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Class Gains in Fisheries Management in India: Reflections from Two States

Jharna Pathak

Gujarat Institute of Development Research

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Gujarat Institute of Development Research
Gota, Ahmedabad 380 060.

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Abstract

The debate on common property resource centres on issues of a particular strategy for managing it in order to cater to the growing demand for communities that depend on it and the economy at large that benefits from the use of natural resources. There is no dearth of literature on ways through which powerful special interest groups such as the middle class, have marginalised the local community depending on the resource. Based on the working of the fishing cooperatives in the large reservoir project of Madhya Pradesh and Gujarat, this paper looks into the process of understanding the engagements of middle class with the ruling class and its implication in terms of income and inequality of fishers. It explores how the pursuit for maximizing revenue by the State has managed to regressively replace the present prototype of fish federation and fish cooperatives in managing the resource by that of federation, contractor and cooperatives. This paper sheds light on the need for policy and institutions for providing sustainable livelihood opportunities to the fisher folks of reservoir fishing. In doing so, it draws attention to Fishing Cooperative's emphasis on monitoring fishing activity and the water body. The generalizations that can be derived from field data are limited and this reemphasizes the role of context. As a result, some of the key arguments of the paper remain hypotheses rather than conclusions and must be verified with more extensive and robust field research and analysis than the mandate of this study dictated. However, a central argument of this paper – to bring about more transparent and accountable fisher cooperative at the community level, initially undesirable development which were caused by strengthening of unequal power relations will have to be corrected. This could only happen through the commitment and persuasion of long term engagement and interest of the Government and civil society groups. This would be a first stepping stone for the establishment of effective and equitable fisheries management.

Keywords : Fishing cooperatives, middle class, special interest groups, crony capitalism

JEL Classification : Q22, P48, D72, P1

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1. The Context

In many local situations around the developing world, fishermen depend on the available fish resource as means of livelihood and are involved in managing this resource as common property. In a common–property arrangement, a particular group of individuals share the rights to the resource. Thus, common property is not open access to all but its access is limited to a specific group of users who hold their rights in common (Bromley and Cernea, 1989). Though, there can be temptations inside a common–property regime to cheat on community rules(Blomquist and Ostrom 1985). Consequently, this has led to a debate on strategies in managing common property resource (Lawry 1990). One group of scholars (Carruthers and Stoner 1981) emphasised the need for the state to intervene in order to manage the CPR while others suggest the creation of private property rights, public private property rights in managing the commons as a necessary condition for avoiding over–exploitation (Biswas, 2005). However large body of literature shows that state control resulted in worsening the depletion of the natural resource and ended up destroying the common property management mechanisms that did exist (Kanbur 1992) while neither privatization nor joint management of the commons offers no protection against sub–optimal management (Bromley, 1989).

The extent of dependence on the resource and its contribution in terms of income and employment assumes importance in determining governance pattern of the resource use. Irrespective of the governance structure, numerous literature (Pelletier *et al.,* 1999: 105) have written extensively on ways through which powerful special interest groups which form the middle class have marginalized the local community depending on the resource. Bardhan (1996) argues that within middle class there is a distinction between private capitalist class and the governing elite. The latter is independent of the former and is in a position to take policy decisions that control the activities and free functioning of the former. It is another matter that the

Jharna Pathak (fmjharna@yahoo.com) is Assistant Professor, Gujarat Institute of Development Research, Ahmedabad.

capitalist class with its political connections or through bribery of the ruling elite may get away with violation of the rules and regulations designed to control its activities (Pattnaik, 2009). The already published work helps us understand how crony capitalism[1] experienced in the Indian system at large and in managing the resource in particular has been attuned to serving middle class interest. In the context of fisheries, such a discussion highlights that the process of decentralising fish resource management from central authority to the community involves various issues that go beyond the considerations of sectoral productivity and growth. Such a debate centres around whether and to what extent the government chooses between increasing revenue from the resource use and sustainably managing it for the benefit of the communities dependent on it.

There is a little doubt that even this ostensibly beneficial government policy of preferring to lease large scale reservoirs to fisheries cooperative society would turn out to the advantage of the industrial and commercial interests groups. What is not clear is the process used by the middle class constituting politicians, bureaucrats and contractors to collude with the government in formulating and implementing policies which would siphon away this resource to their own advantage.

In this backdrop, the aim of this paper is to understand this aspect by examining the process of formation of Fishing Co-operatives (FCs) in both the states and the benefit derived in terms of employment generated and income earned from the use of fish resource in order to explore the relationship it has with their livelihood environment. Results from this analysis would help us understand broad pattern of the economy at large. This is done by drawing upon the data and findings of two studies carried

[1] The experience suggests that the development strategy adopted by the state in the name of CNRM provided the middle class with the opportunity to reap the benefit of capitalism without owning the capita or making any capital investment of its own. In an actual capitalist system of production, labour is exploited to producer surplus value for the use of the capitalist for capital accumulation. In the crony capitalism, the labour force employed in organised sector is made a partner in sharing the gains from the system. The manager and the white as well as blue collar workers all join together in claiming their respective share of the public sectors largess. Labour negotiate through trade union action, the politician, the bureaucrat and others through illegal gratifications which included bribes commissions, cuts, kickbacks paid by the contracting parties to the authorities of the public sector enterprise with which they make the business deal.

out by the author on FCs formed in the two large scale reservoirs namely Ukai and Gandhisagar in Gujarat and Madhya Pradesh (MP) respectively in 2011. The sample of 270 fisher households each was selected in both the reservoirs.

The rest of the paper is organised as follows. Section 2 presents the way in which middle class has gained from the growth strategy followed by the country. Using the case studies on fishing cooperatives (FCs) formed in Ukai reservoir, Gujarat and Gandhisagar reservoir in Madhya Pradesh, the next section argues how the middle class constituting bureaucrats, contractors and politicians express their demand using the mask of fishing cooperatives. Section 4 summarises the findings of the study.

2. Middle Class Gains

Unfortunately, there is neither official government definition nor an unofficial consensus on the definition of "middle class". The cultural, social, economic and political aspects of behaviour of middle class make its conceptualisation difficult. The social aspects of middle class tend to identify the latter on the basis of behaviour of its members, their level of education and certain level of social status. The economic approach defines the middle class on the basis of the income possessed, asset possessed, per capita expenditure and so on. National Council of Applied Economic Research defined middle class consisting of per capita income within the range of $8-$40 (in 2005 PPP dollars) (Shukla 2010). Meyer and Birdsall (2012) worked within the range of $8-$40. Easterly (2001) considers population whose per capita expenditure ranges between second, third, and fourth quintiles as middle class. Ravallion, (2009) used another range – per capita daily expenditures of $2-$13 while Banerjee and Duflo (2008) work with a definition based on per capita expenditures between $2 and $10. Fortunately, the economic aspects of middle class behaviour have greater similarities across nations than other traits which make it amenable to quantify in broad economic terms. In economic behaviour, the middle class is a rational being that tends to maximize its utility in consumption and profit. Various studies (Thurrow, 1984; Bardhan, 1997) have used several indicators, such as: rational economic behaviour, income, consumption pattern, educational qualification, occupational status, increased use of technological sophistication, participating in rich cultural activities, etc to define the middle class. Reasonably, the professional and administrative, clerical, sales and service

groups have been aggregated to be used as a proxy of middle class. We adopt the definition by Thurrow (1984) to define the middle class in this paper. These are mainly engaged in manufacturing and service sectors of the economy. Using asset owned, Krishna and Bajpai (2015) also shows that the chances of being in the middle class are twice as high for salaried employees with regular employment compared to the general population. Next we will see how this middle class has gained from their collusion with the government.

2.1 Structural Changes in the Economy and Occupational Structure and Income Inequality

Heavy plan outlay by the Government of India during early plan period enabled the public sector to play an important role in the growth of the Indian economy by building up an industrial base. This has resulted in structural changes in the economy induced by planning. Since macroeconomic crisis of 1991, the real GDP growth of India has changed from low growth trap of 3.5% per annum to 9% per annum during the high growing period of 2004-08 and nearly 7% during post crisis period (2009-13) [Mohanty, 2012]. Across sectors, rise in the share of service sector (from 52% during 1991–2000 to 66% in 2009–13) is accompanied by a steady decline in the share of agriculture (28% in 1991–2000 to 14% of the GDP in 2009–13) and a near constancy in the share of industries in the recent years (nearly 20%). This shows that an increase in the share of services is solely at the cost of agriculture and allied activities.

However, the increase in share of service sector in GDP has not been matched by a proportionate increase in the percentage of labour force employed in services (Mohanty, 2012). Within non–agricultural sector, the share of self–employed is greater than regular employed worker and those employed as casual labour (Mohanty, 2012). Sadly, such a large proportion of self–employed implies that many people are being counted as employed simply because they are somehow trying to make ends meet (Aggarwal, 2012). On one hand, noted that service sector employ the largest percentage of the workforce (nearly 80%), most of the jobs are informal jobs with low wages (mainly in retail and wholesale trade) while the rest are in organised sector like finance, insurance, real estate and business services (Bosworth *et al*. 2007). Thus, the growth in service sector has perhaps benefitted the workers working in the organised sector who typically constitute the middle

class. This clearly shows that crony capitalism has not only benefitted the big business houses but also the middle class who constitute the workforce of these business houses.

Such a capitalist model of development by putting an extra emphasis on increasing production and downplaying redistributing concerns have encouraged private final consumption expenditure during high growth phase of 2004–08 (Kohli, 2011). Government's intervention in the form of increasing government capital formation from 6.3% in 1991–2000 to 10.9% during post crisis years of 2009–2013 shows its wide spread consensus that it will stimulate private investment. From this analysis, what is not clear is that when the government has hardly done anything to improve the regulatory mechanisms to provide impartial implementation of regulatory framework, whether this growth strategy will benefit all sections of the society or may inadvertently end up endorsing a few.

2.2 Problem with the Growth Process

While the new growth strategy accelerated the growth rate of the country, it also created numerous problems like (i). A concern for distribution has been relegated to the background, and (ii). Rampant corruption in the form of bribery, collusion and coercion.

2.2.1 Concerns of Inequity

This high growth has not improved the income of all workers. Motiram and Vakulabharanam (2011) pointed out that despite vigorous growth of the economy, poverty is highest among casual labourers followed by the self–employed and then by the salaried group. They argued that Monthly per capita expenditure (MPCE) for Others and regular wage earners increased more than other groups in 2004–5 compared to 1993–94.

Sarkar and Mehta, (2010) also show that the average daily wage of regular workers had risen by 95% in rural areas and 71% in urban areas, whereas the wage of casual workers rose by 71% in rural and 50% in urban areas in real terms during 1993–2004. This shows a greater increase in wages of regular workers compared to casual workers. Mazumdar and Sarkar, (2007) is apt signalling that fast growing segment of this sector demand only skilled labour whereas most of the employment is of informal type, depicting

dualistic nature of service sector. Thus, booming service sector, the prime mover of growth of the economy relies increasingly on middle class skills to drive economic growth. This gives the middle class the bargaining power (professionals, bureaucrats, sales, clerical) to express its demands vociferously.

2.2.2 Rampant Corruption in the Form of Bribery, Collusion and Coercion

Weak governance and weak regulation as stated by Bardhan (1996) are built into the present growth model. As the middle class is benefiting from the present growth process, it works to their advantage to bypass the disadvantaged section while protecting its own position. Some sectors like biotechnology, finance, banking, real estate, insurance, transport and hotels that have received infrastructural support and benefitted from easier legislation (Krishnaswamy, 2012). Such an intervention by the government have not only benefited capitalist class but also the professionals employed in these industries, which form the middle class and these lobby works hard to discourage government from reducing such public expenditures and adopting reforms for these sectors (Bhatia, 1994). An inefficient regulation and weak governance structure encourages the use of bribes and collusion to influence the government decision–making process. Besides collusions, another method of elite capture is by using coercion to cooperate with an interest group. Other sections of the middle class like doctors, engineers, bureaucrats, teachers' journalists have time and again raised their voice in staking their claims for high pay scale. Despite a rising trend in informal real wage in India (as suggested by Margit and Kar, 2009) the distributive share between wages and profit continues to be adverse to labour (Allirajan, 2013).

Such a state of planning and intervention and its societal outcomes in the form of dominant middle class resulted in an increase in salary bill leading to a rapid growth in non–plan expenditure and deficit even on the revenue account in the centre's budget. It is this middle class that is pressing for salary hike and electricity and fuel subsidy. Consequent to this, the deficit on the revenue account (net actual receipt less than projected receipt) was 2.3% of GDP in 1990–2000 (Table 1).

Table 1: Revenue Deficit and Share of Revenue Deficit to GDP

Year	GDP (in Rs. '000 million)	Revenue deficit (in Rs. '000 million)	Share of revenue deficit to GDP (%)
1991-2000	182120.5	4272.2	2.3
2001-2010	297537.8	12483.8	4.2
2004-2008	178442.1	5569.7	3.1
2011-2013	164714.3	11289.2	6.9
2011-2012	52475.3	3943.5	7.5
2012-2013	54821.1	3642.8	6.6
2013-2014	57417.9	3702.9	6.4

Note: Figures for 1991-2000 to 2011-13 2are the averages for the respective periods.
Source: Based on various Budget Documents of the State Government.

By the next decade, it increased to 4.2%. Revenue deficit was at its low at 3.1% during high growth period of the economy (2004–08), after which it increased to more than 6% following financial crisis. As a result, the government had to borrow funds to meets its expenditure commitments (as evident from fiscal deficit=total revenue–total expenditure) and in turn led to a growing bill for interest payments (Primary deficit=fiscal deficit–interest payment). In addition to this, defence, subsidies and interest payments together account for 69% of the non–plan expenditure (Rs. 7210960 million in 2009–10). However, it is no surprise that such a collusion/coercionriddled government expenditures on subsidies would benefit the rich and middle class with high endowments aggravating the extent of inequality between middle class and the poor.

The above analysis buttresses the understanding that the development strategy adopted by the state in the name of growth provided the middle class with the opportunity to reap the benefits of these crony capitalism without making any capital investment. Vakulabharanam (2012) also notes that skilled working group are the main foci of the state at the cost of the working groups (the rural poor–small and marginal farmers, agricultural workers; as well as the urban poor–unskilled urban workers). It is only during elections that the latter's interests are addressed through a populist mode. Thus, the state operates with an ambivalence where in it works for dominant classes, while also appearing to take on a developmentalist pro–poor role. Bardhan (1997) notes that in such a crony capitalism that is prevalent in the country, part of the labour force which was employed in the organised sector of the economy is made a partner in the sharing of the gains from public sector's

largesse at the cost of the working group. In all, it suggests that rich industrialists benefit by pursuing politicians to make business policies that favour their trade. Consequently, politicians along with bureaucrats benefit through illegal gratification like bribes and commissions while employees and professionals who are beneficiaries of this nexus gain in terms of hike in salary. Thus, a perfect equilibrium is established between political and economic power. The entire system as it has developed over the years has been attuned to serving the interests of the middle class.

3. Contribution of Inland Fishing

Given the structure and the system of dominant middle class and existence of crony capitalism prevalent in the country, this section depicts the process through which the middle class can grab economic advantage under the garb of forming Fishing Cooperative (FC) in the reservoir.

Fish production in India increased from 2444 thousand tonnes in 1981–82 to 9579 thousand tonnes in 2013-14 (Government of India, 2014). The share of fish production from marine source had declined from 59% (1445 thousand tonnes of the total production of 2444 thousand tonnes) in 1981–82 to 36% in 2013-14 (3443 thousand tonnes out of the total fish production of 9579 thousand tonnes) [Government of India, 2014] while an upsurge in inland fishing has been witnessed since 1999–2000. Sinha and Katiha (2002) noted that as marine fish production has reached a plateau, inland fishing offers a great potential for increasing fish production to meet increasing demand for fish. Thus, managing reservoir fishing, along with riverine fishing and aquaculture becomes vital in order to increase inland fish production.

Importance of inland and marine fishing varies across states. For instance, while marine sector provides major source of fish production in Gujarat (89%), inland fishing is the only source of fish production in MP (Government of India, 2014). Variation to an extent of the dependence on reservoir fishing and its contribution to the income of the community may guide the intervention activities by the government of these states in managing inland fishing resource. An attempt is made to unravel how the process of decentralising fishery management goes beyond the considerations of promoting income and livelihood of the community.

3.1 Structure of Fishing Cooperatives and Federation:

The issue of reservoir fishing is particularly crucial in areas where access to resources, in the absence of alternative employment opportunities, plays a major role in determining the standard of living of the community. Bland and Donda (1995) noted that fisheries sector acts as an employer of the last resort with low entry barriers and high exit barriers, for poor people. Inland fishing provides direct and indirect employment opportunities, income, nutrition and reduction in vulnerability of poor people to economic uncertainties (IFAD, 2010). However, inspite of these benefits, potential of inland fishing for sustainable livelihood interventions is often overlooked by the government due to its informal, small–scale nature, part–time nature of its activity and geographical remoteness (IFAD, 2010). Limited availability of data on production and employment worsens this underestimation.

The importance of inland fishing in poor peoples' livelihood strategies is often influenced by available natural endowments, institutions governing the resource and local and regional power dynamics which regulate access to water and land. Realising the potential of inland fishing for meeting food and income requirement, the Government of India in 2005 enacted a legislation that gave first preference to individual tribal fisher or group of fishers or FCs for leasinga large scale reservoir situated in the tribal belts. Incase if an individual fisher or FC fails to bid for leasing the reservoir fishing ground, the water body would then be allowed to be leased out to a private contractor.

In Gujarat, a bottom up approach was followed for forming FCs which means fishers came together to form a FC. Whereas, in the top down approach followed at MP, the government motivates fishers to form a FC. In both Gujarat and MP, the FCs are broadly organised at two levels: the primary and the secondary level. At the primary level, the FCs are formed with individual fishers as members In Ukai, the oustees of the reservoir project who are also tribals, are given the right to fish in the reservoir. This is in line with numerous literature (for example, see Lobo and S. Kumar, 2009:112–120) which quotes many examples that depict the alienation of marginalized tribal communities from their own natural habitat. In MP, traditional communities and Bangladeshi refugees were given preference to form a FC. At the secondary level, fish federation (FF) is formed comprising FCs as its membersin order to strategically mobilise capital to pay for the

lease amount to the fishing department increase the bargaining power of fishers, boost sales, create better marketing services and provide the benefits of economies to scale.

Both the states display variation in the structure of FF. There is one FF formed in each large scale reservoir fishing ground in Gujarat while the Madhya Pradesh Fish Federation (MPFF) is an apex organisation, federating all the FCs formed in all large scale reservoirs of MP. FCs and FF in Ukaienjoy a right to fish in the reservoir but they do not have the right to sell or lease–out the reservoir to a third party. Conversely, they have to purchase the reservoir on lease, failing which the reservoir will be sold to the private party. Like Ukai, FCs of Gandhisagar enjoy *the right to* access and withdraw the fish harvest while the formal right of management, exclusion, and alienation rests with the MPFF. For doing so, MPFF hires a contractor to collect fish from FCs at an agreed price. Surprisingly, MPFF, which is supposed to represent fishers from all large scale reservoir projects of the state, is headed by a bureaucrat appointed by the state. Thus the autonomy of the community institution is *de jure* blocked by the departmental control exercised through a bureaucrat. Given the flaw in the programme design, what remains to be seen is the process of forming a FC and benefits accruing to the community that may encourage participation of members in FC related activities.

3.2 Process of forming FCs

Pathak (forthcoming), in the village snapshot shows that not enough effort was made at the outset to promote and explain the project to the end–user community, especially to its poorer sections. It is the village leaders who were instrumental in forming FCs while the majority of villagers have learned only indirectly about the objectives and benefits of the project, the institutional changes that were forthcoming and what role they were expected to play. As a result, initiative of village leaders was the main reason for forming FCs in both Gujarat and MP. The author narrates the experience of forming and reregistering FCs in different names in Ukai, where in the past, all FCs had come together to form a fish federation (FF) named *Songadh Matsya Mahasangh* under the leadership of senior members from Songadh village. This FF defaulted the high lease price set by the government after which it remained non–functional for quite a long time. In 2004 again, fishers made a second attempt to come together to form FCs and FF under

the leadership of Tokarva village and named FF thus formed as *Tokarva Matsya Mahasangh*. The presidents of the FCs formed in Ukai reservoir become members of the FF who then elect the president of the FF. The weak capital base and lack of capacity of the FCs and FF to raise funds to pay fishing lease's price from external sources made the FF dependent on a contractor who will pay for the lease in return for exclusive control over the fish caught. This opened a potentially lucrative fishery ground for exploitation by unscrupulous contractor who is neither a fisher by birth or occupation.

Similar to Ukai, over the years, reservoir fishing in MP has witnessed a change in the institutional regime of managing the fish resource. Originally, it was managed by the state government before it was transferred to the Madhya Pradesh Fish Development Corporation (MPFDC). The MPFDC continued to manage fishing in the reservoir until 2005. In 2005, over exploitation of the resource led to a transfer of management from MPFDC to the MPFF. The government had made the formation of the FCs mandatory by enacting a law. Each FC has its own committee including a president and a secretary. The presidents of the FCs become members of the MPFF who then elect the president of the MPFF. Major decisions on the selection of the contractor, fixing fish rates, deferred wages and bonuses are taken by the MPFF and implemented by the FCs. Not surprisingly, decisions on selection of the contractor and fish rates are motivated by pressures from special interest groups. This reduces the role of the FCs to distributing deferred wages and bonuses and managing conflicts among fishers. All these suggest that the sole aim of the officials of Fishing Department was to maximize revenue gain from the sale of the resource i.e., fishing ground in Gujarat or fish in MP.

A word about the way contractors function is imperative here. In Gujarat when the fishers did not have enough capital to lease in the reservoir fishing ground, they had to approach a contractor pointed out to them by the government official. This contractor provided the capital to lease in the reservoir and for this he extracted the right to buy all the fish catch at a predetermined rate. So fishers were rendered just lowly labourers and the contractor could now potentially get rich by selling the whole lot in the open market. In MP, a different route leading to the same situation was taken. Here, the contractor and the predetermined price at which he could buy the whole catch were fixed by the fishing department itself. Discussion

with fishers revealed that the contractor was selected not only for his capabilities but because also because of this proximity with the government officers. Here also, the same exploitative saga was repeated with blatant enthusiasm.

Despite the flaw in programme design of CNRM in both the states, Pathak (forthcoming) argues that lack of gainful sources of employment in both the states encourages fishers and FCs to formulate operational rules like abstaining from fishing activity during the monsoon season, prohibition of catching juvenile fish, using a trawl net, or against using explosive devices to catch fish to increase the income of fishers and promote a sustainable fish harvest. However, apathy of members towards FCs is evident from their flouting of rules like prohibition of the use of small nets and trawl nets, selling fish to the FC. This reflects a lack of or marginal participation of members in FC related activities. Weak monitoring provides other members to follow suit thereby lowering the morale of other members from participating in FC related activities. All these suggest that the governments of both the states have divided the functions of ownership and management of the reservoirs between themselves and the FCs, with the latter being reduced to merely groups engaged in harvesting fish from the reservoir and selling it to the contractor. This comparative analysis of FCs and FF in both the study areasthrows light on diverse institutional arrangements and operational rules adopted to suit their physical and economic conditions.

3.3 Awareness about and Participation in the FCs' Activities

Table 2 shows that level of awareness among members about the functioning of the FCs is high while their participation in different activities of a FC; avital component for successful decentralization is low in both the study areas in general and Ukai in particular. The author also shows that FCs of Gandhisagar were reduced to managing books of accounts and paying bonus and deferred wages (in the case of Gandhisagar). Some members in Gandhisagar help the president in his work but that amounts to nothing more than just personal friendship or plain coercion. Such assistance is more or less similar to that observed in Ukai and seems unlikely to create a favourable environment for democratic decentralisation.

Table 2: Functioning of the Fishing Cooperative and Level of Awareness: Ukai, Gujarat and Gandhisagar, MP.

Details	Ukai	Gandhisagar
1. Awareness about FCs		
Yes*	100.0	73.7
2. Awareness about the management of FC		
a) No Idea	78.5	21.0
b) Collect fish and sell to contractor,manage accounts	21.5	49.4
c) Non-functional FC	---	29.6
3. Involvement in FCs activities		
Yes*	24.9	48.9
4. Type of Activities in which members are involved		
a) Not interested	73.6	28.5
b) Worked on request of president/secretary	18.2	42.2
c) Advised fishers against using trawl-net and selling fish to FCs	8.2	20.4
d) Not informed about any activity		8.9
5. Awareness about who manages the accounts		
a) Secretary	73.6	71.7
b) President	26.4	28.3
6. Awareness about who writes the minutes of meetings		
a) Secretary	91.0	71.7
b) President	9.0	28.3
7. Can all members see the financial books of accounts?		
a) Yes*	24.4	49.1
b) No idea	2.2	3.7
8. Did you ask FC about benefits and other financial transactions of FC? [Yes=1*]	13.6	48.1

Note: * The response of the remaining households was in negative.
Source: Pathak, Jharna (forthcoming).

The above discussion shows that in Gujarat and MP, institutional decision–making autonomy is impossible for the FCs. A pathetic lack of interest and initiative among FC members ensued in both the states–in Gujarat because of setting high fish lease's price and governmental negligence in curbing illegal fishing practices, and in M.P, because decision–making control remained in the hands of self–interested contractors working for the government. A bottom up approach adopted in Gujarat and a top–down approach in MP to form the FF and FCs is merely a strategy for controlling the scarce resource. It appears that both these strategies are employed to exert and reinforce state control over fish resource. Fishers of both the study area complained that the government provided a facilitating

environment for the contractor while limiting activities of FCs to mere paying bonus and deferred wages to its members. Encouraged by positive relations with officials, a contractor could make substantial investments to monitor the reservoir and make sure that fishers honour their commitment of selling fish to him. In doing so, the real control rested with the contractor, not the fishers. This has been done by strategically replacing the FF+FC model of fishing management by a dubious model of FF+contractor+FC. Both states have forced the cooperatives into an institutional straight jacket there by exposing ways in which the state ostensibly showcases the institutional framework without actually mobilising and facilitating them to work as a group for their own benefit.

3.4 Major Sources of Income and Employment Pattern

This section unveils some insight into the extent of dependence of the community on fishing and the contribution of fishing to their income that has implications for policy approaches to be adopted by the state and the level of participation in FC related activities. Table 3 shows that animal husbandry (33% of the household) and cultivation (24% of the household) is the primary source of income of households of Ukai. Only 12% of households depend on fishing for their primary source of income. Workers who have reported themselves to be engaged in a secondary economic activity (77%), fishing provides secondary source of income to nearly 51% of households. On the whole, although fishing may not be able to provide an assured source of income to these villagers, it certainly provides a supplementary source of livelihood for many households.

Table 3: Major and Secondary Sources of Income and Status of Ownership of Assets by FCs: Ukai, Gujarat and Gandhisagar, MP

Name of the FC	Ukai	Gandhisagar
1. Total workers		
a) Workers	55.4	51.9
b) Non-workers (student, housewife and retired)	44.6	48.1
2. Occupational status: Major Source of Household Income (%)		
a) Cultivation	24.1	2.2
b) Animal husbandry	32.6	
c) Fishing	11.9	84.5
d) Agricultural labour	23.7	4.8
e) Non-agricultural labour	3.0	7.4
f) Other (self-employment as plumber, carpenter, shopkeeper etc.)	4.8	1.1
3. Secondary Source of Household Income		
a) Cultivation	26.1 (54)	14.0(8)
b) Fishing	51.2 (106)	1.7 (1)
c) Agricultural labour	13.0 (27)	10.5 (6)
d) Non-agricultural labour	3.4 (7)	73.7 (42)
e) Other (self-employed as plumber, carpenter, shopkeeper etc.)	6.3 (13)	
Total [% to total households]	100(207)76.7	100.021.1(57)
4. Size of landholding owned (N)		
a) > 2.5 acres	33	11
b) 2.5-5.00 acres	13	
Total	46	
5. Status of ownership of land **		
a) Own land	17.0 (46)	4.1
b) Cultivate forest land	37.4 (101)	
c) Do not cultivate land	45.6 (123)	
d) No land/do not cultivate forest land as well		95.9
6. Status of ownership of Animals		
Average animals owned by households	3.5 (195)	1(6)
6.1. HHs owned animals (% to total)		
a) Small animals (goat, sheep and hen)	54.5	83.3
b) Large animals (cow, buffaloes, ox)	45.5	16.7
Total animals (N)	682	18
7. Total Assets owned (N)	**270**	**270**
a) Households owning fish net alone (% to N)	36.3	28.9
b) HHs owning net and boat (% to N)	31.1	68.1
c) HHs owning net, boat and land (% to N)	0.7	1.1
d) HHs ownings net and land (% to N)	18.5	1.9
e) HHs owning animals (% to N)	72.2	2.2

Note: Figures in parentheses indicate number of observations.
Source: Pathak, Jharna (forthcoming).

Even in Ukai where animal husbandry and agriculture provides major source of livelihood, fisherspossess only a small asset base for these land–based activities. Perhaps, the poor economic condition of fishers and probably small size of fish stock in the reservoir discourages them from investing in physical assets like big animals, boats (31%) or land (only 17% of the households own land: mainly marginal land holding of less than 2.5 acres and another 37% of households cultivate forest land). This emphasizes the importance of fishing as an additional source of income to these households that are poor in asset base. On the contrary, fishing provides major source of livelihood to 85% of Gandhisagar households while another 7% are dependent on income from non–agricultural labour. Greater dependence on fishing has encouraged fishers to invest in boats and nets (68%) with an expectation of earning a higher income from fishing.

3.5 The Extent of Productivity and Income Increase

Fundamentally, the productivity of a reservoir depends on geo-climatic[2], climatic[3] and morpho-metric[4] factors, hydrographic changes like changes in the water level, inflow and outflow of water in the reservoir and biotic communities [FAO, 1993 as cited in Pathak (forthcoming)]. Table 4 noted that the total fish catch in Ukai was 1, 56,972 kg per year. After the formation of FC, there was a 1.3% increase in total production, however, on further analysis it was found that the quantity of low–valued fish (like Kati and local species) was higher (72%) than that of high value fish (like Rohu, Katla, Mrugal).

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[2] Includes soil type, distribution of rainfall, the alignment of hills and their elevation.

[3] Includes temperature, wind velocity, rainfall, latitude, solar radiation.

[4] Includes the height of the dam, the topography of the impounded area, nature of the basin, the characteristics of the terrain, the design of the dam, the water use pattern and nutrient matter.

Table 4: Species-wise Fish Catch and Income Earned by Fishers in FCs: Ukai, Gujarat and Gandhisagar, MP

Type of fish	Ukai	Gandhisagar	Ukai	Gandhisagar
	Total fish (kg/year)		Total income of fishers (Rs/year/fisher)	
Before the FC (constant terms in 2009 prices)				
Rohu	38719 (25.0)	197601 (22.6)	2243 (28.7)	7425 (24.1)
Catla	42912 (27.7)	202822 (23.2)	2488 (31.8)	7621 (24.7)
Mrigal	36219 (23.4)	188907 (21.6)	2027 (25.8)	7098 (23.0)
Kati	11489 (7.4)	63359 (7.2)	373 (4.8)	1642 (5.3)
Minor Produce*	25638 (16.5)	222001 (25.4)	672 (8.9)	7059 (22.9)
Total	154977 (100)	874690 (100.0)	11774 (100) [17350]	30845 (100.0) [55437]
After FC formation				
Rohu	32202 (20.5)	186083 (20.1)	1790 (22.9)	3480 (21.1)
Catla	32370 (20.6)	307952 (33.3)	1749 (22.4)	5759 (35.0)
Mrigal	33907 (21.6)	251679 (27.2)	1832 (23.5)	4707 (28.6)
Kati	14484 (9.2)	93600 (10.1)	363 (4.7)	1252 (7.6)
Minor Produce*	44009 (28.0)	85247 (9.2)	2069 (26.5)	1279 (7.8)
Total	156972 (100.0)	924561 (100.0)	4641 (100.0)[17557]	16477 [52448]
Percentage change after FC formation				
Rohu	-16.8	-5.8	-20.2	-63.6
Catla	-24.6	51.8	-29.7	-54.1
Mrigal	-6.4	33.2	-9.6	-52.0
Kati	26.1	47.7	-2.6	-40.7
Minor Produce*	71.7	-61.6	207.7	-98.4
Total	1.3	5.7	-60.6	-63.6
No. of fishers				
Before FC	432	522		
After FC	1089	909		

Notes: 1. Figures in parentheses indicate percentage to total and figures in bracket [] indicate mean income of the household. 2. Rohu, Catla and Mrigal are high valued fish and minor produce include low-valued indigenous species.

Source: Pathak, Jharna (forthcoming).

Fishers complained about the inability of their FC to prevent non–members from using big nets for catching fish, especially high–valued fish. This along with other geo-climatic, hydrographic conditions and failure on the part of the department to stock the reservoir with high valued fish have led to a decline in the quantity and quality of fish and high valued fish in particular. Consequently, income from fishing may have declined in this area.

Table 5: Average (median) Household Income, Contribution of and Difference in Income after FC Formation, by MJSI: Ukai, Gujarat and Gandhisagar, MP

Fishing cooperatives	Sources of income (in Rs/year)						
	AG	AH	Fish	AL	NL	Other	Total
Before FC Formation							
Ukai	5059 (135)	6611 (192)	13374 (270)	8555 (169)	6844 (97)	15209 (21)	40199 (270)
Gandhisagar	7695(1)		28407 (270)	9234 (1)	7695 (9)	27702 (1)	30742 (270)
After FC Formation							
Ukai	3489 (143)	6468 (195)	14280 (270)	10231 (178)	9591 (103)	21314 (21)	55534 (270)
Gandhisagar	18630 (9)		38870 (270)	14720 (24)	18400 (127)	23000 (17)	53360 (270)
Share to total income: Before the formation of FC							
Ukai	8.3	11.1	35.6	13.6	6.8	24.5	100.0
Gandhisagar	0.05		98.99	0.1	0.7	0.2	100.0
After the formation of FC							
Ukai	6.4	10.7	26.1	13.5	11.5	31.8	100.0
Gandhisagar	1.6		76.0	3.1	17.3	2.0	100.0
Difference after FC formation							
Ukai	-1570	-143	906	1676	2747	6105	15335
Gandhisagar	-7695		10463	5486	10705	-4702	22619
% change after FC formation							
Ukai	-31.0	-2.2	6.8	19.6	40.1	40.1	38.1
Gandhisagar	-100.0		36.8	59.4	139.1	-17.0	73.6

Notes: 1. MJSI= Major source of income; AG=Cultivation; AH=Animal husbandry; Fish=Fishing; AL=agricultural labour; NL=non-agricultural labour; Other = shopkeeper, carpenter, plumber etc. 2. Figures in parentheses indicate number of observations.

Source: Pathak, Jharna (forthcoming).

Table 5 shows that fishing constitutes 26% (Rs. 14,280) of the total average income (median) earned by Ukai households (Rs. 55,534) from all economic activities. This is lower than that earned from other sources of employment like carpentry, shop–keeping etc. (Rs. 21,314). Over the years, this fishing income has increased by only 7%. However, in per capita terms fishing income has declined (from Rs. 11,774 per fisher per year before FC to Rs. 4,641 per fisher per year) (Appendix Table A). The apathy of the fishing department and the in effective management of the FCs may have been responsible for this poor showing. It also could be due to increasing population pressure.

As against this, the average fish catch per year in Gandhisagar, MP is 924,561 kg/year (Table 5). This is significantly greater than that of Ukai. Comparison of fish production in both the states is difficult as yield generally is not proportionally related to the size of a water body. Generalisations about fish production per water surface area are also difficult to make because of the paucity of data on water surface area that were neither comprehensively nor comparably available. The author shows that median income earned by Gandhisagar reservoir households from fishing–the primary source of income–contributes more nearly 76% (Rs. 38,870) of the total income earned from all other sources (Rs. 53360). Income from fishing has increased by 37% after formation of FC. This is beguiling especially when this increase was achieved despite reduction in price of fish catch (Appendix Table A). Over exploitation of the resource by means such as increase in number of months of fishing and active fishers per household have resulted in this increase in income (Appendix Table A). FCs in both the states in general and MP in particular failed to increase the price of fish catch. This low fish price is beneficial to the contactor rather than fishers. This suggests an unholy nexus between the government and the contractor.

As against the weak fish resource base of Ukai, Gandhisagar reservoir enjoys a better fish resource that perhaps explains the greater contribution of fishing to total income. Unfortunately, over time, much of the income is generated by over–exploitation of the resource and the community. A sudden shock in the form of a failed monsoon could drastically reduce the water supply in the reservoir, thereby making the whole fishery collapse. Rather than facilitating FCs in terms of credit, cold storage, exploring new markets for selling fish, providing effective monitoring mechanisms and

selling the harvest at a better price,the government in both states treat FCs as liabilities and outsource the marketing of fish to contractor. In an area which already suffers from remoteness from urban centres and lacks alternative sources of employment and ownership of land, such an unsustainable approach to employment generation and resource usereflects the apathy of the government towards fishing community at large. This compels fishing household to look for alternative sources of income, mainly as non–agricultural labourers even if it does not pay well. All these shortcomings, give a clear warning that the institutional regime of the FC+FF and contractor has failed to engage the community and help in sustainable use of resource.

3.6 Inequality Measurement of Fishers

Using MPCE it is clear that 49% of households in Ukai are poor and cannot afford to buy the basic basket of goods for subsistence (Table 6). As the study area falls in the area that has experienced major displacement of large population at the time of the construction of Ukai irrigation project, this area has an exceptionally high incidence of poverty.

The number of poor people has increased over time with nearly 19% additional households experiencing aworsening of poverty after the formation of FC. Also, the FC programme failed to make any improvement for the 29% of households who were already poor at the time of the formation of FC. As there is hardly any control and management of the community on the resource, such an increase in poverty may be attributed to the coercive cooperation and not community management.

Table 6: Head Count Ratio and Change in Poverty Status after FC Formation: Ukai, Gujarat and Gandhisagar, MP

Fishing Co-operative	Before FC formation			After FC formation			Change in povertystatus (% of total)			
	Poor	Non–poor	Total	Poor	Non–poor	Total	Always poor	Worsening	Never poor	Improve-ment
Ukai	42.6 (115)	57.4 (155)	100.0 (270)	48.5 (131)	51.5 (139)	100.0 (270)	29.3 (79)	19.3 (52)	38.1 (103)	13.3 (36)
Gandhisagar	19.3 (52)	80.7 (218)	100.0 (270)	11.1 (30)	88.9 (240)	100.0 (270)	11.1		80.7	8.1

Note: Figures in parentheses indicate number of observations.
Source: Pathak, Jharna (forthcoming).

Given the fact that majority of Ukai households are dependent on non–fishing activities (mainly agricultural labour, animal husbandry, cultivation) rendering uncertain returns, fishing offers a potential source for providing a safety net to these households in the form of supplementary source of income (Table 7). Apathy of the government is clear when it chose to rely on a contractor to maximise the revenue potential from fish rather than exploiting the potential of fishing by mobilising the community in managing it. Such apathy motivates contractor to exercise his power through strict monitoring of fishers, exploiting them further.

As against this, only 11% of households in Gandhisagar were identified to be poor (Table 7). The number of poor has declined after the formation of FCs. Initially, before the formation of FC, the poverty in the study area was comparatively lower than that of the state, perhaps, because the reservoir was unexploited and had quite a stock of high valued catch. However, over time, factors like (i). Increase in demand of an increasing population, (ii). Apathy of the fishing department manifested in their not pre–stocking the reservoir with fish has led to degeneration and over exploitation of the resource. The contractor with the sole idea of maximising his profit tends to deplete the resource by turning a blind eye on the overuse and exploitation of the resource by the fishers.

Table 7: Percentage Distribution of Poor and Non-Poor Households by Extent of Dependence on Fishing: Ukai, Gujarat and Gandhisagar, MP.

FCs	Poor + fishing dependent households	Non–poor + fishing dependent households	Poor + non–dependent on fishing	Non–poor and non–dependent on fishing	Total
	% to total		% to total		
Ukai	3.8 (5)	15.1 (21)	96.2 (126)	84.9 (118)	270
Gandhisagar	83.3(25)	87.5 (210)	16.7(5)	12.5 (30)	270

Note: Figures in parentheses indicate number of observations.
Source: Pathak, Jharna (forthcoming).

Both these case studies show how the original concept of a cooperative was twisted and made to work in both the states. The real purpose of cooperative is lost here. A cooperative ought to be a body which is formed spontaneously by its members to earn revenue and face challenges collectively. The government found that the cost of monitoring the reservoir was high and they did not want to let the resource be an open source as they realised that

it could be a source of great revenue. In response to this situation, cooperatives here were formed to kill two birds with one stone i.e., to reduce the cost of monitoring the reservoir fishing ground and earn the revenue out of it. As the government is mainly interested in revenue, the rules and regulations governing FCs are poorly administrated and opportunistic exploitation of community and the resource is overlooked. Such a cooperative structure has bred a form of crony capitalism in which the control and distribution of resources are based on close government–contractor relationships rather than economic fundamentals. Though this is evident in both the states, in Gujarat, the Minister of Fisheries Department is accused in the scam[5]. The case may be proved or disproved but the fact remains that the trend is towards crony capitalism owing to weak governance.

4. Conclusion

The above discussion shows how middle class through political connections or bribery have grown in size and number. Such gains experienced by middle class may be the consequence of crony capitalism that has taken hold in the country. The policy of the government for forming a FCs has failed to insulate FCs from political processes of rent seeking and patronage disbursement and has done nothing to strengthen their skills in the FC–related activities. The process of reaping the benefits in the name of FC shows that the rich contractors using their connections and better access have played the game according to the rules laid by the government (bureaucrats, chief executive officers) quite well and have earned a lion's share in terms of fish harvest in both the study areas. A nexus has emerged

[5] It is interesting to know that while the research was being done, trader Ishaq Maradia had moved the High Court in 2009 over the scam and accused ex–minister of fisheries (A powerful *Koli* community leader who influences several assembly seats in coastal Saurashtra and was then the Minister of Fishery in the Government of Gujarat) of having given away fishing contracts for 58 reservoirs in the state, each spread over at least 200 hectares (2 sq. km), without any tendering process at rates below the price fixed in previous contract. According to Maradia, contracts worth Rs. 40 crore per annum were awarded for Rs. 2.36 crore. This cost the government Rs. 400 crore. The contracts were renewed at such low rates for 10 years (The Indian Express, September 21, 2012). At present, the special anti–corruption bureau (ACB) court in Gandhinagar which is hearing the plea against ex–fisheries minister has fixed February 2 as the next date to hear request for handing over the case to the CBI or monitor by itself.

between the political elite, bureaucracy and the contractor. The middle class though geographically dispersed know quite well how to use this tool of class hegemony for their benefit.

In contrast, dependence of members on fishing and the weak bargaining power to oppose control of officials and contractors have made the FCs vehicles for economic exploitation. We saw that in MP, favoured by positive relations with government officials, the contractor made substantial investments for monitoring the reservoir to make sure that the FC members sell fish to him. Fishers are only concerned with earning their livelihood. They suffer from limited education, and are in the habit of meekly obeying the instructions of the government by participating in the process which ends up benefiting the contractor. Buckling under this control, they work with the system to maintain the status quo rather than changing the larger structures of this system (Scott, 2008: 92). However, discontentment among fishers is reflected from low level of participation in FC related work. The local community is squeezed between the ill–defined property rights on the resource and neoliberal governmental regimes, and feel robbed of their autonomy and have become mere labourers engaged in catching fish from the reservoir. They felt that they have become puppets that the government uses to execute their strategy but are powerless to make the government accountable for their manipulation.

In the absence of devolution of powers, the FCs function as instruments for overcoming managerial problems of fishing rather than providing new platform for fishers to participate and manage their resources. The analysis demonstrates that in a fragile area with a marginalized community like that of fishers, insulation from political processes is difficult to achieve which results in a rapid deterioration in the functioning of the FCs. As poverty which is not merely dependent on income but also on a limited accessibility to the resource use, such a marginalisation and neglect of FCs at the cost of commercial gains for contractor is one of the many symptoms of this process. The entire system has been attuned to serving the middle class interest. This has vitiated quantity of resources on one hand and its governance on the other. But one thing is clear that the short term vested interest of the bureaucrats and contractors impinge on the long term welfare implications of a cooperative.

Appendix TableA: Active Fishers and Number of Fishing Months and Price Before and After formation of the FCs: Ukai, Gujarat and Gandhisagar, MP.

FCs	Average no.of active fishers per household	Average no. of fishing months per year	Price (in 2009 prices)	Average no. of active fishers per household	Average no. of fishing months per year	Price
	Before the FC			After the FC		
Gujarat	1.6	5.4	32.9	4.0 (150.7)	5.9 (9.2)	32.0 (–2.5)
Madhya Pradesh	1.9	7.8	18.4	3.4 (77.0)	9.9 (27.8)	16.2

Note: Figures in parentheses indicate percentage change after FC.
Source: Pathak, Jharna (forthcoming).

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The major areas of research at the Institute are the following:

1. **Natural Resources Management, Agriculture and Climate Change**
   Research under this area concerns the broad realm of environment and development. Studies have focused on economic viability, equity, environmental impact assessment and institutional mechanisms. Issues in common property land resources, land use and water harvesting have been researched extensively. Implications of climate change risks for Asia and the adaptation and mitigation strategies at the local levels have begun to be studied.

2. **Industry, Infrastructure and Trade**
   The main themes include policy dimensions concerning the micro, small and medium enterprises, industrial clusters and intellectual property rights. Studies on basic infrastructure and linkages between infrastructure and regional growth have also been carried out. Trade and development and finance are new areas of interest.

3. **Employment, Migration and Urbanisation**
   Studies under this theme relate to employment, labour, diversification of economic activities and migration. International migration has emerged as an additional theme along with urban services and aspects of urban economy and governance.

4. **Poverty and Human Development**
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5. **Regional Development, Institutions and Governance**
   Recent studies enquire into regional underdevelopment and the dynamics of local level institutions. Tribal area development mainly relating to livelihood promotion and human resource development has been a focus area. Recent analyses have also looked into Panchayati Raj Institutions, Forest Rights Act, MGNREGA and Right to Education Act.

Much of the research informs national and regional policies. The Institute also undertakes collaborative research and has a network with governments, academic institutions, international organisations and NGOs. A foray into specialized training and doctoral programme has just been made.

Gujarat Institute of Development Research

Phone : +91-02717-242366, 242367, 242368
Fax : +91-02717-242365
Email : gidr@gidr.ac.in
Website : www.gidr.ac.in

Gota, Ahmedabad 380 060, Gujarat, India.