and declining fish catch, coupled with ineffective management, have adversely affected the material aspect of wellbeing. Fishers feel frustrated and uncertain about their future which not only affects their subjective wellbeing but also their desire to involve future generations in fishing. Thus, many fishers wish that their children will get educated and find alternative careers outside fishing. Nonetheless, fishers are also sober in their assessment of how realistic prospects for employment diversification are, even for the younger generation. There are very few examples of youth successfully establishing non-fishing careers for themselves outside of the Rajpara and most of the youth of Rajpara frankly lack the skills and experience to succeed elsewhere. This suggests that, even if they are unlikely to materialize, there are two ideal paths towards ameliorating the current situation.

The first, and most pressing, is for more effective commons governance. If the situation in the fishery is to be reversed, state agencies will have to play an active and bigger part beyond their current limited administrative role. Measures should be put in place to revive the local *samaj* institution, and to make the government institutions approachable for a collaborative action to deal with governance issues and the smooth functioning of the commons. Fishers should try to set aside their political differences in order to revive their traditional institutions that could contribute not only resolving everyday daily issues but also the sustainability of the local fishery. Greater attention needs to be paid to establishing linkages to and participation within the local governance system in order to garner the support of local fishers to not only to better protect marine resources but also better assure the wellbeing. At the same time, current levels of fishing effort are unsustainable. In the longer term, the economy of Saiyad Rajpara does need diversification, even if there are numerous social and environmental factors that hamper this. In particular, this means policy to support improved education and skill development to increase the possibility of occupational diversification. Strengthened local capacity in these areas might also increase the likelihood of revitalizing local institutions for commons management.

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