# Voices of Young Gender Researchers in Fisheries

USING THE GENDER ANALYSIS TOOL FOR FISHERIES AND AQUACULTURE (GATFA©) IN THE INLAND CAPTURE FISHERIES OF NAGARJUNSAGAR RESERVOIR, TELANGANA

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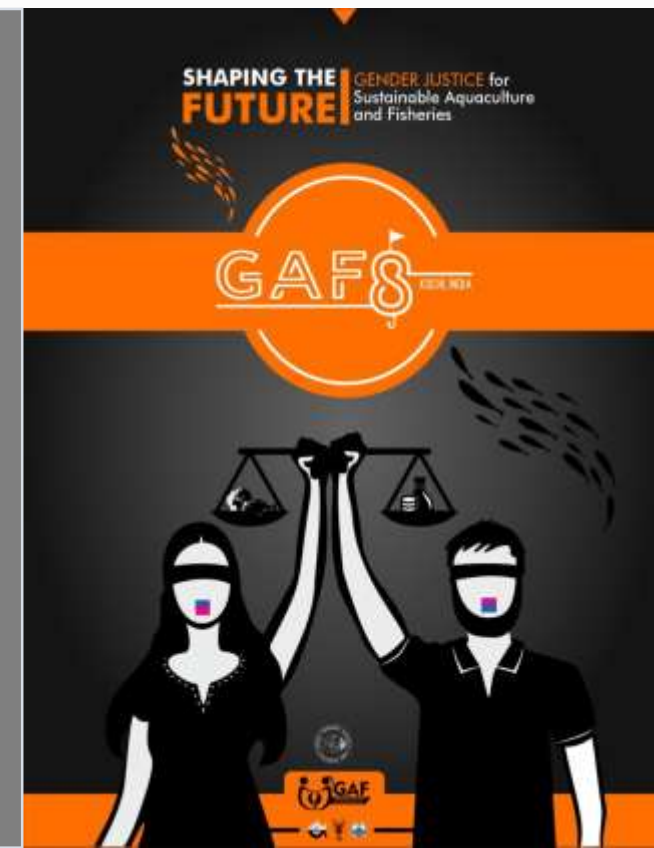
Introduction

- Fisheries and aquaculture play an essential role in the livelihoods of millions of people and contribute to food security and poverty alleviation.

- In 2020, globally an estimated 58.5 million people were engaged in the primary sector of capture fisheries (65% work force) and aquaculture (35% work force).

- Globally, women accounted for 21 percent of the total work force with shares of aquaculture (28 percent) being larger than that in fisheries (18 percent).

- But in most countries gender disaggregated statistics in fisheries is not maintained even though women play a crucial role throughout the fish value chain, providing labour in both commercial and artisanal fisheries.

- Due to this, clear picture of number of men and women involved in the sector is usually not available. This leads to invisibility of work done by women/small scale fishers/fish farmers.

- Lack of sex disaggregated data in fisheries results in underestimation of contribution of women/small scale fishers/fish farmers reflecting that their roles are invisible/marglinalized/complementary.

- So gender analysis of the sector is very important

FAO (2022)

Indian fisheries

- India is now one of the largest fish producing countries in the world.

- Ranks 7th in terms of marine landings and 2nd in terms of aquaculture.

- Fishermen population is 2,80,63,537 of which 82% of fishermen population is involved in marine and 18% in inland fisheries.

- Men and women both play an important role in the development of the fisheries sector and is estimated that 44% of women are involved in inland fishing operations.

- Gujarat tops marine fish landings with 7.01 lakh tonnes and Andhra Pradesh leads in inland fish landings with 36.1 lakh tonnes in 2019-2020.

- Nonetheless, Telangana which was part of Andhra Pradesh till 1 June 2014 and was formed as a new state on 2 June 2014 year is catching up in fisheries.

DoF, GoI (2020)

Fisheries of Telangana

- Telangana, has a great potential of ₹4,600 crore to ₹5,000 crore

- Ranked 8th in fisheries production with 3,10,322 metric tonnes of production during 2019-2020

- Ranks 3rd in view of inland fishery resources. Have been awarded best inland state in 2021 on World Fisheries Day 21 Nov

- Provides income and employment to around 5 lakh people with active fisher population of 3.38 lakh (Fishermen: 2.99 lakh and fisherwomen: 32,509)

- Traditional fishermen communities are *Bestas, Gangaputras, and Mudiraj* who claim fishing as their sole occupation Maloth *et al.* (2020).

- Agricultural sector is contributing around 16% to the total Gross State Domestic Production (GSDP) of which fishing and aquaculture sector of the state is contributing about 0.5% to GSDP

- Per capita fish consumption of the state is 8.87 Kg in 2019-2020 DoF, GoI (2020).

TSFD (2020)

Research Gap

- Preliminary review revealed that studies have been done on different aspects of reservoir, tank and riverine fisheries of the state.

- With reference to gender analysis or role of men and women in fisheries sector it is observed that fisher folk of the state include both the gender and assist each other in improving their economy and living.

- But studies on gender concerns in fisheries of Telangana are very few. Pittala (2021) and Suvarna (2019)

- **So a study was carried out on gender concerns in inland capture fisheries of Telangana**

Objectives of the study

1 To assess profile, capacities, constraints and vulnerability contexts of inland fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

2 To evaluate gender roles, time use pattern, workload and needs of inland fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

3 To evaluate access, control and decision making over resources of inland fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Methodology

Gender Analysis Tool for Fisheries and Aquaculture (GATFA)

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Component 1

Record household information, profile and capacities of fisher men and fisher women including Government schemes/institutional support

Gender roles: Activities, Time Use & Workload

Profile: Household, Capacities of fisher men & fisher women, Government schemes

Component 2

Record gender roles (Reproductive//Productive/Community). For each role record activities performed by fisher men, fisher women and any family/non family member. Record time use pattern and workload using 5 point scale

Component 3

Record gender needs (practical and strategic) and fishery needs as perceived by fisher men and fisher women using 5 point scale of importance

Needs: Gender needs & Fishery needs

Access, Control & Decision making: Household/Community Financial, Fisheries & other resources

Component 4

Record access, control and decision making of fisher men and fisher women over household, community, financial and fisheries resources using 5 point scale

Component 5

Record vulnerability contexts and severity of different constraints perceived by fisher men and fisher women using 5 point scale.

Vulnerabilities & Constraints: Fisheries, Economic, Environmental, Socio/political, Extension and others

Collect information through interviews & Focused Group Discussions with fisher men and fisher women separately. Analysis using %, graphs, t test is suggested for quantified data. For scores obtained using 5-point scale; normalization & classification is suggested. Mann-Whitney U test can be done to check if there are significant differences in scores of fisher men and fisher women. GATFA thus provides necessary information based on which strategies can be developed for gender mainstreaming and integrating a gender perspective into fisheries policies, programmes and projects.

Locale of study

State map of Telangana

Nagarjunsagar reservior, Nalgonda

Source: Maps of India

Sampling

N=67

Telangana

District **Nalgonda**

Nagarjunsagar reservoir

- Nagarjunsagar reservoir in Nalgonda district which is the biggest reservoir in the state was selected to carry out the present study

- About 50-60% of the reservoir is being used for fish culture and is contributing 3% to the fish

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Sampling Unit	Total population as per records in DoF, Telangana	Fishermen selected for study	Fisherwomen selected for study	Total	% selected
Nagarjunsagar reservoir	500 households	40	27	67	13.4 %

One way ANOVA

- One-way ANOVA, a inferential statistic was used to determine the significant difference between fisherwomen and fishermen with respect to their income earned, expenditure and savings.

Normali

- For the sc ... ne.

- Normalize ... ow, 0.21-0.40 ... h.

$$Xnormalized = \frac{(X - Xminimum)}{(Xmaximum - Xminimum)}$$

Where,

- X normalized = normalized value of an indicator

- X = actual value of the same indicator

- X minimum = minimum value of the same indicator

- X maximum = maximum value of the same indicator

Statistical tests used

Rank Based Quotient

- RBQ was used as regards to scoring of the constraints. The formula of RBQ is as follows

    RBQ = ∑ [Fi (n+1) – i] / (N x n) x 10

    Where,

- Fi = Number of respondents giving the particular score at ith rank.
- i = ith rank.
- N = Total number of respondents
- n = Number of score

Non-parametric Mann-Whitney U test

- To check if there is a significant difference in the scores of fisher men and fisher women. The formula for the test is given below

- $U_1 = n_1 n_2 + \frac{n_1(n_1-1)}{2} - R_1$

- $U_2 = n_1 n_2 + \frac{n_2(n_2-1)}{2} - R_2$

    Where,

- U_1 = Mann-Whitney statistic for group 1
- U_2 = Mann-Whitney statistic for group 2
- n_1 = number of samples in group 1
- n_2 = number of samples in group 2
- R_1 = sum of ranks in group 1
- R_2 = sum of ranks in group 2

Results and Discussion of Objective 1

To assess profile, capacities, constraints and vulnerability contexts of inland fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Results of Household Profile

Family type
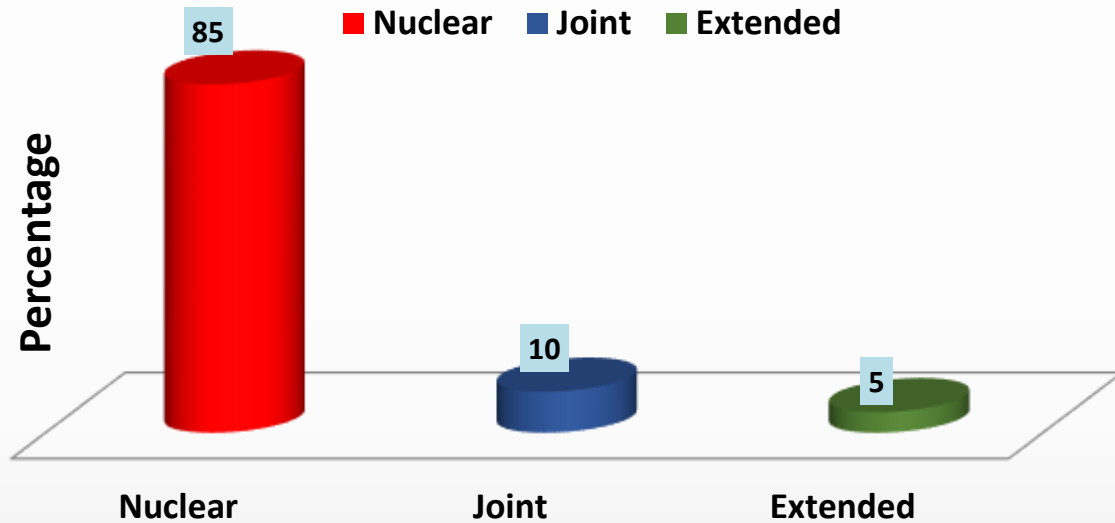
Average Family size: **4.47**

Averages of	Reservoir (N=40)
Number of children	2.32
Number of boy child	1.27
Number of girl child	1.05
School going children	1.00
School dropout children	0.07

Land holding

Annual family income

Percentage

42.4
45
5

85

No land holding
0.008-0

₹. 2.1 lakh to 4 lakh
₹. 4.1 lakh to 6 lakh

Percentage

0

2,78,125
ers in the

Majority had land holding between **0.02-0.04 acres**

All reservoir dependent households had **semi-pucca** houses

Almost all the households had TV, fridge, gas stove and bike

Communication tools used were mobile phone **(67.5%)** and smart phone (30%).

Only 30% of the households were found to be using **WhatsApp** as a communication tool.

Results of Fisher Profile

Education

50
45
40
35
30
25
20

Percentage

48.14
35
32.5
18.51
22.22

Involvement of women in fisheries activities (%)

70
62.9
60
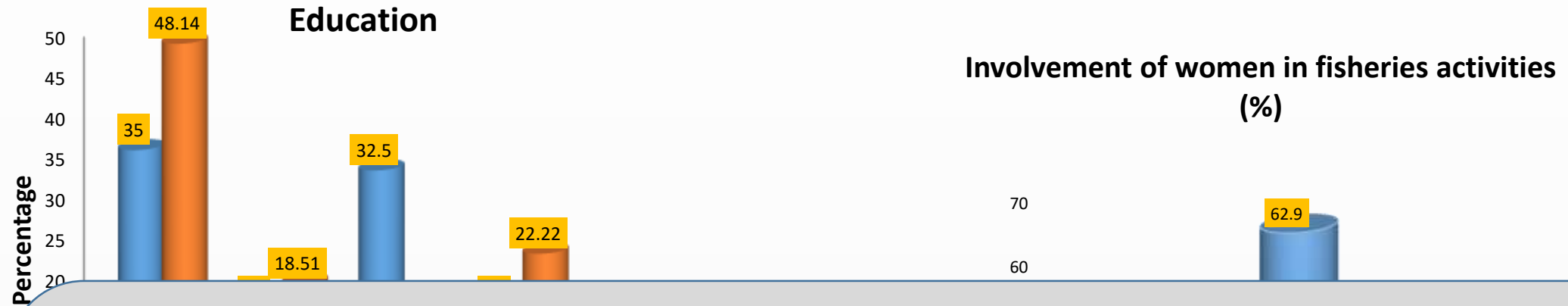
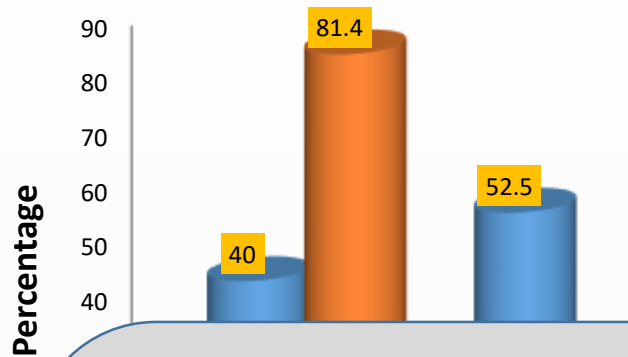Nearly half (48.14%) of fisherwomen and 35% of fishermen **had not attained any formal education**.
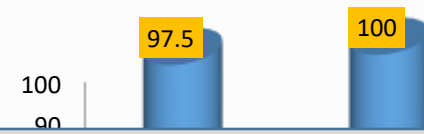
37% of fisherwomen were found to be involved in fish harvesting

18.5% of women reported that they are **not receiving any kind of income from the fishing** despite of their active involvement in fishing

Annual income (in Rs.) (%)

Fisheries as occupation

Fisheries was reported to be primary occupation for all fishers

Average annual income from fisheries for men was **Rs. 2,29,375** and for women it was **Rs. 68,900** which is **less than** the national average income (1.5 lakh/annum) and state average income (2.37 lakh/annum) (MoSPI, GoI, 2022). The difference was found to be statistically significant ($P < 0.05$).

Annual average savings by men was **Rs. 43,500** and for women it was **Rs. 28,665**.

Annual expenditure incurred by men was **Rs. 2,13,600** and for women it was **Rs. 45,391**

There was statistical significant difference ($P < 0.05$) between men and women **with reference to savings and expenditure**

Marketing experience (%)
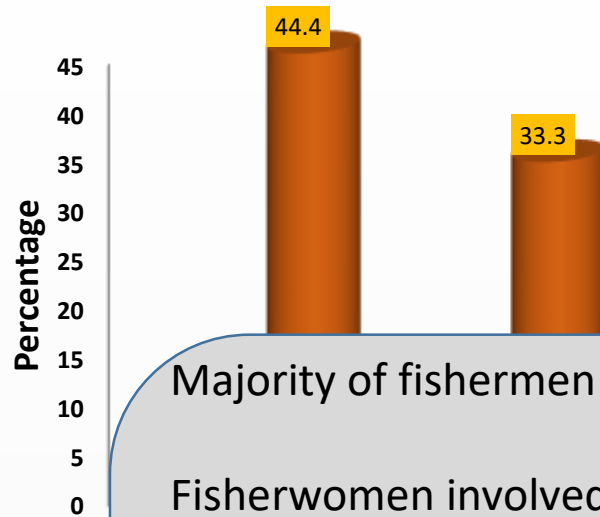
Fishing experience (%)

Majority of fishermen had fishing experience between **16-25 yrs**

Fisherwomen involved in fish harvesting had average fishing experience of **13 years**

Majority of the fisherwomen had marketing experience between **5-15 yr**

Fishermen were not involved in marketing

SHGs were found as major source of loan for most of the fisherwomen

92.5% of fisherwomen are not benefited by any fisheries schemes

Only 7.5% of fisherwomen and 50% of the fishermen got benefited from fisheries schemes like Integrated Fisheries Development Scheme (IFDS), which is a scheme of Government of Telangana

Capacities of fishermen and fisherwomen in reservoir

S.No.	Reservoir	Normalized scores		Total	Mann Whitney U Test results	
		M	W	N = 67	Z value	P value
		n = 40	n = 27			
1	Pre-Harvest	0.62	0.61	0.60	1.774	**0.076**

In reservoir fisheries, there was no significant difference in the competency scores of men and women for pre harvest and harvest activities.

Fisherwomen of Nagarjunsagar reservoir were found to be working **in all the fisheries related activities** such as pre-harvest, harvest and post-harvest with **high competencies in the pre-harvest and harvest and very high competencies in post-harvest.**

Role of both men and women are very important and in documenting their roles, competencies is of utmost importance.

Overall constraints faced by fishermen and fisherwomen

Type of constraint	Man		Woman		Both	
	n = 40		n = 27		N =67	
	RBQ	Rank	RBQ	Rank	RBQ	Rank
Fisheries constraints	60.27	VI	60.41	VI	60.31	VI
Marketing constraints	68.39	IV	**80.84**	**I**	73.41	III
Infrastructu...						V
Economic...						I
Environme...						V
Social and...						VII
Extension...						II

For fishermen, economic constraints ranked first followed by extension constraints and environmental constraints

For fisherwomen, marketing constraints ranked first followed followed by extension constraints and economic constraints

Statistical significant difference between men and women was found with regard to **marketing and social and political constraints**

Vulnerability contexts of fishermen and fisherwomen of Nagarjunsagar Reservoir, Telangana

S.No	Vulnerability types	Normalized score		Total normalized score of M&W	Mann-Whitney U test	
	Physical vulnerability	M	W	N = 67	Z value	P value
		n = 40	n = 27			
1	Occurrence of floods	**0.86**	**0.78**	**0.83**	1.868	0.062
2	Vulnerability due to kuccha house	0.44	0.48	0.46	1.828	0.068
3	Vulnerability due to poor infrastructure in the fish market	0.55	**0.76**	0.64	2.610	**0.009**
	Total	**0.62**	**0.67**	**0.64**	0.218	0.827
	Economic vulnerability					
4	Few livelihood opportunities	**0.86**	**0.90**	0.87	1.747	0.081
5	Low income	0.83	**0.88**	0.85	1.718	0.086
6	Less credit	0.75	0.57	0.68	3.158	**0.002**
7	Low savings	**0.89**	**0.81**	0.86	1.877	0.061
8	High expenditure	**0.87**	0.73	0.81	2.602	**0.009**
9	Debt	0.79	0.74	0.77	1.496	0.135
10	Loans	0.59	0.65	0.61	0.325	0.745
11	Fisheries assets	0.83	0.8	0.81	0.308	0.758
	Total	**0.79**	**0.76**	**0.78**	0.841	0.400

	Social vulnerability					
12	Norms and beliefs	0.17	**0.75**	0.41	7.201	**0.000**
13	Poor social status	0.51	0.63	0.56	2.661	**0.008**

Fisherwomen and fishermen were found very highly vulnerable **(0.83) to occurrence of floods.**

For fisherwomen, **inadequate infrastructure in fish markets had a higher score (0.76).**

In terms of **economic vulnerability both fisherwomen and fishermen were found highly vulnerable**

Under social vulnerability there was a significant difference between fisherwomen and fishermen in terms of **norms and beliefs and poor social status.**

Political vulnerability was found **high (0.61) for both fisherwomen and fishermen** and also no significant difference was found between fishermen and fisherwomen.

Both fisherwomen and fishermen were observed vulnerable to environment such as **escape of fish during floods and biodiversity loss due to climate change**

| 24 | Pollution of waterbody | 0.38 | 0.34 | 0.37 | 0.593 | 0.553 |
| | Total | **0.58** | **0.50** | **0.55** | **0.641** | **0.522** |

Overall vulnerability contexts of fishermen and fisherwomen of Telanagana

SL. NO	Type of vulnerability contexts	Normalized score		Total normaliz-ed score of M&W	Mann Whitney U Test	
	Reservoir	M	W		Z value	P value
1	Physical vulnerability	0.62	0.67	0.64	0.218	0.827
2	Economic vulnerability	**0.79**	**0.76**	**0.78**	0.841	0.400

Economic vulnerability is high for both fisherwomen and fishermen of reservoir

Overall vulnerability contexts of fisherwomen and fishermen were found highly vulnerable

As per DST (2020) reports, **Telangana is categorized as relatively low vulnerable states between scores 0.42-0.50**

In the present study, various vulnerabilities of fisherwomen and fishermen were found to be between **0.50 to 0.79.** This shows that fisher population of Telangana are vulnerable to highly vulnerable based on 5 point scale of vulnerability, and **findings of present study were found to be more than the findings of DST (2020).**

Thus, emphasis has to laid on vulnerability contexts of inland capture fisheries based livelihoods, so that suitable strategies can be made to reduce the vulnerabilities and increase the adaptive capacities of fishers.

Results and Discussion of Objective 2

To evaluate gender roles, time use pattern, workload and needs of inland fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Gender roles of fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Activity	Who performs the activity (%)					TUS		AWorkload	
Reproductive roles (hr/day)	M	W	Both	Fisherman & other man of HH	Fisherwoman & other woman of HH	Average		Normalized score	
						M	W	M	W
Cooking	0	86	0	0	14	0	1.5	0	0.87
House cleaning	0	82	0	0	18	0	1.0	0	0.83
Utensils cleaning	0	89	0	0	11	0	1.2	0	0.89
Shopping for groceries	30	0	62.5	7.5	0	0.5	0.4	0.28	0.41
Child care	0	96	0	0	0	0	0.6	0	0.46
Washing clothes	0	86	0	0	14	0	1.6	0	0.89
Elder care	0	34	0	0	0	0	0.3	0	0.40
Total						0.5	6.6	0.28	0.68

Gender roles of fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Productive roles									
Pre-harvest									
Seed stocking (day/yr)	100	0	0	0	0	2.5	0	0.31	0
Preparing bait for fishing (hr/month)	100	0	0	0	0	4.2	0	0.56	0
Harvest (hr/day)									
Fish harvest	75	0	25	0	0	**7.5**	**4.5**	**0.86**	**0.92**
Post-harvest (hr/day)									
Fish sorting	32.5	0	67.5	0	0	0.2	0.3	0.12	0.13
Fish loading	32.2	0	67.7	0	0	0.4	0.3	0.87	0.89
Icing of fish caught	50	0	25	0	0	0.5	0.3	0.27	0.33
Selling of fish in market	0	55	0	0	0	0	4.2	0.00	0.78
Cleaning craft and gear	75	0	25	0	0	0.7	0.5	0.45	0.69
Total						**1.8**	**5.6**	**0.40**	**0.56**

Gender roles of fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Overall, fisherwomen spend more time **in all the triple roles with heavy work load** compared to fishermen

Women **spend 6.6 hours in reproductive** activities as well as **4.5 hours in harvest activities** and that too in a work which is very heavy which shows that they are contributing **11.1 hr/day** combining both reproductive and productive roles.

Average time spent by fisherwomen and fishermen for fish harvest was found to be **4.5 hr/day and 7.5 hr/day** respectively .

Difference in time use of women and men for different fisheries related activities can lead to invisibility of women's contribution to fisheries Kusakabe (2022) .

In case of productive roles both fishermen and fisherwomen are involved performing **moderately heavy to very heavy activities**.

In case of community roles both fishermen and fisherwomen are involved with perceived workload **moderately heavy and very heavy respectively**

Mann-Whitney U Test for time use and work load of gender roles

SL.No	Reservoir	Time Use		Work load	
		Z value	P value	Z value	P value
1	Reproductive roles	2.992	**0.003**	3.262	**0.001**
2	Productive roles	3.708	**0.000**	3.102	**0.002**
3	Community roles	0.940	0.347	1.043	0.297

With reference to reproductive and productive roles **there was a statistical significant difference** between fisherwomen and fishermen **in terms of time use and work load.**

But with reference to community roles, there was **no significant difference** between fisherwomen and fishermen with respect to **time use and work load**.

Practical Gender Needs of fishermen and fisherwomen of Nagarjunsagar Reservoir, Telangana

Practical Gender Needs	Normalized score		Total normalized score of M&W	Mann Whitney U Test	
	M	W		Z value	P value
Food	**0.87**	**0.93**	0.90	-1.452	0.147
Shelter	**0.93**	**0.94**	0.94	-0.483	0.629
Safety	0.69	0.83	0.75	-3.787	0.000
Safe drinking water	**0.92**	**0.94**	0.93	-0.909	0.364
Water for other uses	**0.91**	**0.96**	0.93	-2.006	0.045
Health care facilities	0.74	0.80	0.76	-1.167	0.243
Health insurance	0.55	0.58	0.56	-0.761	0.447
Children's vaccination	0.67	0.75	0.70	-2.042	0.041
Covid vaccination					0.148
Children's education					0.807
Sanitation of house					0.000
Clothes					0.400
Electricity					0.148
Fuel for cooking					0.000
House hold assets					0.539
Child facilities (Anganwadi, PHCs, Primary school)	0.53	0.80	0.64	-6.233	0.000
Elderly care	0.82	0.85	0.83	-1.124	0.261
Good nutrition	0.82	0.88	0.84	-2.006	0.045
Road	0.80	0.67	0.75	-4.228	0.000
Transportation facility	0.83	0.86	0.84	-0.984	0.325
Communication tools	0.86	0.88	0.87	-0.747	0.455
Total score of PGNs	**0.75**	**0.85**	**0.81**	**-1.992**	**0.046**

For fishermen and fisherwomen top three PGNs are Water, shelter, food

Findings of PGNs in present study were in line with the findings of Bhat (2019)

Strategic Gender Needs of fishermen and fisherwomen of Nagarjunsagar Reservoir, Telangana

Strategic Gender Needs	Normalized score		Total normalized score of M&W	Mann Whitney U Test	
	M	W		Z value	P value
Access to credit	0.80	0.74	0.78	-1.288	0.198
Ownership of assets	0.79	0.56	0.70	-4.277	**0.000**
Sharing of domestic work and childcare by family	0.56	**0.88**	0.69	-6.650	**0.000**
Status in society	**0.85**	0.82	0.84	-0.862	0.389
Decision making in household work	0.59	0.83	0.69	-5.807	**0.000**
Decision					
societ					
Contr					
Child					
House					
Leade					
Coope					
Finan					
Insurance	0.82	0.84	0.85	0.825	0.409
Savings	**0.89**	**0.89**	0.89	-0.156	0.876
Subsidy	**0.84**	**0.94**	0.88	-3.219	**0.001**
Total score of SGN	**0.72**	**0.73**	**0.74**	**-1.226**	**0.220**

Fishermen: Savings, subsidy, status in society

Fisherwomen: Savings, subsidy, control over resources, sharing of domestic work and child care

Gopal et al. (2020) reported that income of fisherwomen and their social status were improved due to microcredit facilities.

Fishery Practical Needs of fishermen and fisherwomen of Nagarjunsagar Reservoir, Telangana

Fishery Practical Needs	Normalized score		Total normalized score of M&W	Mann Whitney U Test	
	M	W		Z value	P value
Availability of ice	**0.63**	0.74	0.68	-2.498	**0.012**
Women friendly fishing implements	0.58	0.81	0.67	-4.374	**0.000**
Availability of net and boat making material	**0.79**	0.46	0.66	-6.587	**0.000**
Fish market with basic facilities	**0.65**	**0.94**	0.76	-6.282	**0.000**
Fish					
Wa					
Wa					
Ava					
Sa					
Transportation to market	0.63	0.90	0.74	-5.924	0.000
Total score of Fishery Practical Needs	**0.63**	**0.81**	**0.70**	**2.800**	**0.005**

Fishermen: Availability net and boat making material, fish cold store, fish market with stalls

Fisherwomen: Fish market with basic facilities, washrooms in market, water supply in market

D'souza (2020) in her study also reported similar gender practical needs and stated that these needs should be addressed to improve women performance in fish value chain

Fishery Strategic Needs of fishermen and fisherwomen of Nagarjunsagar Reservoir, Telangana

Fishery Strategic Needs	Normalized score		Total normalized score of M&W	Mann Whitney U Test	
	M	W		Z value	P value
Fisheries trainings	0.65	0.81	0.72	-2.969	0.003
Training on entrepreneurship	0.61	0.82	0.70	-3.437	0.001
Access to fisheries schemes	**0.84**	**0.95**	0.89	-3.524	0.000
Access to fisheries policies	**0.84**	**0.89**	0.86	-1.447	0.148
Access to fisheries subsidies	**0.84**	**0.93**	0.88	-2.620	0.009
Credit facilities	0.75	0.79	0.76	-1.048	0.294
Awareness about schemes	**0.89**	**0.94**	0.91	-1.893	0.058
Access to and control over market resources	0.54	0.84	0.66	-4.823	0.000
Decision making power over fish selling price	0.57	0.87	0.69	-4.546	0.000
Total score of Fishery Strategic Needs	**0.68**	**0.85**	**0.75**	**3.534**	**0.000**

Fishermen: Access to schemes, subsidies, awareness about schemes, dignity and respect to fisheries occupation

Fisherwomen: Access to schemes, subsidies, awareness about schemes, access and control over fishery resources

Anna (2014) stated that for the development of fisherwomen he suggested suitable schemes which provide financial assistance are needed.

Overall needs of fishermen and fisherwomen of Telangana

S.No	Needs	Normalized score		Total normalized score of M&W	Mann Whitney U Test	
	Reservoir	M	W		Z value	P value
1.	Practical Gender Needs	**0.75**	**0.85**	0.81	-1.992	**0.046**
2.	Strategic Gender Needs	**0.72**	0.73	0.74	-1.226	0.220
3.	Fishery Practical Needs	0.63	0.81	0.70	2.800	**0.005**
4.	Fishery Strategic Needs	0.68	**0.85**	0.75	3.534	**0.000**
	Total	**0.70**	**0.81**	**0.75**	**2.033**	**0.042**

Very important gender needs for both fisherwomen are **PGNs and FSNs**. Whereas for fishermen it was **PGNs followed by SGNs**.

It is evident that, **there was a significant difference** (p < 0.05) between fisherwomen and fishermen with regard to **PGNs, FPNs and FSNs.**

Results and Discussion of Objective 3

To evaluate access, control and decision making over resources of inland fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana

Access, Control and Decision making of fishermen and fisherwomen of Nagarjunsagar reservoir, Telangana
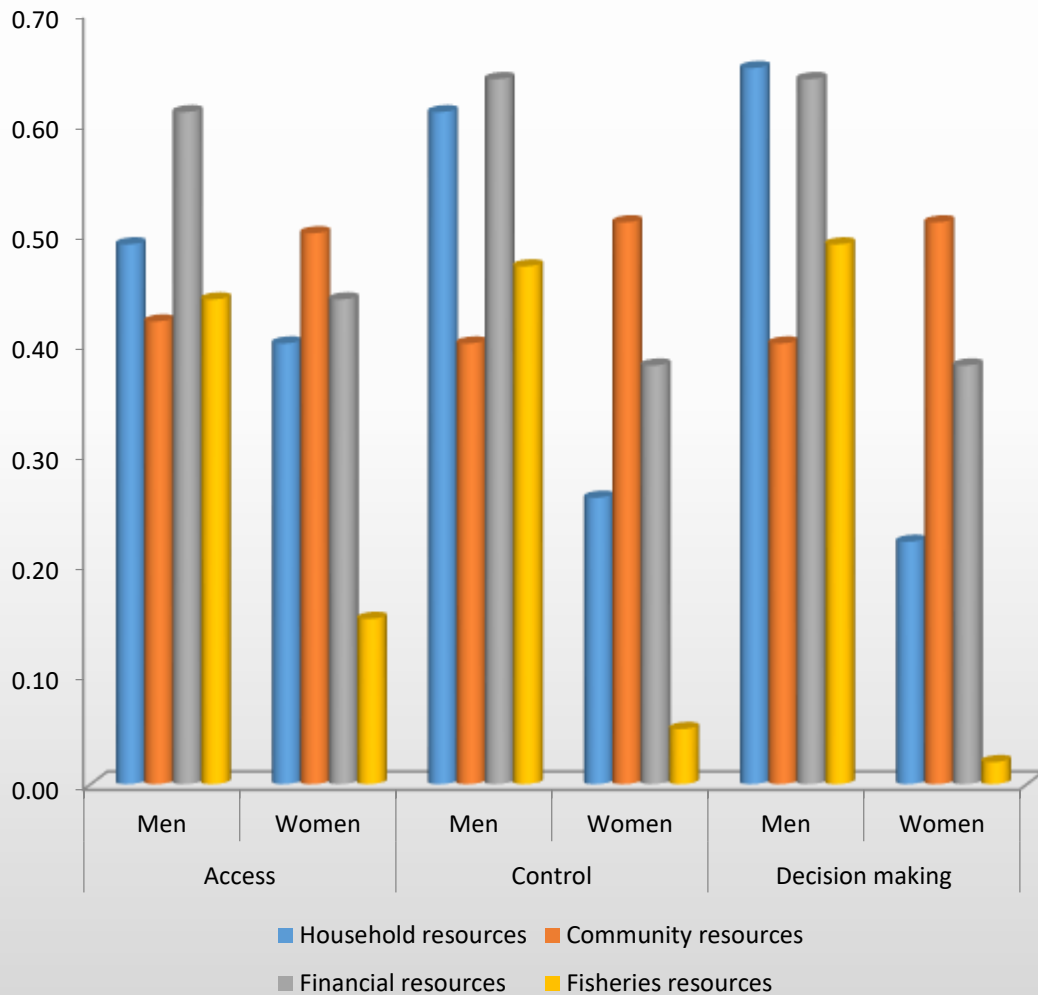
Both fisherwomen and fishermen were found to have equal access to household resources and community resources

Only fishermen had higher access to financial resources

Fisherwomen had low control and decision making over household, financial and fisheries resources

With respect to fisheries resources

Only 37% of fisherwomen had equal access to fisheries resources like water body, craft, gear and other equipment like baskets, tubs, etc., along with their husbands.

Whereas, **63% of fisherwomen had no access** to these resources

Fishermen had medium access(0.44), control(0.47) and decision making(0.49) over all the fisheries resources

Mann-Whitney U test for access, control and decision making

Type of resources	Access		Control		Decision making	
	Z value	P value	Z value	P value	Z value	P value
Household resources	-0.941	0.347	-2.095	**0.036**	-2.305	**0.021**
Community resources	-0.702	0.483	-1.188	0.235	-1.188	0.235
Financial resources	-0.838	0.402	-1.752	**0.030**	-1.752	**0.030**
Fisheries resources	-0.367	0.714	-2.666	**0.008**	-3.156	**0.002**

There was a statistical significant difference (total p < 0.05) between fisherwomen and fisherwomen with respect to control and decision making over all the resources (i.e., household, financial and fisheries resources)

Suggestions

- Training programs should emphasize on enhancing the competencies of men and women wherever they were found less competent

- Providing license for fisherwomen for fishing in reservoir, would help to have their own income from fishing

- Establishment of fish market infrastructure nearby reservoir would address constraints faced by fishermen and fisherwomen

- Formation of FFPO for marketing and ecotourism purposes would eliminate middlemen, help to overcome economic constraints and economic vulnerabilities

- State fisheries departments should emphasize on various vulnerability contexts of reservoir based livelihoods

- Awareness campaigns on Central and State Government fisheries schemes to both men and women is suggested

- Training programs should focus on strengthening women control and decision-making power over their resources

Conclusion

- GATFA tool places intersectionality in the context during gender analysis to understand which structural inequities lead to power imbalances and how intersectional experiences can be applied towards designing interventions to bring change.

- Therefore, an effort was made to comprehend intersectionality when gender analysis was done.

- Gender binary was taken into consideration throughout the gender analysis in order to expand the scope of the study beyond male-female gender dichotomies.

- The study has been able to reveal that there are silent and implicit contracts between genders.

- Findings of this study support the notion that in Telangana, reservoir fisheries is an important livelihood activity for both men and women.

- Path of equal economy lies in gender analysis and designing and implementing these policy interventions along with social change.

- Reforming an economic system to treat women and men as equal players is fundamentally a socio-political issue and gender analysis using the GATFA© tool has brought this to the forefront.

- Therefore, while designing policy interventions, these issues need to be taken into consideration.

Acknowledgments

My sincere thanks to