UNPUBLISHED (FOR REVIEW) (PRESENTED AT 8AFF 2007 SPECIAL SYMPOSIUM ON GENDER)

GENDERED SPACES, TECHNOLOGICAL CHANGE AND FISHERIES SUSTAINABILITY: A COMPARATIVE ANALYSIS OF WOMEN IN TUNA FISHERIES IN LAKSHADEEP AND BIVALVE FISHERIES IN KERALA.

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What happens to gendered spaces in two contrasting social contexts that survive on fishery-based resources consequent to technological change? The study, by comparing and contrasting the role of gender relations in Tuna fisheries of Lakshadeep islands and Bivalve fisheries along Malabar coast of Kerala, discusses this question on the basis of received notions of gender analysis. It is argued that policies that pursue the creation of livelihood and resource sustainability in fisheries-dependent coastal communities should view gendered spaces as an inclusive process equally mindful of the context-specific factors that construct role segregations. The emergence of state sponsored empowerment platforms, though increased the bargain power, has been found to exert different levels of influence in the way connectedness to the resource gets mediated by gender often constraining economic choices in the domestic as well as social spaces.

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Accn. No. 9056

Date 22/4/08

MFN No. 49290

1.Introduction

Gender as an analytical category that can capture complex social processes and as a relational concept (Krishnaraj,2006) is comparatively new in fisheries development discourse when compared to the women in fisheries paradigm (Tietze,1995, Diamond *et al* 2003, Williams *et al* 2002, Bennett 2005). If gender is conceived as a "means of understanding how society operates through the study of the negotiation of power roles and influence between men and women (Bennett,2005)" it has to go beyond looking at how men and women interact with the resource. The social space that shapes this "process" as well as the "outcome" is a mediated one making it highly dynamic and contextual. Technological change is one such mediator that affects the perceived notions of sustainability in different ways. That its characterization as a historical given is problematic, thus defying generalizations, is the moot point this paper tries to deliberate by examining two case studies as an answer to what happens to gendered spaces consequent to technological change in two contrasting social and ecological contexts that survive on fishery-based resources.

Technological change in the fisheries sector is often portrayed to be inimical to the interests of women thus being identified (like patriarchy) as a *casus belli* of gender inequality. Hapke(2001) shows how women fish vendors in Kerala had to relocate gender configurations becoming subordinate players in an increasingly commercialized and spatially divided production distribution system after mechanisation. But it is difficult to generalize this mediation as a case of one sided marginalisation. For eg., Overa (2003) says that in Ghana, technological change by way of motorization saw the men, not the women, in subordinate positions.

Out of the two case studies developed and discussed in this paper one shares the observations of Overa, though the relationship of gendered space with technological change seems to be hazy. But the second case treads a different path indicating positive resonance between these two probes. The paper is organized under 1) methodology 2) descriptions of the two cases a) Tuna fisheries in Minicoy and b) Bivalve fisheries in Kerala 3) Interpretations of Case study analysis and d) Concluding remarks.

2. Methodology

The case studies were conducted during 2006-07 following a grounded theory approach and methodological pluralism under the overall design suggested by Yin(1988). The reliability and validity of the cases were tested by subjecting them to critical reflection through focused group interactions at the respective locales in separate visits done during September 2007. The suggestions of these exercises were subsequently incorporated in the final cases presented here. Still the extent to which interpretive positions taken by the authors get vitiated by what can be called as "male- gaze" remains open ended.

3 a.Case Study 1 Tuna fisheries in Minicoy isalnd (Hikimas women gaining critical mass against AIDS?)

Minicoy island ,part of the Union territory of Lakshadeep Islands, is considered as the epicenter of tuna fishing in Indian waters. Thanks to the *pole and line* technique of catching skipjack tuna (*Katsuwonus pelamis*) which the Minicoy fishers mastered from

Maldives, they had a successful tuna fishery (Jones1958). There are 45 boats under individual ownership and 13 under the village houses which are traditional institutions of island governance. But separate village houses for ladies are unique to Minicoy in the Lakshadeep indicating the status accorded to Minicoy women who traditionally have enjoyed higher status by virtue of the kinship ideology of *matriliny* existing in combination with the *joint family system*.

Tuna fishery is a typical case of gendered division of labour —men catch tuna and women make *hikimas* (smoked and sun-dried tuna). The moment tuna is landed, whether day time or late night, all the subsequent transactions like dividing the share, gutting and cleaning, on-the shore selling of excess if any etc.,take place under female supervision. The divided catch is immediately taken for *hikimas* preparation by ladies. The boiling process requires two hours and smoking another 3-4 hours after which it is sun dried for 7-10 days. The *hikimas* preparation is organized under three major forms of collective endeavors i) groups of women under the leadership of the boat owner's wife ii) group of ladies of the crew member's family and iii) ladies not belonging to tuna fisher families during times of excess catch done on contract basis. None of these groups are exclusive. The catch from the village boat is processed by the members of the ladies' village house (called *varanghe*) under the leadership of the *baduthata* (*the big lady*).

Technological change

The department of fisheries (established in 1959) seeing the abundant tuna resources as an opportunity for new employment opportunities for the natives established a canning factory (CF) with an installed capacity of 1200 cans /day (80-100kg fresh tuna) in 1969. The introduction of motorization of the traditional Pablo boats which happened during this time resulted in higher catch of tuna. The fishermen welcomed the factory with enthusiasm because of many reasons:1) the price offered by the factory for the fresh catch was pretty higher than what the *hikimas* used to fetch 2) since only skipjack tuna was used for preparation of *hikimas* they could sell the catch of yellow-fin tuna also 3) it offered employment opportunities for the islanders 4) their ladies could now reduce the drudgery of making the *hikimas* ("we needed to produce only for home consumption" said Rehima aged 62). The fishers registered themselves as potential suppliers to the factory and started earning ready cash. And with the huge sums of money their seamen sons were bringing, the islanders had a leisurely life perhaps but for the tyranny of distance (Jeromi,2006). But the CF causing a slumber in *hikimas* production was ephemeral simply because the storage capacity of the factory was not commensurate with the catch (table 1).

Table 1. Average Catch of tuna (in tons) from 1960 to 2005

Period	Minicoy	Lakshadeep
	(tons)	(tons)
1960	120	300
1970	230	774
1980	644	1750
1990	1268	6580

2000	749	7070
2001	695	9343
2002	1314	6656
2003	2337	8195
2004	2508	8232
2005	3003	9030

(sources: Said Koya et al, 2005 and Pillai et al 2006)

But this period saw two very interesting developments that brought the *ladies* back into the late- night- kitchen- and- open sun of *hikimas* preparation. Two experimental data buoys deployed by National Institute of Ocean Technology(NIOT) were soon serendipitously found by the fishers as acting as Fish Aggregating Devices (FADs) enabling them better catch (46% increase) as the frequency of trips and the number of boats increased. The CF could handle only 12% of the catch (Datta and Patel.2004). And there stared a hike in *hikimas* price. What was Rs 30-35 /kg till late nineties became Rs 75-85 in 2003 and Rs 120-135 in 2006. The price offered by CF was a mere Rs 25/kg. So making *hikimas* out of the skipjack tuna (about 97% of their catch) was definitely more profitable, even at the conversion ratio of 1:5.

The revival of *hikimas* after the post-CF slumber, instead of getting castigated as an avoidable burden, has been warmly embraced by the womenfolk. Economic incentive was the obvious motive (The current price of tuna *hikimas* is Rs250/kg). But there were other subliminal reasons also. While the women hold the ownership over house and land, what the men possessed was the boats and the skill in tuna fishing. But men are not nondescript entities. They compensate the loss of domestic power by dominating the political sphere through the agency of the village house and the mosque. With more number of men going as seamen (with an average of Rs15,000-25,000 /month , but not permanent) the pressure on other members of the family to earn extra income through tuna fishing got diminished. Most of the families could build new houses and buy modern electronic gadgets like TV with cable connection (92%), video players (90%) washing machines (85%)and even computers (21%). The comforts of a modern home incarceration deprived them with one thing- the space for interaction and socialization within the community.

Though the seamen brought prosperity to their families they also brought the threat of AIDS to the island. Threat of AIDS was given the highest rank by 93% of the respondents. Though the community at large was to incur the wrath of this malady it was the women who had to bear the brunt. They badly wanted an action against it. Though a few knew the solution they lacked the critical mass to break the orthodoxy of the religion and influence the community's decision making body which is male dominated. The revival of *hikimas* preparation gave enough talking space that snowballed into a whisper campaign that ultimately resulted in the imposition of compulsory ELIZA test especially for the groom as a condition of marriage.

3b.Case study 2. Bivalve fisheries (Mussel farming) in Kerala ("Mussel power" to Malabar coastal women)

Mussel farming(MF) in Kerala has a very interesting trajectory – a technology originally developed for open sea mariculture—taking anchor in the estuarine system and finally becoming popular as a women empowerment tool in coastal Kerala.(Ramchandran,2007). The total production of farmed mussel from five districts of the state has reached an estimated 11,000 tons in 2007 compared to nil before 1995 (Table 2). At a mere 0.002 level of adoption the technology has been estimated to yield Rs 32.86 million as net direct and indirect benefits. MF is dominated by female-led SHGs all over Kerala.(Table 3.)

Table 2. Adoption pattern of mussel farms in Kerala

year	Kaz	Ko	zhiM;	al K	oll	Eki	Are m (cer	To ea no nt) far	offproduction
95-96	1	1	0	0	SAFET.	0	8	2	16.13
96-97	4	0	0	0		0	14	4	22
97-98	6	51 1300	m bit		1000	194,00	24	6	27
98-99	17	or n 0	00 85			GU 11	127		
99-00	56	10 11 15	8	+	-	i i		17	198
00-01	68	-		10		of b	312	64	588
191111111111111111111111111111111111111		1 1	15	bi	1	1	424	74	793
1-02	92	11 11	39	101		2	654	131	985
2-03	158	9	54		1		850	221	1194
3-04	241	14	58	1	+	_	1405		
4-05	348	22	65	1	1	port!		314	1897
5-06	474			1	1		2187	437	4450
		83	157	3	2		7565	619	9878
5-07	572	88	178	65	5	stru	8696	875	11876

(source: Ramchandran, 2007)

Table 3. Ownership pattern of mussel farms in Kerala

	Kasargod	Kozhikkode	Malappuram		lo nois
SHGS .	180	68		Kollam	Ernakualm
Female		08	62	30	3
remale	132	63	58	30	3
Male	48	5	1		
ndividuals		3	4	0	0
narviduais	8392	20	116.	2	2

(source: Ramchandran, 2007)

Thekkekkad village in Padanna Panchayt, Kasargode district of Malabar coast in Kerala can be considered as the nucleus—of MF technology in India. It was introduced by CMFRI in1996 at the request of an entrepreneur Mr. Gul Muhammad a resident of the village. The demonstration done in his farm was a huge success with the crop yielding about two tons from a mere 40sq.m area. An exporter promised him to procure the produce if they could supply 1000 tons. Realizing that this could be made in to a profitable venture only if—there was a marketable surplus Gul wanted to scale up the farming.

Gul could convince the two DWCRA women groups to take up MF. They were given training and technical support by Gul and scientists of CMFRI. The success of the groups attracted the attention of other women, who were working as farm labourers or beedi workers or clam collectors, soon found mussel farming as an alternative source of income mainly because of its profitability. The average profit comes to Rs 15000-20000 from an area of four cents.) (See Table4 for the cost of cultivation worked out for a farm of 4cents). Now in Kasargode district alone there are 2640 women mussel farmers organised under 132 Self Help Groups (SHG) contributing around 80% of the total production in Kerala.

What made the technology more women friendly apart from profitability was the fact that once the racks are made and placed in the water –a job mostly done by men who can be hired at a cost of about Rs2200- rest of the activities like seeding in specially stitched cloth bags tied on ropes , monitoring of growth, harvesting, cleaning (depuration), shacking etc, could be easily done by women. It was almost a "do- nothing farming" with a growth period of 4- 5months. The seeds and other inputs are brought by male agents who also act as procurers of the produce. The gender dimensions of the technology are given in Table 5.

members working in gulf countries. The orthodoxy among the community has been so deep—that even the poor among the Muslim women did not dare to take up oursed

Table4 .Cost of cultivation for a farm of about 4cents.

Item	Quantity	Unit cost(rs)	Total(rs)
Bamboo poles	1000 feet	3/feet	3000.00
Coir rope	600m	5.50/m	3300.00
Nylon rope	900m	6.0/m	5400.00
Bandage cloth	20 bundles	70.0	1400.00
seed	15 bags(50kg each)	400.0	6000.00
Labour -making the rack -cloth bag making -rack setting in water -harvest	6 men 15 women 3 men 2 men and 5 women	200/day 100 200	1200.00 1500.00 600.00
Stitching charges			1500.00

Total expenses	DOMEST PROMINECT	X2 21/1 1 00 000	24800.00
Yield	6ton	8/kg	
(Rs40=1\$)	sw ibiz zulguz	0/Kg	48000.00

Table5. Gendered activities in MF

Activity	Male	Female
Rack making	***	
Cloth bag making		***
Seeding		***
Seed procurement	*	
Seed setting on rack	**	*
Weekly monitoring	*	***
Harvesting	**	***
Cleaning		**
Processing		**

It is important to take note of a few more factors that gave impetus to the diffusion of the technology in the area. 1) the village got connected to the mainland through a 1 km bund road across the surrounding backwaters on the eastern side in 1998 which caused loss of farm jobs to women working as headload carriers of both farm inputs and outputs 2) by 1999-2000 the State government -launched Kudumbasree programme (aiming poverty alleviation through women self help groups) had taken over the collective imagination of the womenfolk in the village 3) National Bank for Agriculture and Rural Development (NABARD) rated mussel farming as a bankable enterprise with a BC of 1:1.34 which prompted other developmental agencies like BFFDA, ADAK and local cooperative banks also to provide loans, 4) the local Panchayat introduced leasing of the water body 5) the absence of dowry system in Thiyya community made the women positively job oriented. Due to an interplay of all these drivers five more groups were formed during this time, and the growth was exponential afterwards. The recovery of loans realized through women groups was 100%. Now there are 13 Kudumbasree SHGs(KSHG) doing MF each with an average membership size of 20 covering about 83% of the women in the village.(The total number of women in the ward is 311 and total household 250). There are two interesting offshoots of the success of the women groups. One is the formation of Self Help /Financing Groups by menfolk which happened in 2004 onwards. Now there are 15 such groups each with an average membership of 11 covering 62% of men in the study village. The other one was the formation of women groups among Muslim women. Since this provides an opportunity for comparison with Minicoy women who are also Muslims it is described below as a sub case.

Sub case 1. Muslim women forming SHG

The Muslim community at the village is apparently economically superior compared to the demographically dominant "thiyya" caste mainly due to cash inflow from male members working in gulf countries. The orthodoxy among the community has been so deep—that even the poor among the Muslim women did not dare to take up mussel farming. But the transformation taking place among the thiyya women neighborhood was

too conspicuous to resist. The first Muslim lady to break the shell and undertake MF as a women group activity was Mrs Subaida.. There were only two Muslim ladies in the kudumbasree SHG she had formed in 2000 which is still functional. (She is currently the secretary of the recently formed "Green Mussel Producers and Marketing Society" having a membership of 3000). In 2003 Subaida took the initiative to form a SHG exclusively for the Muslim women. But again a mixed group with 15 ladies belonging to Muslim and 5 from the thiyya caste was formed. They undertook MF but the crop was not a success. The group ultimately got dissolved as they could not survive the internecine bickering over the lost -investment. But the lure of the empowerment platforms floated by the other women in the village was alluring. Another group of 20 Muslim women, some of whom showed resistance when they were invited to join in 2003 was formed in 2006. But instead of MF they chose making and selling of traditional Muslim delicacies as their enterprise. Receiving orders through mobile phones (which avoid moving out) their business is good with each having a profit share of Rs 10550/ hardly within 12 months. The average savings of other groups is Rs 5000 accumulated in five years. This year they plan to market mussel pickles.

4. Inferences from case study analysis

1) Technology change and gendered space

The most important contribution of technological change has been its pivotal role in engendering empowerment platforms either extant as in case 1 or introduced in case 2. The empowerment was perceived as a multidimensional variable. In general the various dimensions as listed by women informants in the second case was taken as a model which was later probed in Case 1 also. This included a) increase in self- esteem and self confidence (we are more confident to meet officials and argue our case. We don't feel shy in facing a meeting even in a public place), , b) higher self-worth in front of men due to financial autonomy ("Our men have to depend more on us now especially If they want credit") as well as knowledge of mussel farming (" we too can do the mussel farming") c) shared feelings of solidarity bolstered by successful interventions in getting social evils like money lenders and alcoholism eliminated d) shared sense of social security and altruism (group can give an amount up to Rs 400 (non-returnable)medical aid to a member) e) an occasion for open emotional catharsis ("during our weekly meetings we open up and share our grievances ..we provide ears to each other which our husbands rarely do") f) higher sense of wellbeing (own savings, access to credit, group purchase of monthly provisions to home) g) better feeling of self –organization ("we keep home accounts and make plans", "we recognize the value of time ... we have to pay late fee to our weekly meetings).

An attempt was made to compare and contrast various qualitative responses on an normative continuum in Table 6. The dimensions of gendered space are categorized at three levels namely Personal Gendered Space (PGS), Domestic gendered space (DGS) and Social Gendered Space (SGS). The observed response pattern of each dimension has been evaluated on parameters like presence or absence and intensity, & relationship attributed to technological change, institutional change and social system. It is interesting

to see that these dimensions are present in both cases but the difference is in the attributed relationship. The second case is more robust with attributed relationships due to obvious reasons. The technological change was "lucky" to get accompanied by gender sensitive interventions of the state as well as innovative responses of a multiplicity of institutions like research system, development and credit agencies and local decentralized governance structures. The role of a newly emerged positive institutional climate of the state in the second case was, to a large extent, played by the peculiarities of the social system as well as traditional governance structures which were gender sensitive by default in the first case. The case of the Muslim women forming SHG in the second case proves that a mere similarity in religious identity need not explain cultural variations (probably caused by geographical and historic factors) behind gender perceptions.

Table6. Gendered space vis a vis technological change

Level	Dimensions	Response pattern		
D :		Case 1	Case 2	
Personal Gendered	increase in <i>self- esteem</i> and <i>self confidence</i>	* #	** ^^^	
Space	higher sense of wellbeing	* #	*** ^^^	
PGS	Technological empowerment	New contribution of the contribution	*** ^^^ +++	
	better feeling of self – organization	a Case 1 also, This	*** ^^^ ++	
of sub-rise	Better control over personal hygiene	***	***	
Level	Dimensions	Response pattern	arcard on the contract to the	
1 20113111111	a al secutor anter hitagina	Case 1	Comp	
Personal Gendered	increase in self- esteem and self confidence	* #	Case 2 ** ^^^	
Space	higher sense of wellbeing	* #	*** ^^^	
PGS	Technological empowerment	West Day . Page District		
	better feeling of self – organization	e of wellbeing (own ime) g) better feeli	***	
	Better control over personal hygiene	***	***	
Domestic Gendered Space DGS	higher self-worth in front of men due to financial autonomy	* o compare and con able 6 The dimer	*** ^^ +	
sec (DGS) ension has	Husbands sharing "double burden"	X	X	
didationtal procession	ears"	*	X	
ocial	shared feelings of solidarity	** ###		
Gendered Space SGS		*	*** ++ ^	
		** ^ #	*** +++ ^	
	Influencing political '	*	*** #	

- *presence and intensity
- ^ attributed relationship with technological change
- + attributed relationship with institutional change
- # attributed relationship with social system
- x not present

2) Cognitive map on sustainability

Conservation orientation index (Likert type scale (see Ramchnadran ,2006)) was used to infer the contours of the cognitive map of sustainability. It was found that females had a significant edge over males in both cases (COI for women was 0.89 and for men 0.72 in the first case and 0.83 and 0.74 in the second case found significant at 1% level). But it is worth noting that in a focused group interaction on constraints in MF the women came forward with the suggestion of entrusting the job of seed collection from the wild to a KSHG composed of wives of as a solution to ensure quality seed at reasonable price. The suggestion seemed to be quite impressive because it would reduce the likely resistance by the seed agents who have formed a cartel recently. It can be said that the social capital created by the women folk is much stronger than that of menfolk. The structure of men SHGs is less rigid (unlike the KSHGs there was no fine for absentees in the weekly meetings, the meetings were less frequent) and the perceived group cohesion was found to be less intensive. Following Agarwal (2000) we may note that though there is little to suggest that women are inherently more conservationist the strength of social networking they have realized has potential in collective action.

3) Are the men feeling disempowered?

It is interesting to juxtapose the perceptions of men here. Some of them in the second case were frank to admit that their masculinity was being threatened. ("Yes, if we want some urgent money it is easier through our wives. But I feel worthless afterwards ..). The domestic space still remains gendered. No male is willing to take up typical female roles like cooking, dishwashing, washing of clothes, cleaning the home and backyards etc.. The women, though wished for a helping hand from their husbands in reducing the "double burden", were found to be ambiguous on this as they felt guilty in the role change...(" I would feel I would be failing in my duties if my husband does the dishwashing"). The men also felt that it is against the norms of the society ("this may be possible in cities where you are comparatively anonymous ..but here in the village we will be branded as henpecked if my peers come to know that I wash plates and cook food at home"). "Sea is ours and a woman will never catch tuna" was the typical refrain in the first case as a male defense against domestic power asymmetry getting translated into the social and political sphere (the point already discussed under case1.). In Ghana also men resorted to similar ploys as noted by Overa (2003). There the men circumvent their perceived subordination ("threat to masculinity") by treating the women owners as mere

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extension of their role as fish traders and defining their power as irrelevant in the male

4) Grass-root level response to globalisation

When there was a glut in mussel production caused by the exporter not lifting the produce due to a EU ban in 1999 the women mussel farmers (about 20) had no other choice but to sell the mussel on a door to door basis, a job which was hither to be done only by the handful clam sellers. This indirectly helped them to develop a local market for mussels in the area. Four of these thiyya women dared to take up this as a permanent

5) Gendered spaces in resource connectedness and embedded knowledge systems

The technological change in both cases has elements of women-friendliness. But the emergent context need not yield the same space to another community in the same location which is culturally distant from the resource. A case in point is the failure of the Muslim women group. Their failure provides us some insights on the way gendered space getting defined in an embedded knowledge system. This group had to depend solely on hired labour for setting up the farm and by virtue of being unconnected to the estuarine ecology ,were deprived of the benefit of local knowledge that is crucial in identifying locations having congenial parameters like ideal salinity, direction and flow of currents etc., for a successful mussel farm. This knowledge is an exclusive domain of those who get engaged with the local ecology i.e., either fisherfolk or clam collectors. The other groups who were successful got this vital knowledge from their husbands. The failed group had none of the husbands, even of the few thiyya members, belonging to either of

It is interesting to note here that though hikimas preparation is the exclusive domain of women in Minicoy it is not so in the other Lakshadeep islands. In those islands the tuna fishermen themselves prepare the hikimas after bringing the catch to uninhabited islands

5. Concluding remarks

The main objective of the study was to see how technological change shape gendered space and perceptions of sustainability. Though the cases agree more on points of departures a common theme is the technology-driven empowerment of women which is more obvious in the second case. But the rich picture emerging from these case studies indicates that the way "gendered spaces" get configured in response to technological change is normatively layered and it is not easy nor desirable to establish generalised linear cause effect relationships. This apparently goes against the reductionist notions that enable us "yes or no" type gender sensitive policy interventions in fisheries development. Of what use, then the gender discourse for fisheries research? The

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When there was a glut in mussel production caused by the exporter not lifting the produce due to a EU ban in 1999 the women mussel farmers (about 20) had no other choice but to sell the mussel on a door to door basis, a job which was hither to be done only by the handful clam sellers. This indirectly helped them to develop a local market for mussels in the area. Four of these thiyya women dared to take up this as a permanent

5) Gendered spaces in resource connectedness and embedded knowledge systems

The technological change in both cases has elements of women-friendliness. But the emergent context need not yield the same space to another community in the same location which is culturally distant from the resource. A case in point is the failure of the Muslim women group. Their failure provides us some insights on the way gendered space getting defined in an embedded knowledge system. This group had to depend solely on hired labour for setting up the farm and by virtue of being unconnected to the estuarine ecology ,were deprived of the benefit of local knowledge that is crucial in identifying locations having congenial parameters like ideal salinity, direction and flow of currents etc., for a successful mussel farm. This knowledge is an exclusive domain of those who get engaged with the local ecology i.e., either fisherfolk or clam collectors. The other groups who were successful got this vital knowledge from their husbands. The failed group had none of the husbands, even of the few thiyya members, belonging to either of

It is interesting to note here that though hikimas preparation is the exclusive domain of women in Minicoy it is not so in the other Lakshadeep islands. In those islands the tuna fishermen themselves prepare the hikimas after bringing the catch to uninhabited islands as weeklong collective exercises.

5. Concluding remarks

The main objective of the study was to see how technological change shape gendered space and perceptions of sustainability. Though the cases agree more on points of departures a common theme is the technology-driven empowerment of women which is more obvious in the second case. But the rich picture emerging from these case studies indicates that the way "gendered spaces" get configured in response to technological change is normatively layered and it is not easy nor desirable to establish generalised linear cause effect relationships. This apparently goes against the reductionist notions that enable us "yes or no" type gender sensitive policy interventions in fisheries development. Of what use, then the gender discourse for fisheries research? The

difficulty in drawing policy lessons in situations like this doesn't mean that the gender discourse is irrelevant. As Roling (1998) observed no social scientist could ever send a man or a woman to moon. But no doubt feminism did play a crucial role in making the space missions more gendered. Similarly it can be seen that advocacy interventions in the artisanal fisheries sector of Kerala were made by activists (both women and men) who were inspired by ideologies like feminism, liberation theology or Marxism (Aerthayil,2000:33-78). Women fish workers were in the fore front of their historic struggle that culminated in the promulgation of Monsoon Trawl Ban , perhaps the only conservation measure diligently implemented by all the maritime states in India.

The case studies reveal that the emergence of state sponsored empowerment platforms (as in case 2), though has increased the bargain power, has been found to exert different levels of influence in the way connectedness to the resource gets mediated by gender often constraining economic choices in the domestic as well as social spaces even when buffered by alternative income in-flows.

Another observation is an epistemological one. Though the public space seems to have become more amenable for the empowered women the domestic space still remains gender skewed. The concepts proposed by Amartya Sen (2005) the "agency and wellbeing" aspect as well as the "cooperative conflict" could be used to throw more light here. The agency aspect refers to the pursuit of goals and objectives that a person has reason to value and advance, whether or not they are connected with the person's own wellbeing. Both of our cases reveal that women took up this role outsmarting men. It may not be surprising given the fact that most of the social ills that women take cudgels against find perverted notions of male ideology as the root cause.

The ambivalence of women towards men entering into the female domestic space which may be unobtrusive in an urbanized nuclear family space- implies the psychosocial peculiarities of an idealized sense of the Indian family (Kakar, 1999). Internalization of this even from the early childhood would make women value harmony attained through intra house hierarchy or pecking order instead of conscious concern either for gender equality or conventional evolutionary traits like trust or reciprocity that make family a unit of social contract (Dunbar et al 2006: p100-102). Gender is thus a situational factor and never an isolated one. It always interacts with other social factors that jointly constitute social persons, whereby individuals are positioned in relation to each other in the local power geometry. This implies 1) that policies that pursue the creation of livelihood and resource sustainability in fisheries-dependent coastal communities should view gendered spaces as an inclusive process equally mindful of the context-specific factors that construct role segregations and 2) in the emerging context of a transition from Women in Fisheries to Gender in Fisheries conceiving gendered space as an arena of psychosociological performance may be required which opens up new methodological challenges and opportunities. For eg., questions like Will feminization of the ocean CPR space ensure more sustainable mariculture and livelihoods? Should the women empowerment platforms be composed of both men and women or women alone? etc., which otherwise sound puerile, attain a new significance under this paradigm. It is advisable for gender scholars in fisheries to take a comprehensive review of the gender



scenario especially in Asian and African countries with this perspective as the stepping stone in making this epistemological leap.

References

- 1. Aerthayil, M.2000.Fish workers movement in Kerala(1977-1994). Indian Social
- 2. Agarwal, B. 2000. Conceptualizing environmental collective action: why gender matters. Cambridge Journal of Economics 24:283-310.
- 3. Bennett E.2005. Gender, fisheries and development. Marine Policy 29:451-459.
- 4. Datta, SK and Patel, R.2004. An evaluation of the current strategies of the Lakshadeep Development Corporation Limited (LDCL) IIM, Ahmedabad:4-5.
- 5. Diamond Nancy, K, Squillante, L, and HaleLZ. 2003. Cross currents: navigating gender and population linkages for integrated coastal management. Marine Policy 27:325-
- 6. Dunbar, R., Barret L., Lycett, J. 2006. Evolutionary psychology. One world
- 7. Hapke,HM 2001. Petty traders, gender and development in a south Indian fishery economic geography 77 (3):225-249.
- 8. Jeromi ,PD.2006. Tyranny of distance -state of economy of Lakshadweep *Economic* and Political weekly, July 29: 3291-95.
- 9. Jones S,1958. The tuna live bait fishery of Minicoy island. *Ind,J.Fish*.5:300-307
- 10. Kakar, S. 1999. The inner world -a psycho-analytic study of childhood and society in India. Oxford India New Delhi. 113-139.
- 11. Krishanraj, M. 2006. Is "Gender" easy to study? Some reflections, Economic and Political weekly October 21: 4440-44.
- 12. Overa,R. 2003. Gender ideology and maneuvering space for female entrepreneurs
- 13. Pillai NGK, E Vivekanandan and Saidkoya, KP. 2006. Status of fisheries of Lakshadeep, Marine Fisheries Information Service 187:1-7.
- 14. Ramchandran, C. 2006. Report of the project Appraisal of Marine fisheries In Lakshadeep -- socioeconomic component (unpub), CMFRI, Kochi. Pp21. 15.
- .2007. Annual report of the project "Impact assessment of fisheries research in India" CMFRI, Kochi Pp22.
- 16. Roling, NG.1996. Towards an interactive agricultural science. European Journal of agricultural education and extension.2(4):35-48.
- 17. Saidkoya, KP., Pillai, NGK, and Muthukoya, MK. 2005. Present status of Tuna fisheries of Lakshadeep islands. In V Somavanshi et al (ed) .Proceedings of Tuna
- 18. Sen, Amartya. 2005. The argumentative Indian, Penguin Books India, New Delhi,
- 19. Teitze, U.1995. FAO's role and experiences with improving the social and economic status of women in fishing communities in Asia and the Pacific. FAO Rome.
- 20. Williams MJ, Williams SB and Choo PS.2002. From women in fisheries to gender and fisheries. Proceedings of the Global symposium on women in Fisheries :13-18.
- 21. Yin ,RK.1994. Case study research -design and methods , Sage , New Delhi



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