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## Second United Nations World Geospatial Information Congress

Theme: "Geo-Enabling the Global Village: No one should be left behind"

10 - 14 October 2022 // HICC, Hyderabad, India



# Contextualising Health and Women Empowerment: Sharing Challenges and Usefulness in Geospatial Visualisation of 300+ gender-disaggregated data in the making of three Atlases

Professor Dr. Seema Mehra Parihar

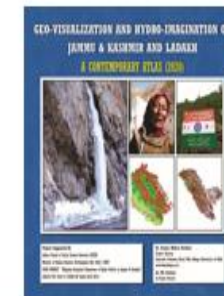
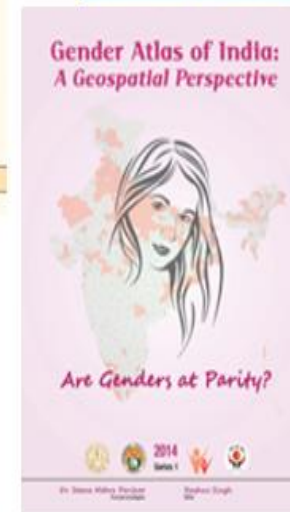
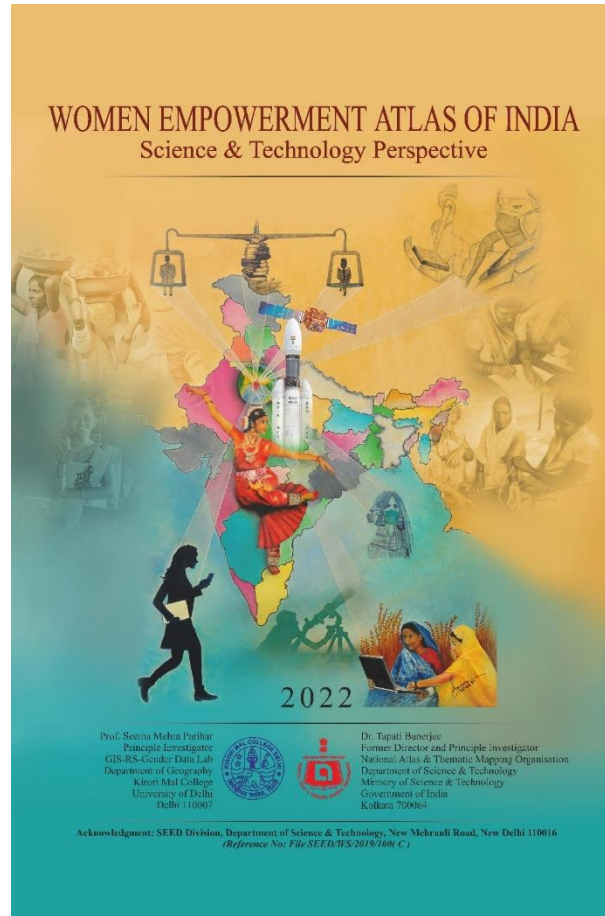
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# KEY WORDS:

***Gender disaggregated data, geo visualisation, three gender atlases, women's health and women empowerment.***





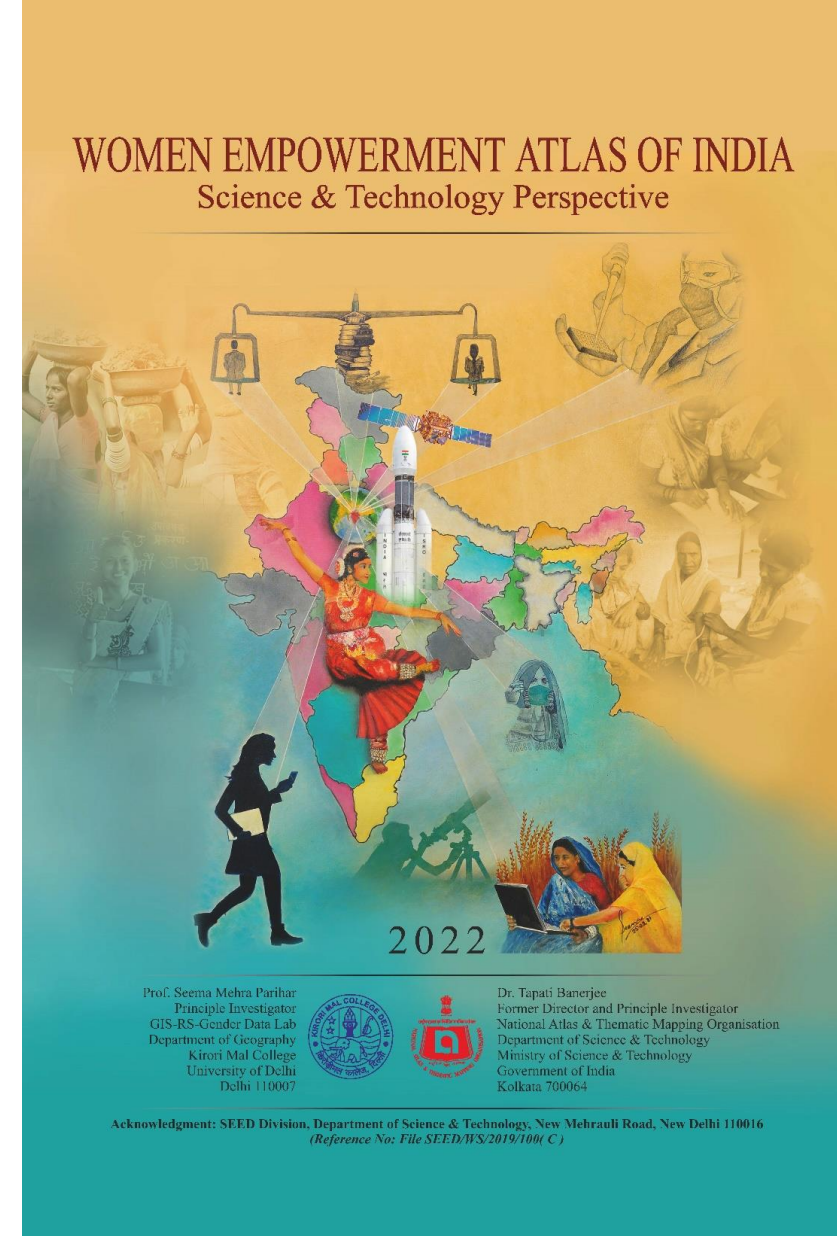
# Acknowledgement

## PROJECT

**Women Empowerment Atlas of India : Science & Technology Perspective**  
**Sanctioned by Department of Science & Technology**  
**Government of India, INDIA**

Joint Principal Investigators  
Prof Seema Mehra Parihar & Dr. Tapati Bannerjee

It is all about:  
Data : Spatial /Attribute  
Geospatial Ecosystem  
GIS (CSTRAD)  
GEOANALYTICS  
DATA VISUALISATION  
(**MAPS**/GRAPHS/PICTURE  
S/CARTOGRAPHY/TEXT)



# Why this paper?

## WOMEN EMPOWERMENT ATLAS OF INDIA: Science & Technology Perspective

A Geospatial Study on the following nine sub-themes:

- 1 *Women Mainstreaming Science and Technology Support*
- 2 *Demographic Empowerment*
- 3 *Women Health Empowerment*
- 4 *Women Education Empowerment*
- 5 *Women Safety and Support*
- 6 *Women Livelihood Empowerment*
- 7 *Women Leadership and Gender Mainstreaming*
- 8 *Women Agency and Decision Making*
- 9 *Government Initiatives & Women Empowerment*

# WHY THIS PAPER?

- **Women's Empowerment and health go hand in hand. Gender disparity amidst multiple biases that women face daily, directly and indirectly, has its evil clutches on every woman's health.**
- **The present paper is based on sharing experiences from the insights of a geographer, cartographer, principal investigator and a member of a geospatial community with social sensitivity while visualising 300 plus gender-disaggregated data while designing, documenting and publishing three geospatial driven Atlases**

## WHY THIS PAPER? (*Contd.*)

- **The paper aims to unveil usefulness, and challenges right from its inception of theoretical understanding of the word gender by different stakeholders and contextualising how vital a women's health is if gender parity is what we are looking for.**
- **In addition, searching for ways on real-time geospatial tools to enrich health infrastructure and its accessibility for everyone and not leave anyone behind.**

# WHY THIS PAPER?

- **It is increasingly being recognised that gender perspective must be factored into the whole gamut of development processes, including empowering women's health.**
- **Sustainable Development Goals (SDGs) are also pointing towards it.**
- **But, there is still a mismatch between the de-facto statuses of women vis-a-vis their de-jure status across geographies.**



# Why geospatial ecosystem?

For creating gender parity

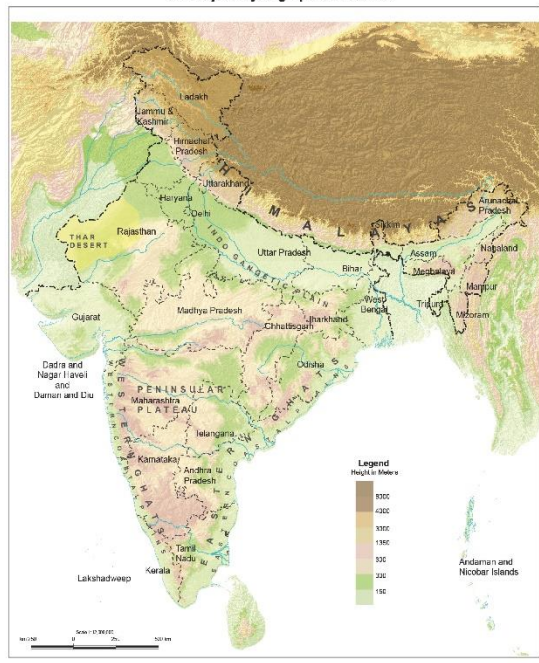
# Why maps? Relevance of Geospatial Technology

## STATE NAMES

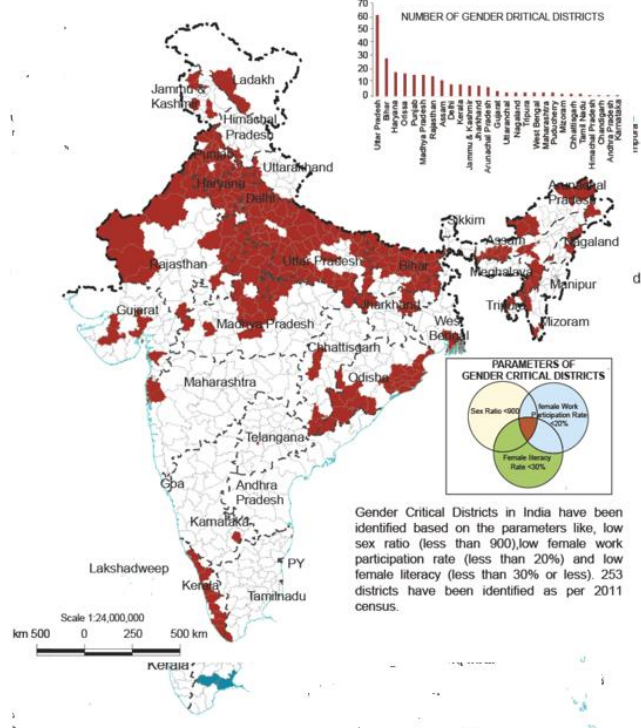
- AN Andaman & Nicobar Islands
- AP Andhra Pradesh
- AR Arunachal Pradesh
- AS Assam
- BR Bihar
- CG Chhattisgarh
- CH Chandigarh
- DL Delhi
- DN Dadra & Nagar Haveli
- DD Daman & Diu
- DNHDD Dadra Nagar Haveli and Daman and Diu
- GA Goa
- GJ Gujarat
- HP Himachal Pradesh
- HR Haryana
- JH Jharkhand
- JK Jammu & Kashmir
- KA Karnataka
- KL Kerala
- LD Lakshadweep
- LK Ladakh
- MH Maharashtra
- ML Meghalaya
- MN Manipur
- MP Madhya Pradesh
- MZ Mizoram
- ND New Delhi
- NL Nagaland
- OR Odisha
- PB Punjab
- RJ Rajasthan
- SK Sikkim
- TL Telangana
- TN Tamil Nadu
- TR Tripura
- UK Uttarakhand
- UP Uttar Pradesh
- WB West Bengal

WOMEN EMPOWERMENT: RILIS OF PARIHAR & TECHNOLOGY PARADIGMS

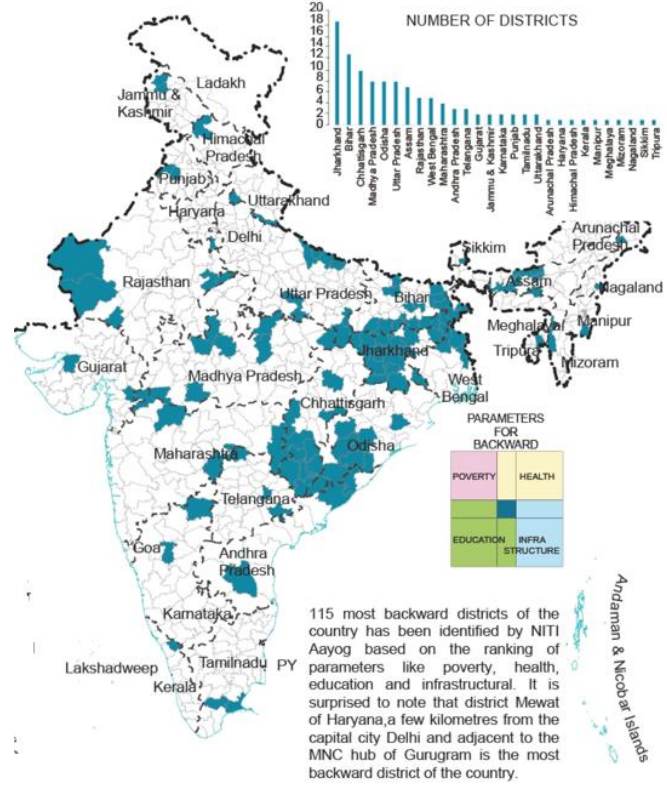
### 2.4 Major Physiographic Divisions



### Gender Critical District



### Most Backward District

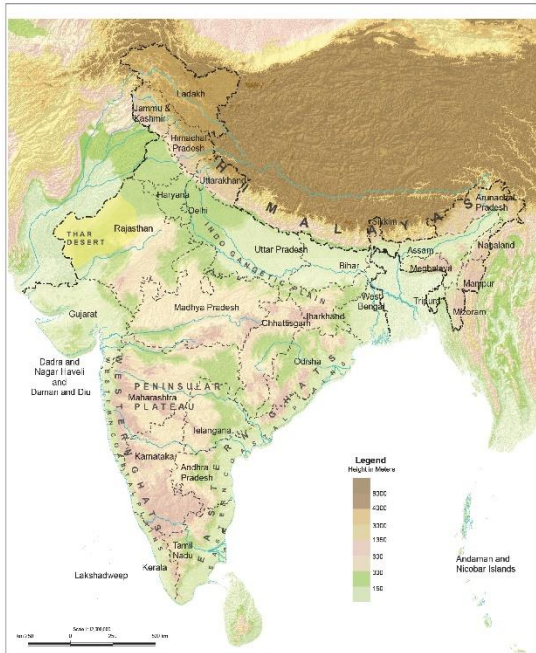


KEY QUESTIONS TO PRIMARILY ASK?...COMBINED WITH NOTING THE PHYSICAL AND CULTURAL DISTRICT?  
 IS IT A GENDER CRITICAL DISTRICT?  
 IS IT A MOST BACKWARD DISTRICT?

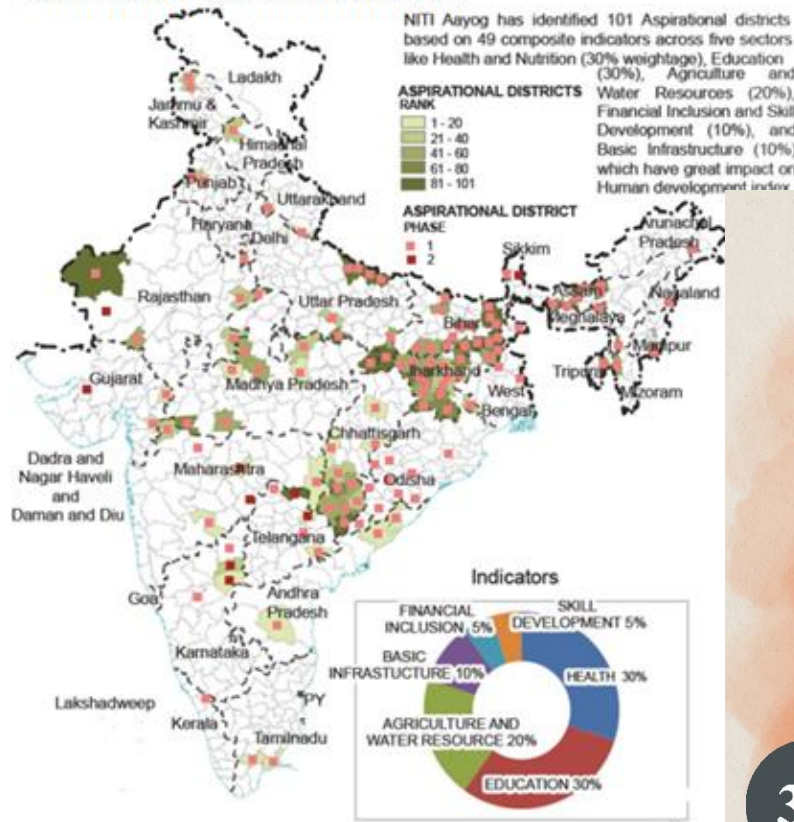
# Why maps? Relevance of Geospatial Technology

WOMEN EMPOWERMENT: RILIS OF PDI  
Science & Technology Parastatute

## 2.4 Major Physiographic Divisions

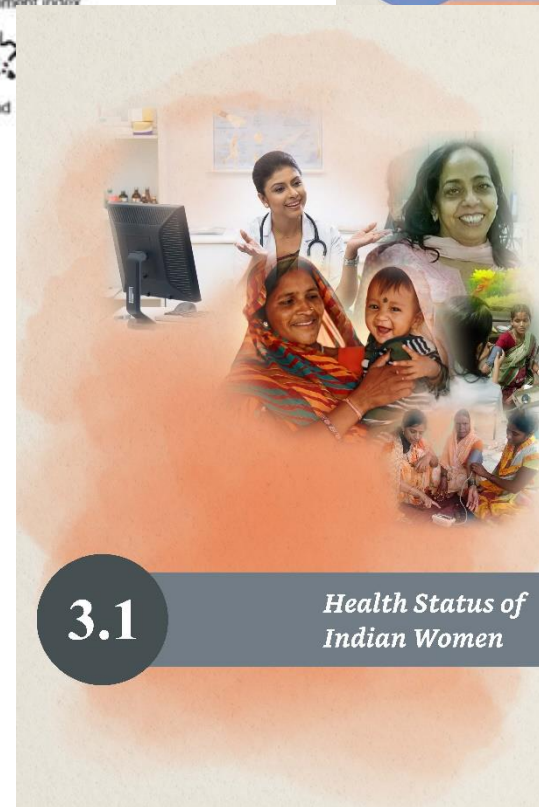


## ASPIRATIONAL DISTRICTS



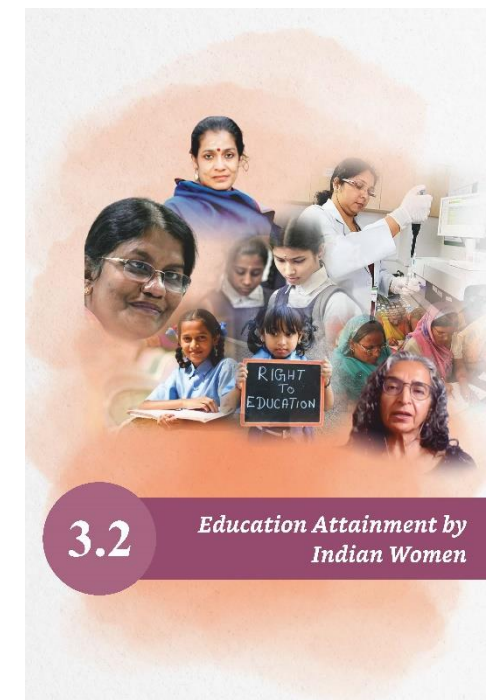
1

**Women Empowerment  
Science and Technology  
(S&T) Support**



3.1

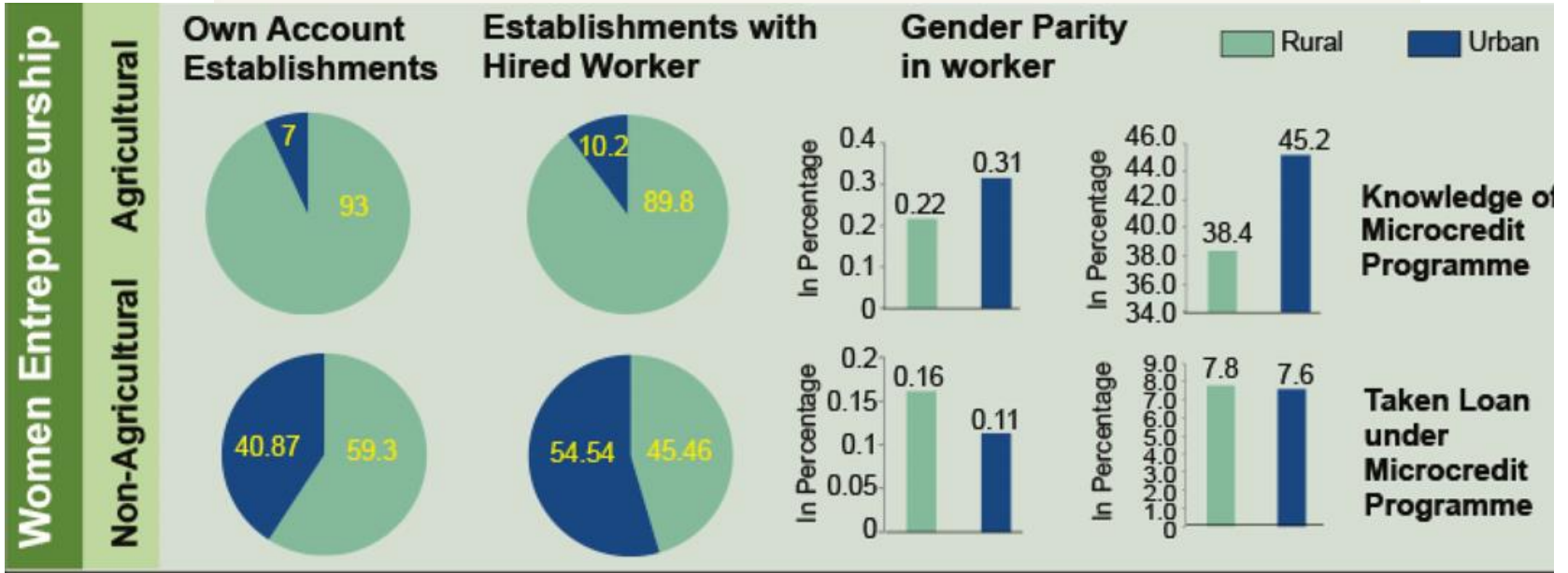
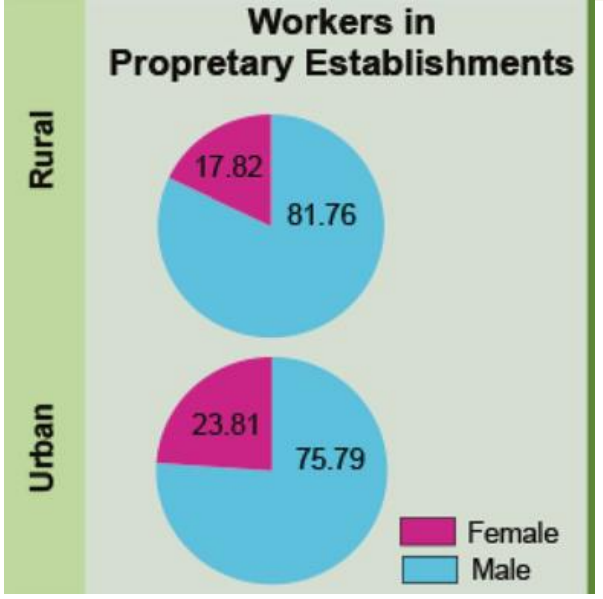
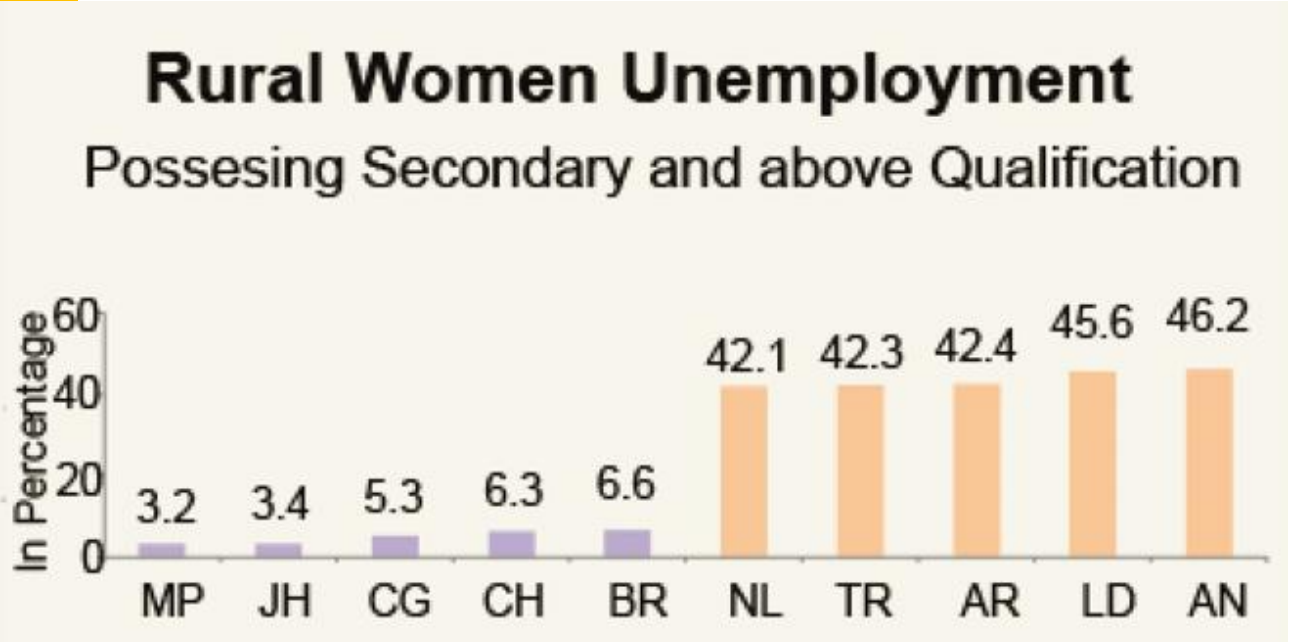
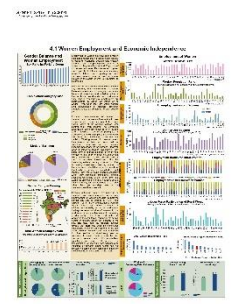
**Health Status of  
Indian Women**



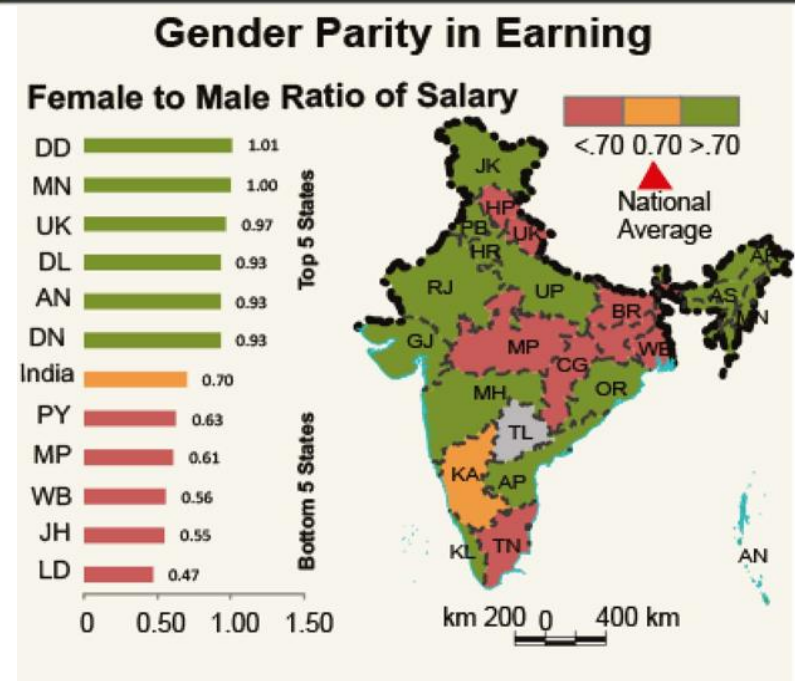
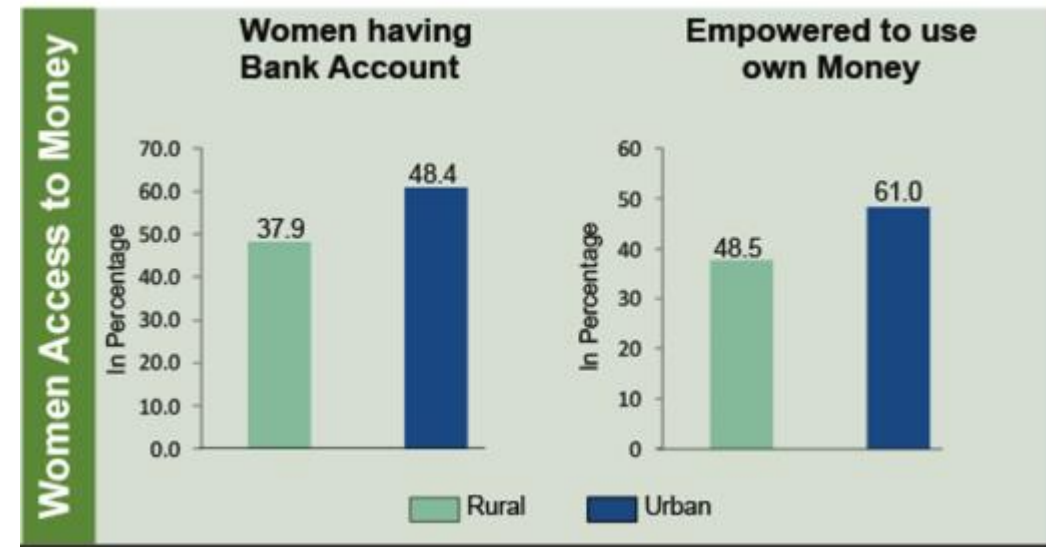
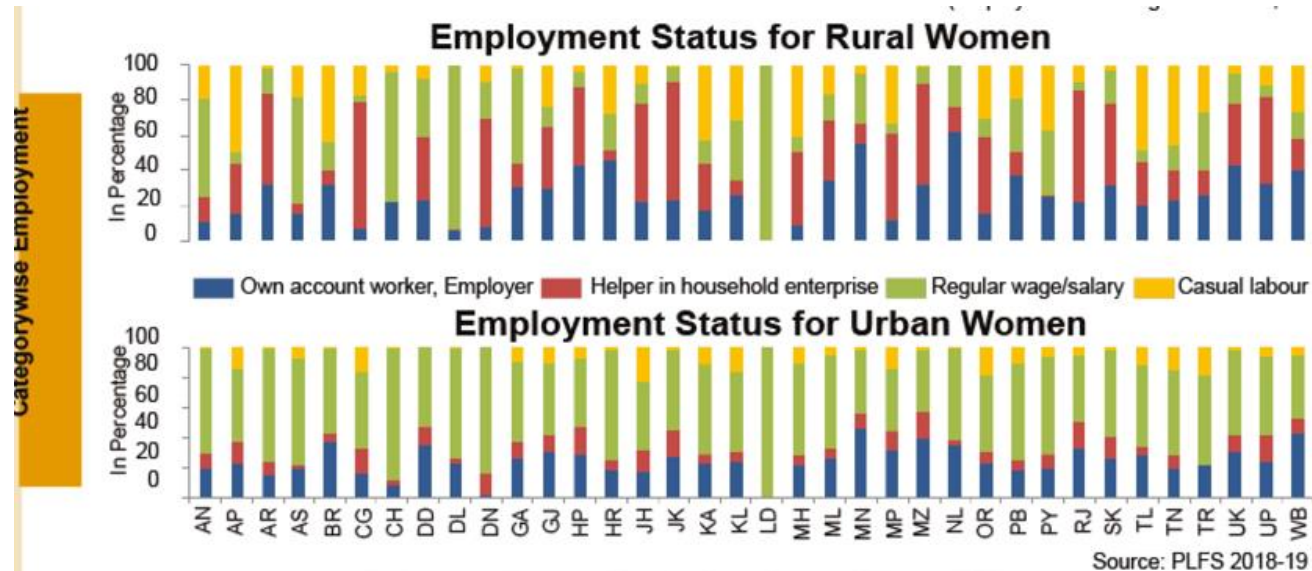
3.2

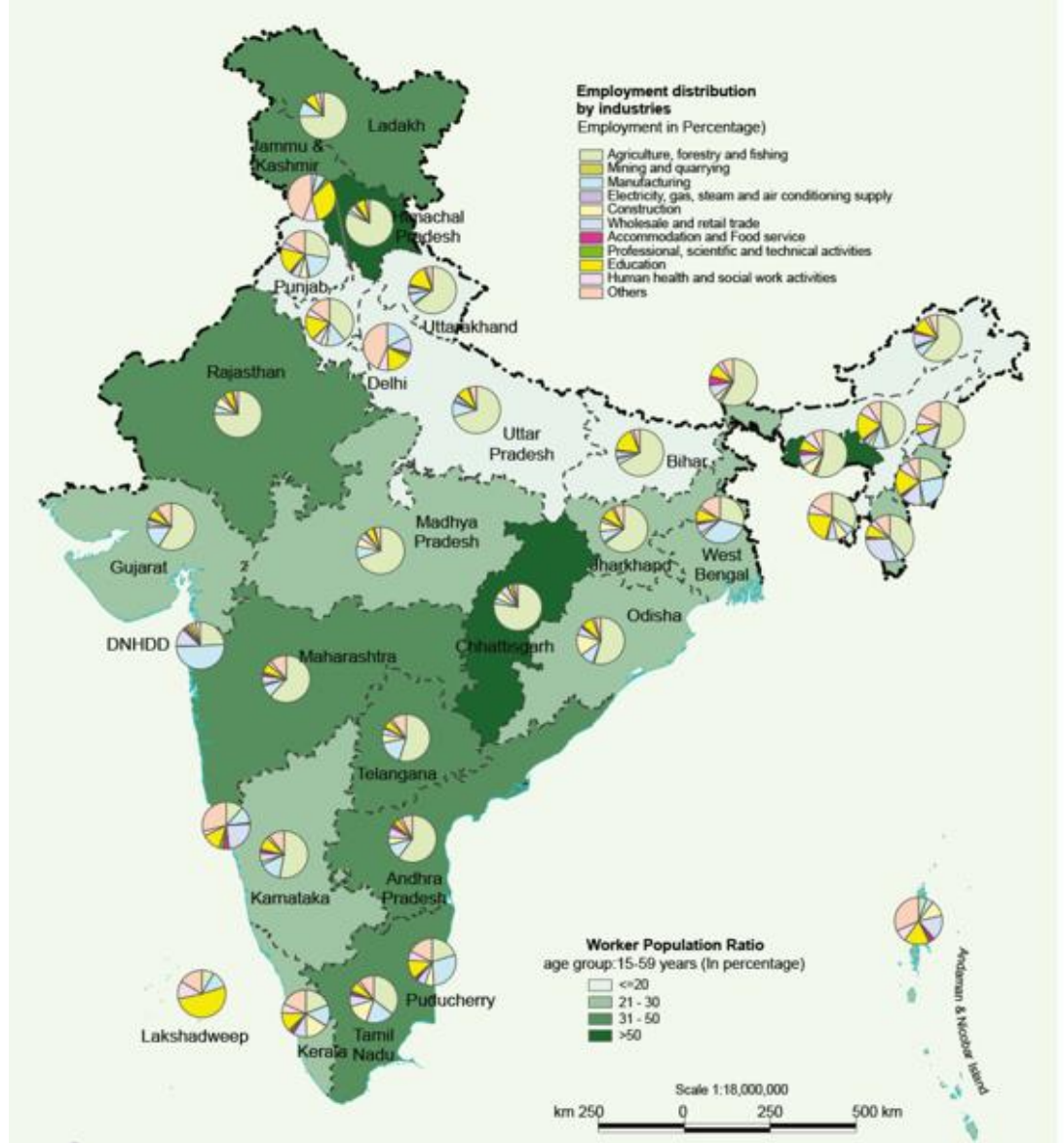
**Education Attainment by  
Indian Women**

# EMPOWERED women???? IS A HEALTHY WOMEN

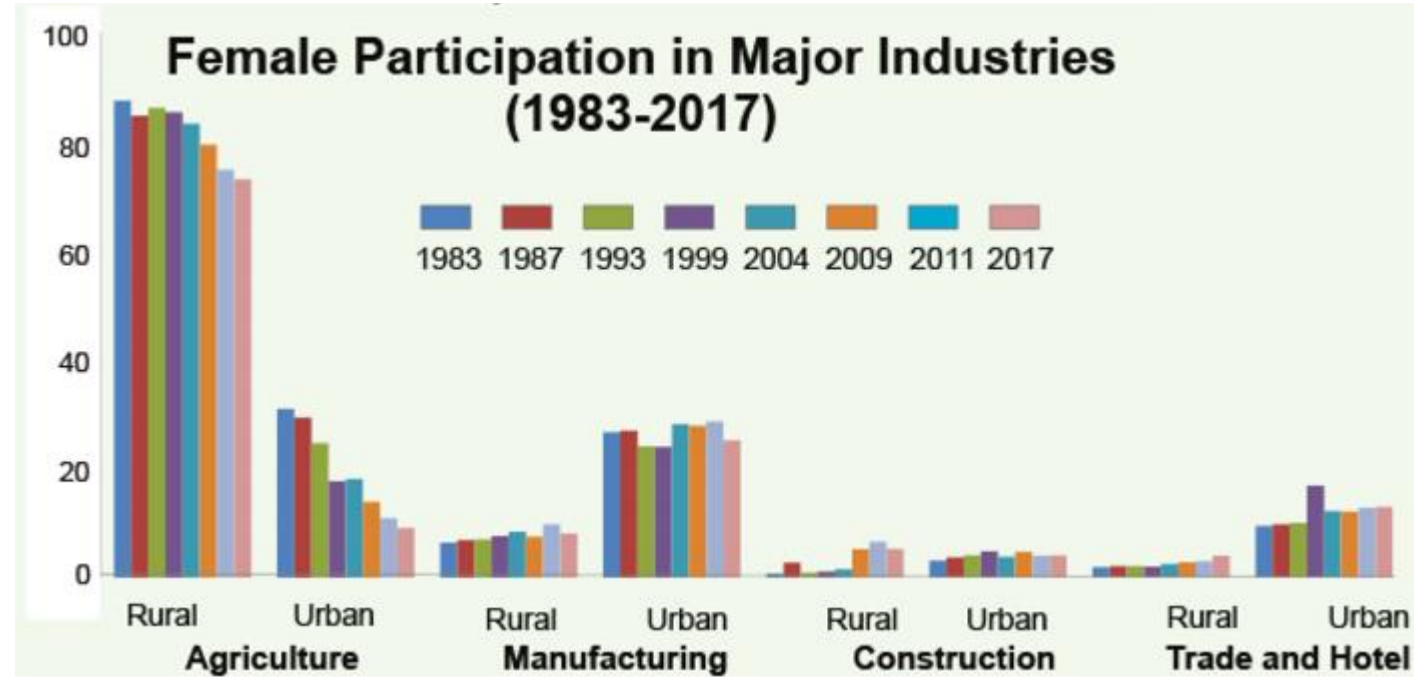


# RURAL VS URBAN WOMEN

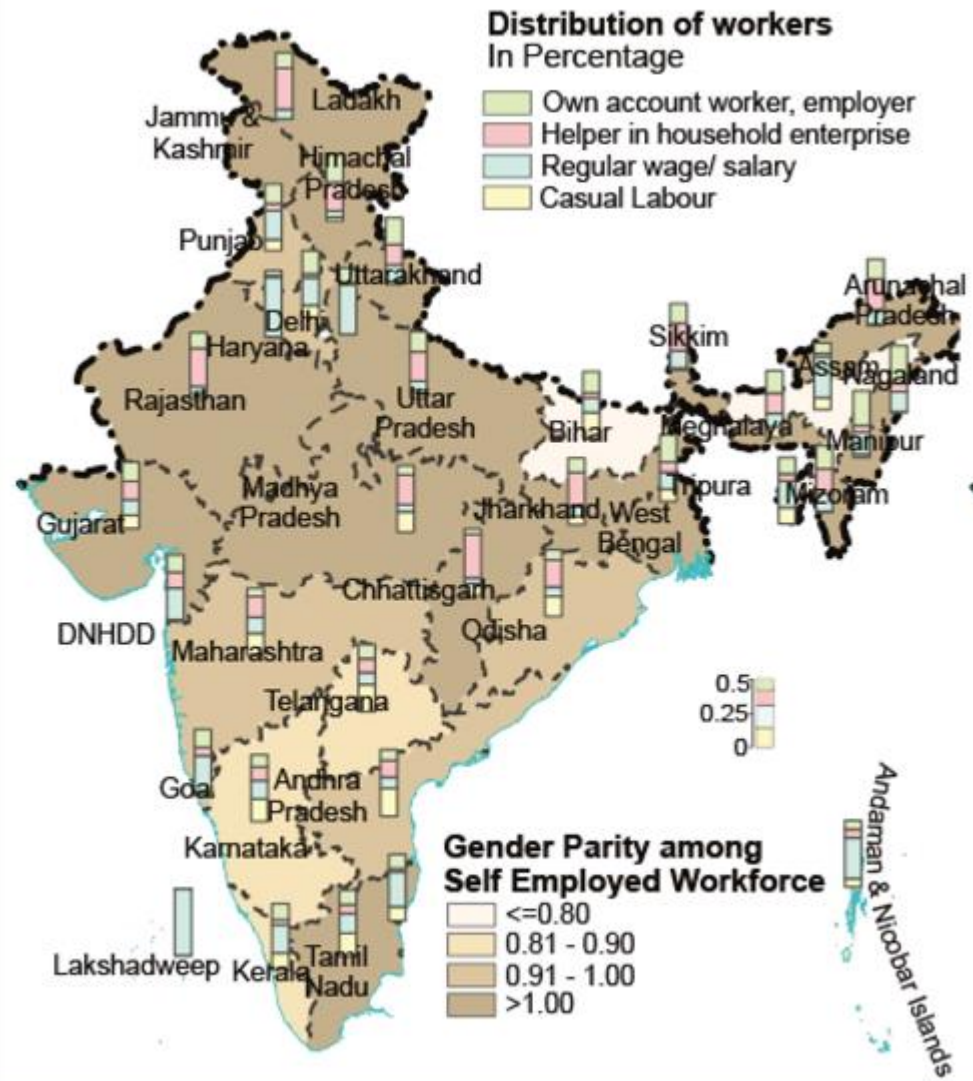




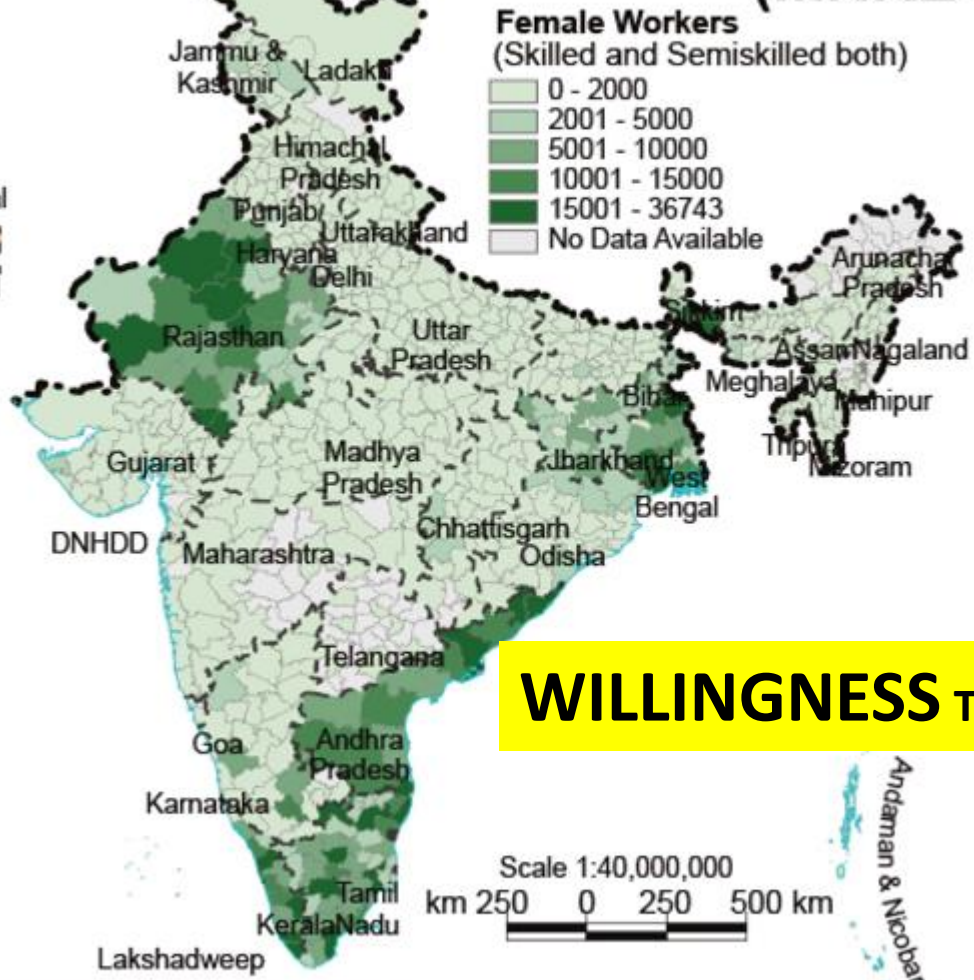
# ARE WOMEN WILLING TO WORK?



# Employment Status wise Workers

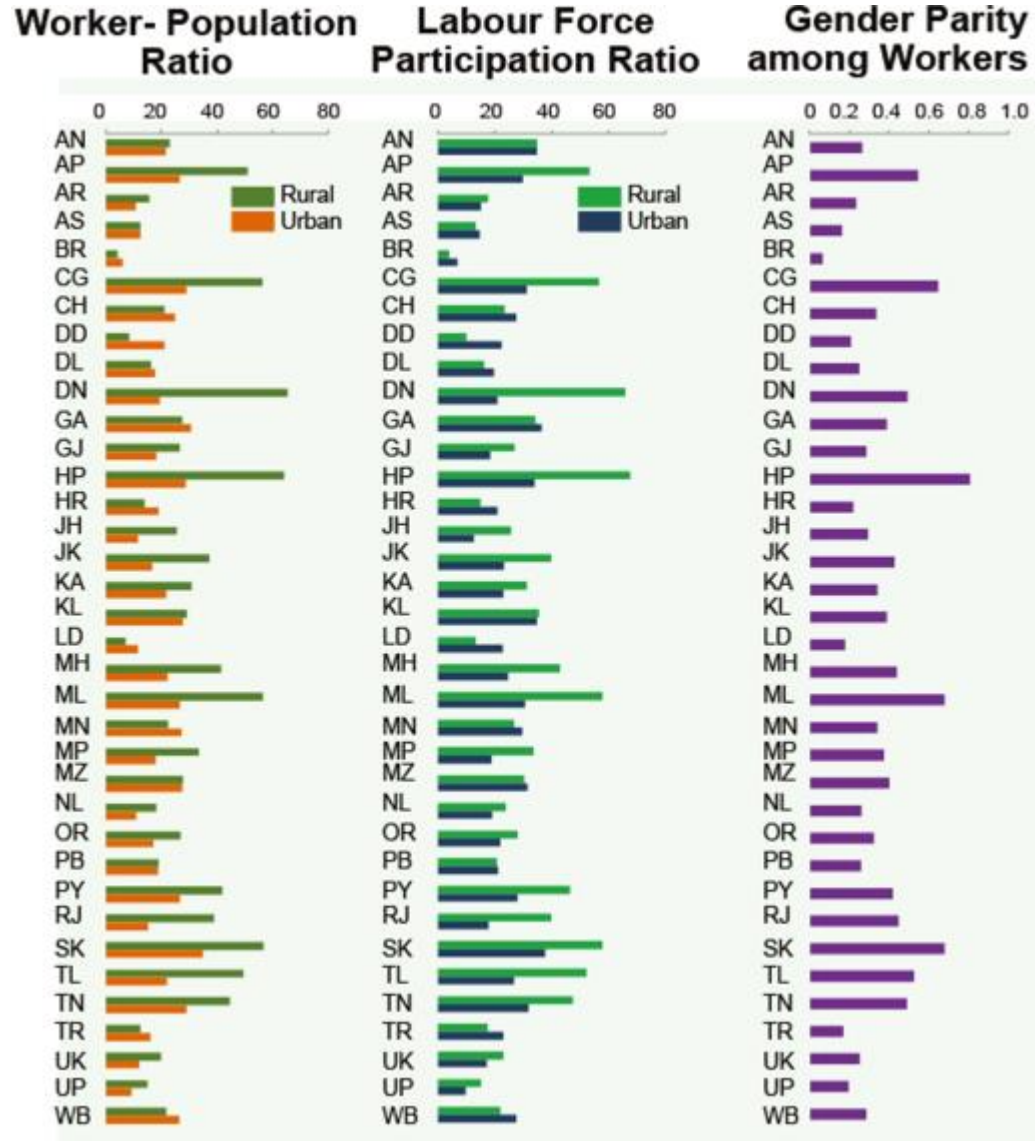


# Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA)

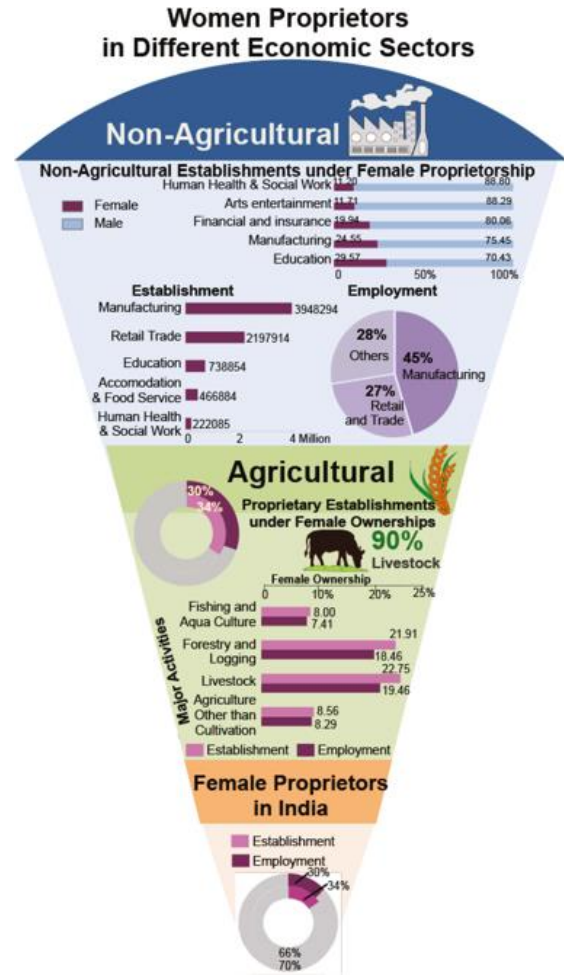


**WILLINGNESS TO WORK?**

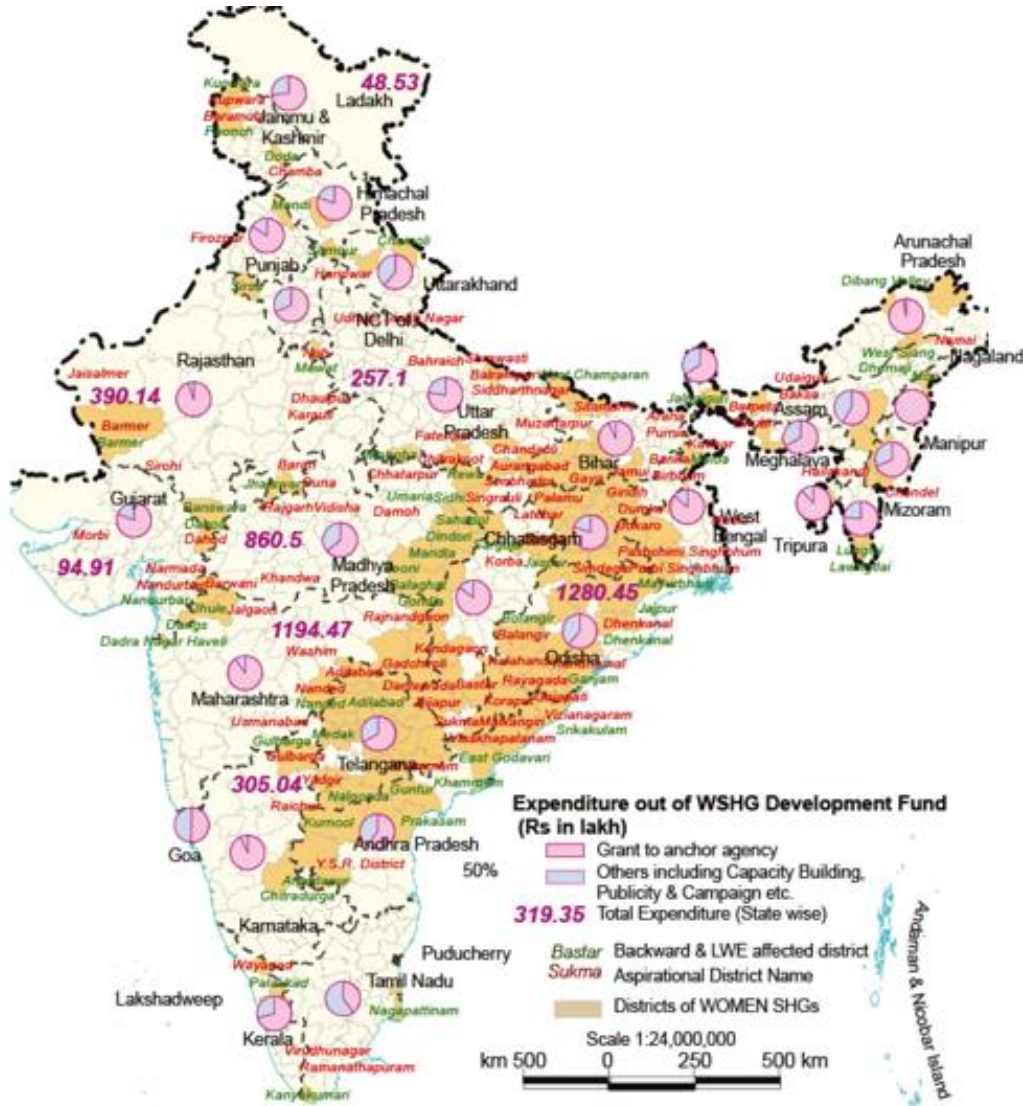
Source: MoRD, 2021; Ministry of Statistics and Programme Implementation 2016, 2018, 2019, 2020



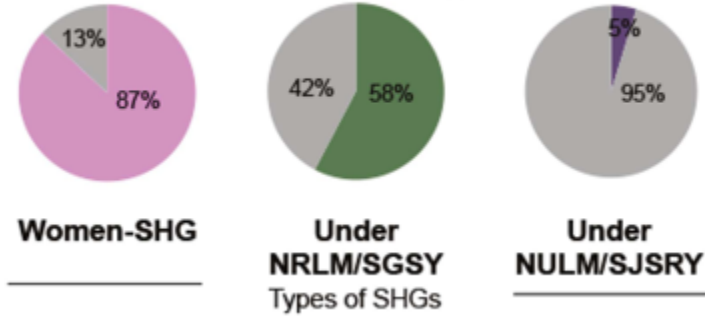
**GENDER PARITY IS AGAIN A QUESTION MARK???????**





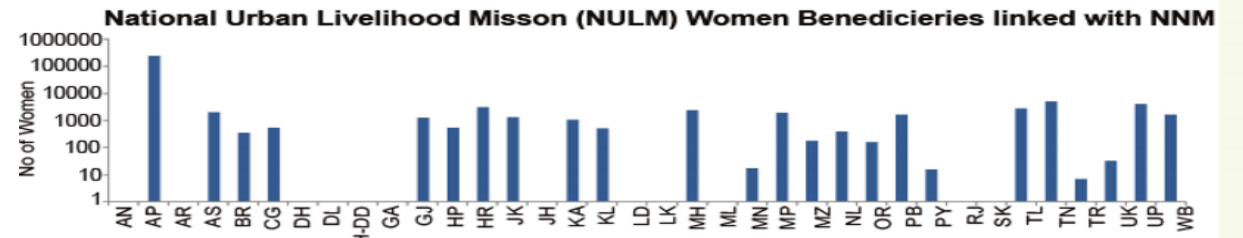


### Savings of SHGs with Bank In Percentage

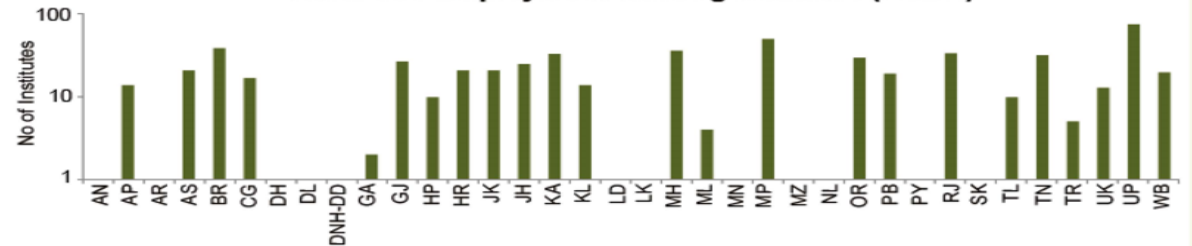


### Self Help Group Bank Linkage Programme (SHG-BLP)

### National Livelihood Mission Coverage for Rural and Urban India



### Rural Self Employment Training Institutes (RSETI)

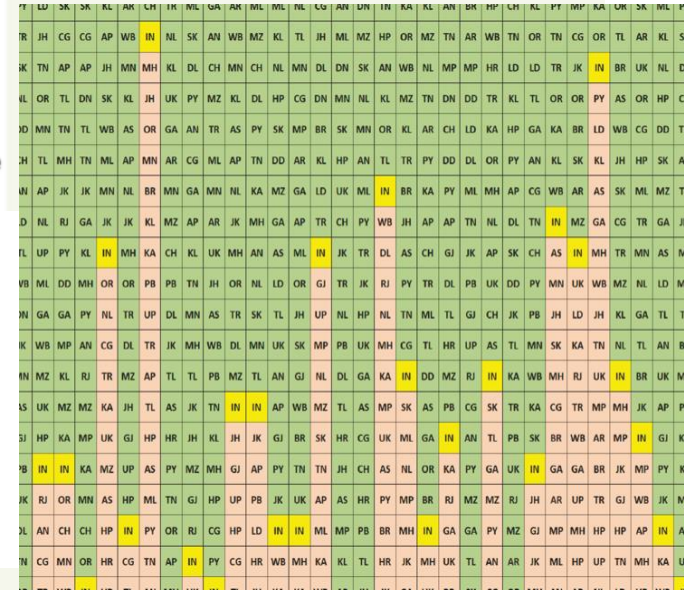


## Priority of States

## Key Points

### Development Indicator based Assessment of Priority States

- States having values less than the National Average
- National Average for each Indicators
- States having values more than the National Average



	Employment and Economic Independence							Government Initiatives							Women Entrepreneurship																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
AR	PT	UP	MP	WB	JK	KN	KA	ML	TS	RA	BR	OR	HR	DL	CH	MN	HR	UP	MP	WB	JK	KN	KA	ML	TS	RA	BR	OR	HR	DL	CH
... (rows for other states) ...																															

**States like Bihar, Jharkhand are mostly lie below the National Average, and those are supported by Government Funds in considerable proportion**

**Considerable number of Women Led SHGs are operational under EAG States**

**Livelihood Empowerment initiatives of Government to be strengthened for the UTs like -Daman and Diu**

**Meghalaya marks remarkable progress in case of empowerment of Women livelihood**

**Women Led Perennial establishments comparatively more in small states and Union Territories**

**Kerala shows remarkable progress in Women livelihood**

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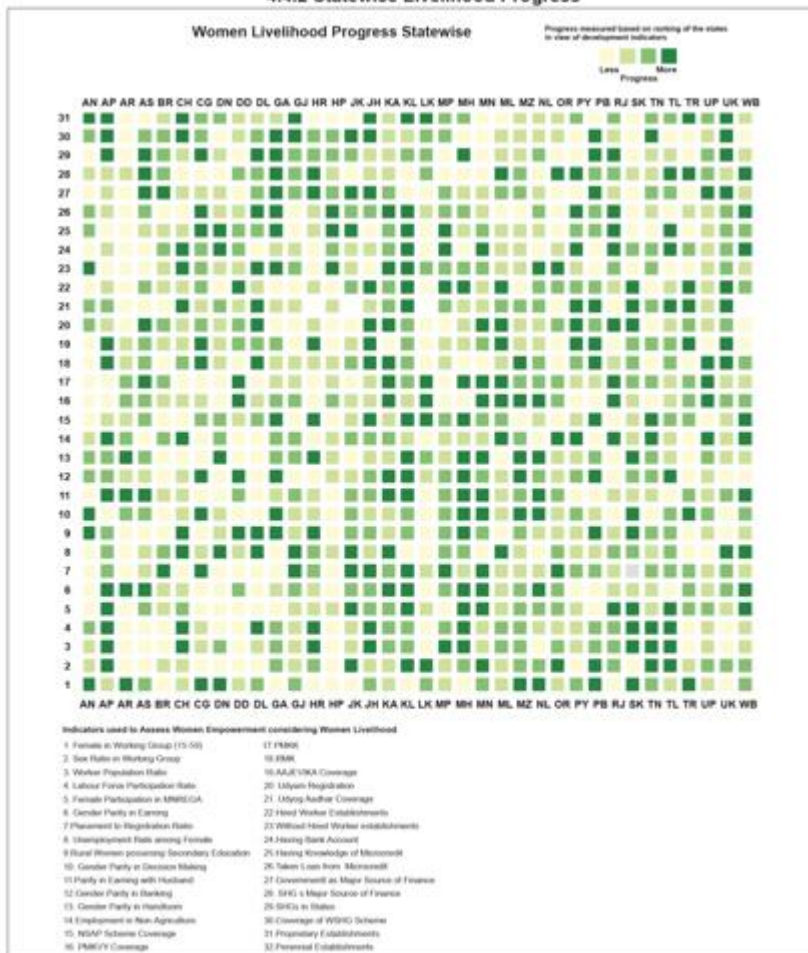
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**Kerala shows remarkable progress in Women livelihood**

#### 4.4.2 Statewise Livelihood Progress



Source: NABARD 2020 Survey, 2021, 2022, 2019-20, 2018-19, 2017-18

## 4.4.2 Statewise Livelihood Progress

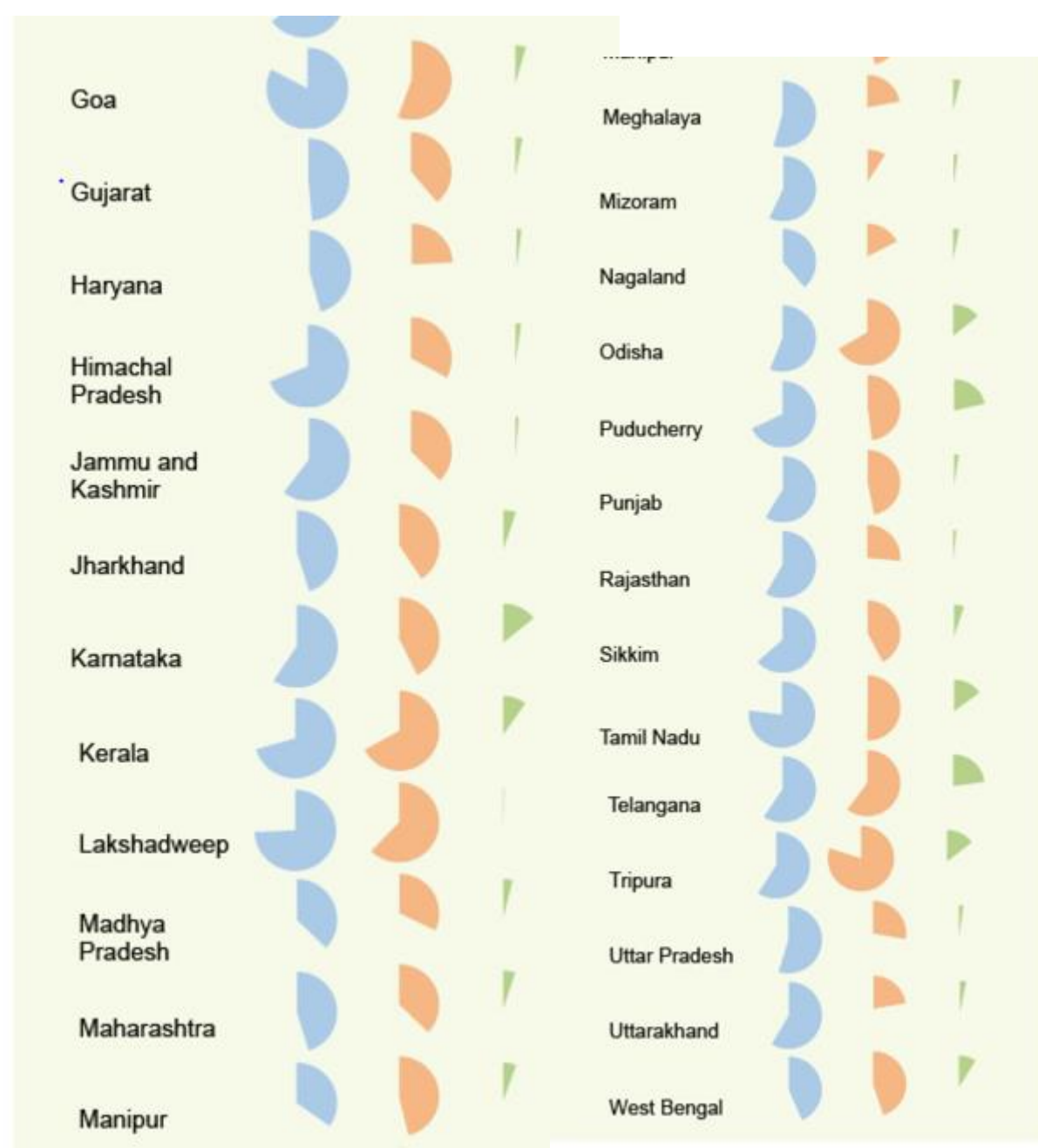
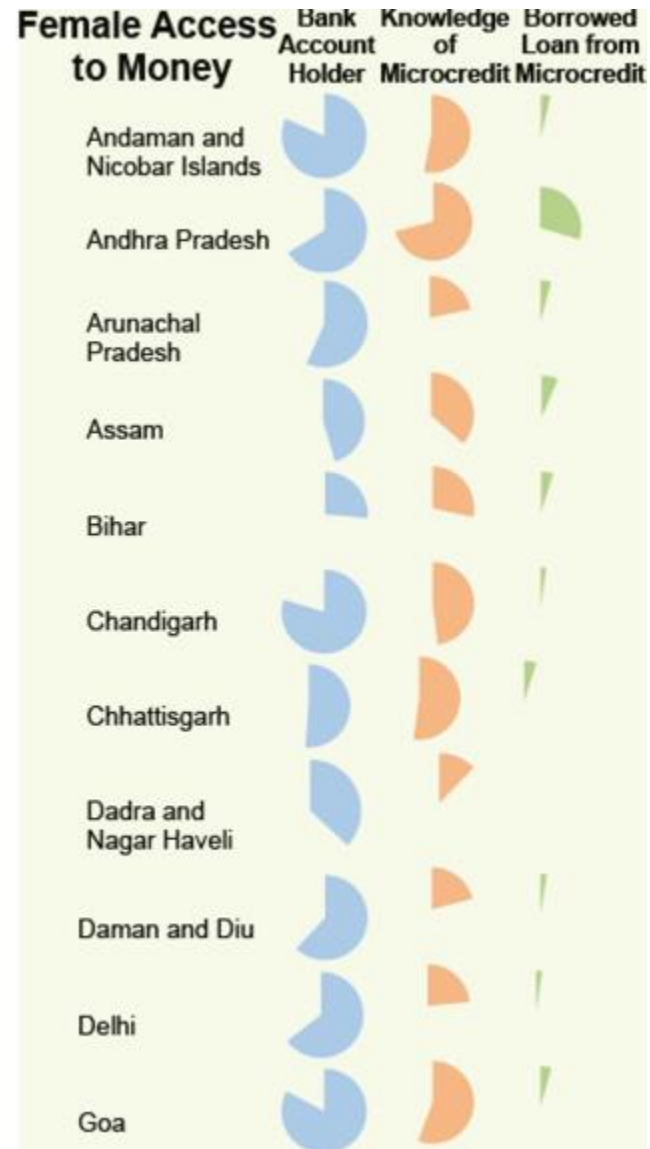
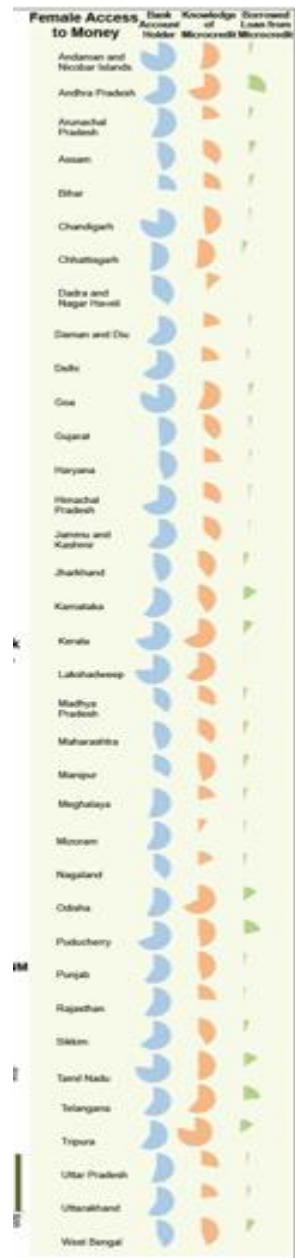
### Women Livelihood Progress Statewise

Progress measured based on ranking of the states in view of development indicators



### Indicators used to Assess Women Empowerment considering Women Livelihood

1. Female in Working Group (15-59)
2. Sex Ratio in Working Group
3. Worker Population Ratio
4. Labour Force Participation Rate
5. Female Participation in MNREGA
6. Gender Parity in Earning
7. Placement to Registration Ratio
8. Unemployment Rate among Female
9. Rural Women possessing Secondary Education
10. Gender Parity in Decision Making
11. Parity in Earning with Husband
12. Gender Parity in Banking
13. Gender Parity in Handloom
14. Employment in Non-Agriculture
15. NSAP Scheme Coverage
16. PMKVY Coverage
17. PMKK
18. RMK
19. AAJEVIKA Coverage
20. Udyam Registration
21. Udyog Aadhar Coverage
22. Hired Worker Establishments
23. Without Hired Worker establishments
24. Having Bank Account
25. Having Knowledge of Microcredit
26. Taken Loan from Microcredit
27. Government as Major Source of Finance
28. SHG s Major Source of Finance
29. SHGs in States
30. Coverage of WSHG Scheme
31. Proprietary Establishments
32. Perennial Establishments



Source: NABARD, 2020, MoRD, 2021, MHA, 2019-20, MOSpl, 2016



# 3. WAY FORWARD...2022-2030

## WAY FORWARD HEALTH EMPOWERMENT

Snippet of the training Programme  
[https://drive.google.com/file/d/1AqsUSgE\\_ZKSEncI8yHSzV\\_DiSxCmTrCLx/view?usp=sharing](https://drive.google.com/file/d/1AqsUSgE_ZKSEncI8yHSzV_DiSxCmTrCLx/view?usp=sharing)

**9 THEMES**

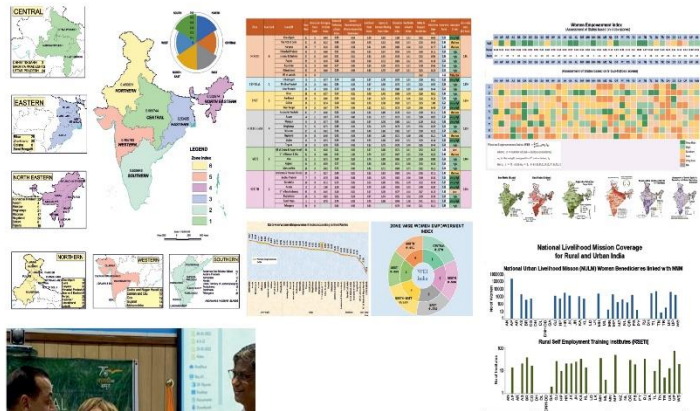
- 1 Women's Manpower Skills and Technology Support
- 2 Demographic Empowerment
- 3 Women's Health Empowerment
- 4 Women's Education Empowerment
- 5 Women's Safety & Support
- 6 Women's Livelihood Empowerment
- 7 Women's Leadership and Gender Inequality
- 8 Women's Agency and Decision Making
- 9 Government Initiatives & Women's Empowerment



## WOMEN EMPOWERMENT ATLAS OF INDIA: SCIENCE & TECHNOLOGY PERSPECTIVE- 2022

1. First ever integrated Women Empowerment Atlas in the world.
2. First ever Women Empowerment Atlas with Science and Technology perspective. (Women Empowerment Atlas of India: Science & Technology perspective, is conceptualised by SEED Division, Department of Science and Technology, India, and prepared by Kirori Mal College, University of Delhi and NATMO, Kolkata - Parihar, S.M. & Bannerjee, T. 2022).
3. Geo visualization of 300 + gender-disaggregated data first time in the world.
4. The gender parity index captures the actual diversity of India.
5. Geo analytical study of the integrated women empowerment science and technology index is based on nine sub-indices.

With geospatial analysis of 300 + gender-disaggregated data spread across nine themes, we see that Tamil Nadu is the highest-ranking state, whereas Dadra & Nagar Haveli stands last. Hence considering all the nine themes, we can interpret that the conditions of states in the lower categories need to improve women's support systems and related facilities. Zone-wise, the northern region followed by the western zone needs to be focused significantly to enhance women's empowerment in India.



ACKNOWLEDGEMENT: SEED Division, Department of Science and Technology, Government of India, India.

Credits:  
Principal Investigator: **Professor Seema Mehra Parihar**  
Fellow, Delhi School of Public Health (DSPH),  
Institute of Eminence,  
& Faculty, Kirori Mal College  
UNIVERSITY OF DELHI, INDIA  
seemahp@ncs.du.ac.in  
<https://filmfreeway.com/ATLAS240>

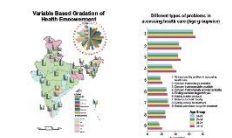
Senior Research Fellow: **Poozada Raouf Ahmad**  
Research Assistant: **Sudeeti Kamboj & Nandita Verma**



**DO SPEND TIME WITH THESE TWO POSTERS: POSTERS ARE DISPLAYED IN THE EXHIBITION IN INDIA PAVILLION UNWGC-2022**

**9 THEMES**

- 1 Women's Manpower Skills and Technology Support
- 2 Demographic Empowerment
- 3 Women's Health Empowerment
- 4 Women's Education Empowerment
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seemahp@ncs.du.ac.in  
<https://filmfreeway.com/WHI2021>

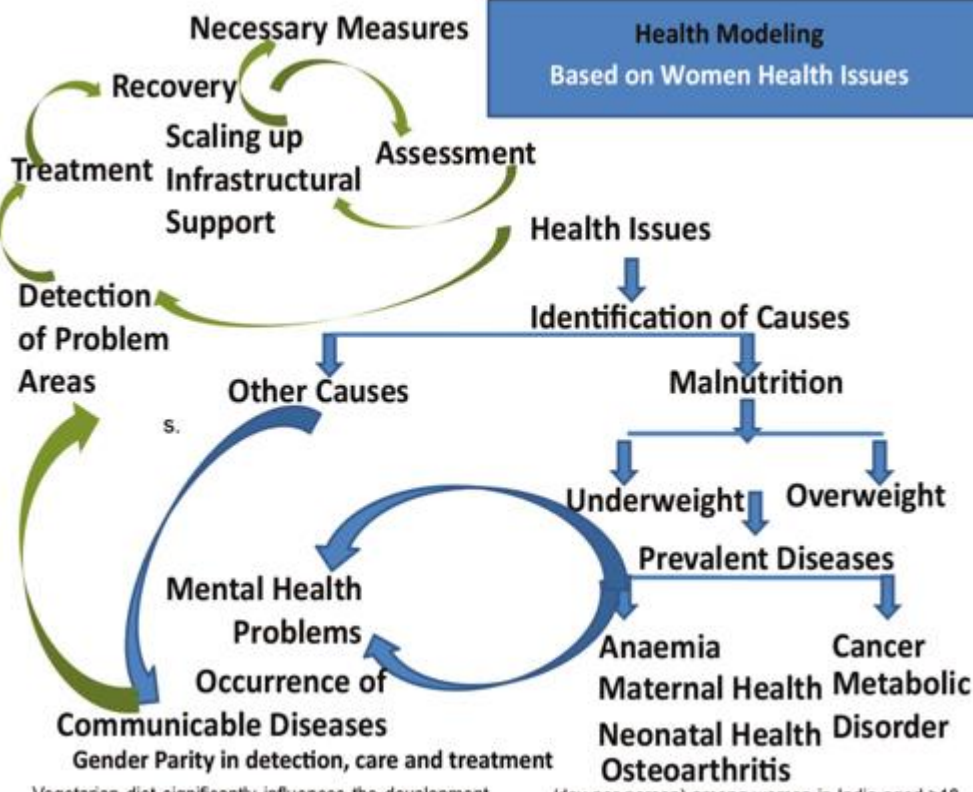
Senior Research Fellow: **Poozada Raouf Ahmad**  
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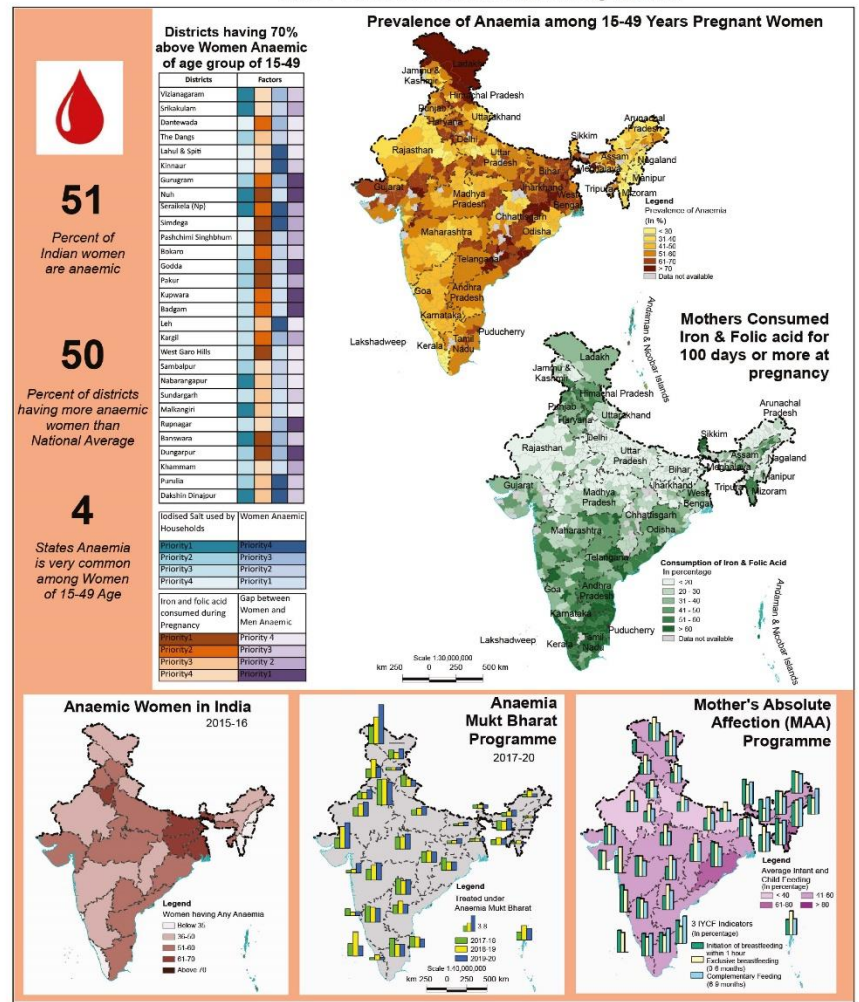
## WOMEN HEALTH EMPOWERMENT INDEX OF INDIA- 2021

BASED ON WOMEN EMPOWERMENT ATLAS OF INDIA: SCIENCE & TECHNOLOGY PERSPECTIVE- 2022

1. Women's Health Empowerment is one of the 9 sub-themes of the Women Empowerment Atlas of India: Science and Technology Perspective which is the first of its kind in the world.
2. The Women Health Empowerment Index of India is visualised here as state-wise and zone-wise categories. It is a consolidated index of State wise Female Health Analysis based on the following five sub-indices:
  1. Health Indicator Index
  2. Health Yojana Index
  3. Health Infrastructure Index
  4. Health Issues Index
  5. Health Nutrition Index
3. From the the maticgender - disaggregated data and the geospatial analysis of the women's HealthEmpowerment Index, we see that Tamil Nadu is the highest-ranking state. In contrast, Northeast states Manipur and Nagaland are performing very poorly.
4. Zone-wise, the northeast region needs to be focused significantly to enhance women's health empowerment in India.
5. Hence considering all the five factors of health, we can interpret that the conditions of states in the lower categories need to improve women's health facilities.

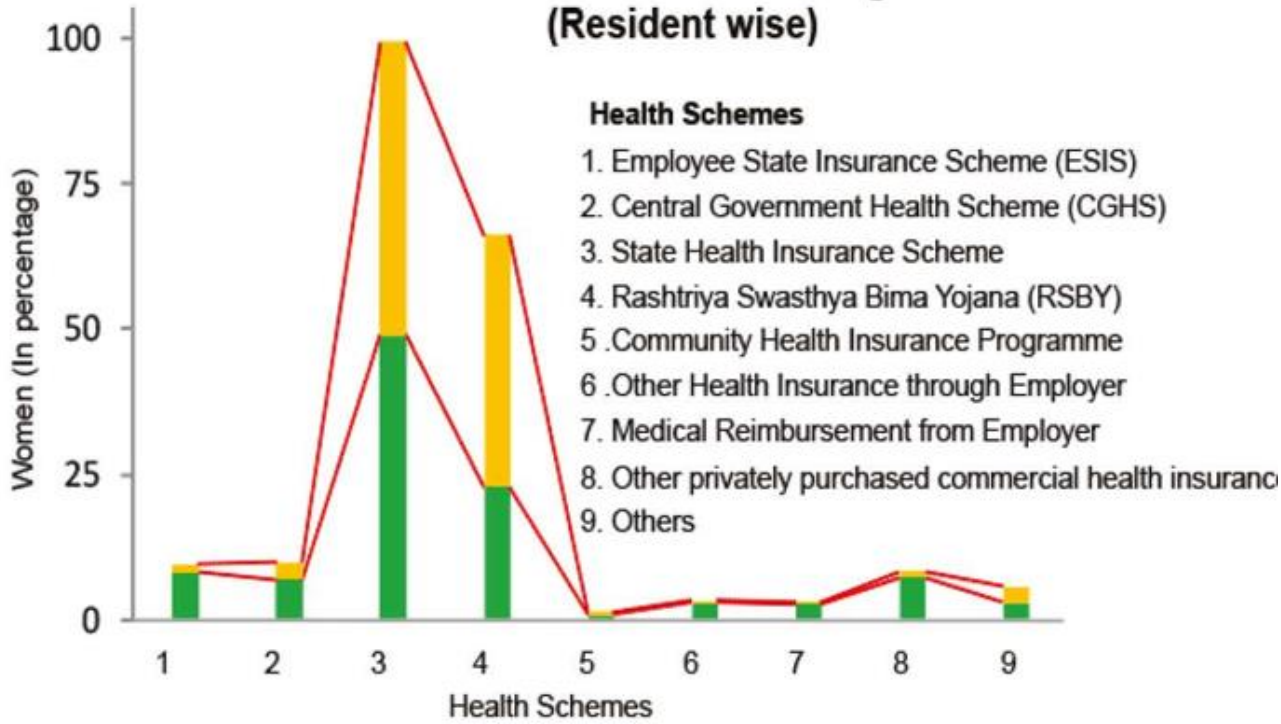


3.1.3 Prevalence of Anaemia among Women

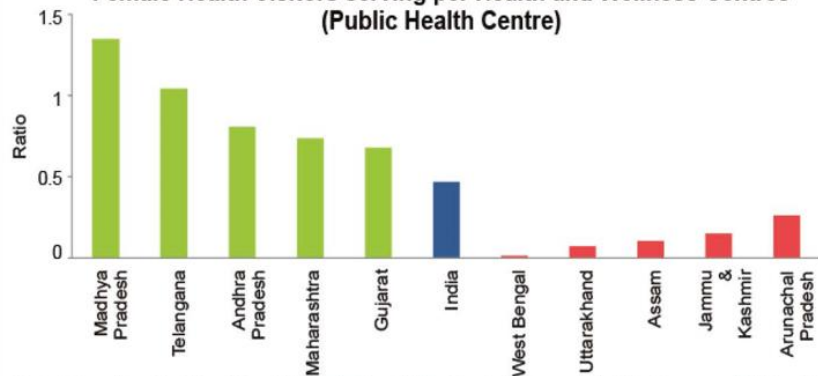


Should not we all do something about it?

### Health Scheme Coverage (Resident wise)

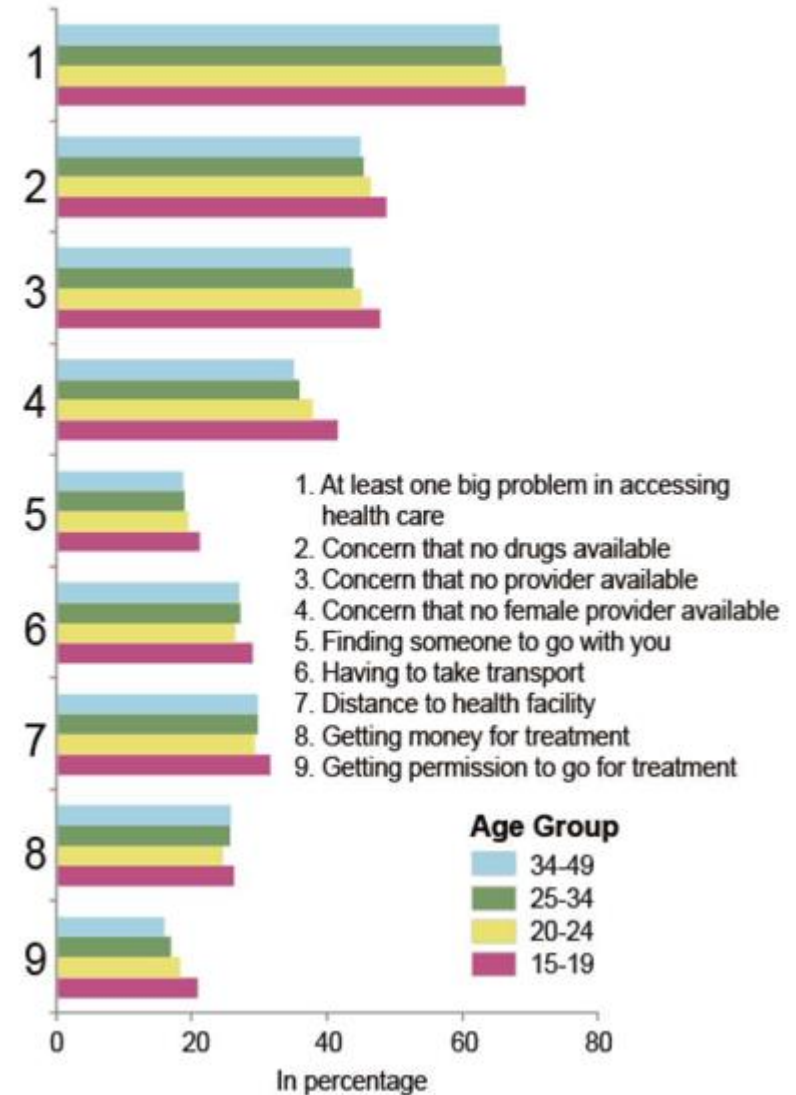


### Female Health Visitors serving per Health and Wellness Centres (Public Health Centre)



Note : The values for Bihar, Himachal Pradesh and Uttar Pradesh are excluded due to non availability of data.

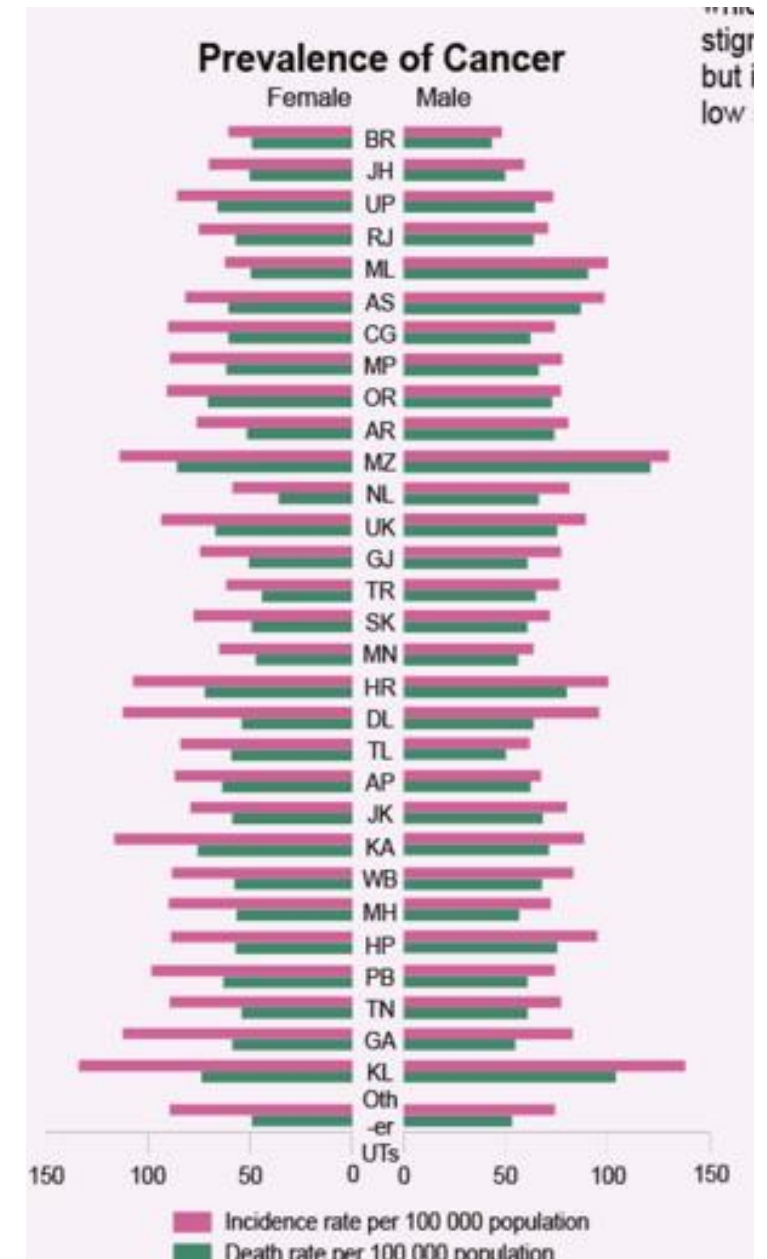
### Different types of problems in accessing health care (Age groupwise)





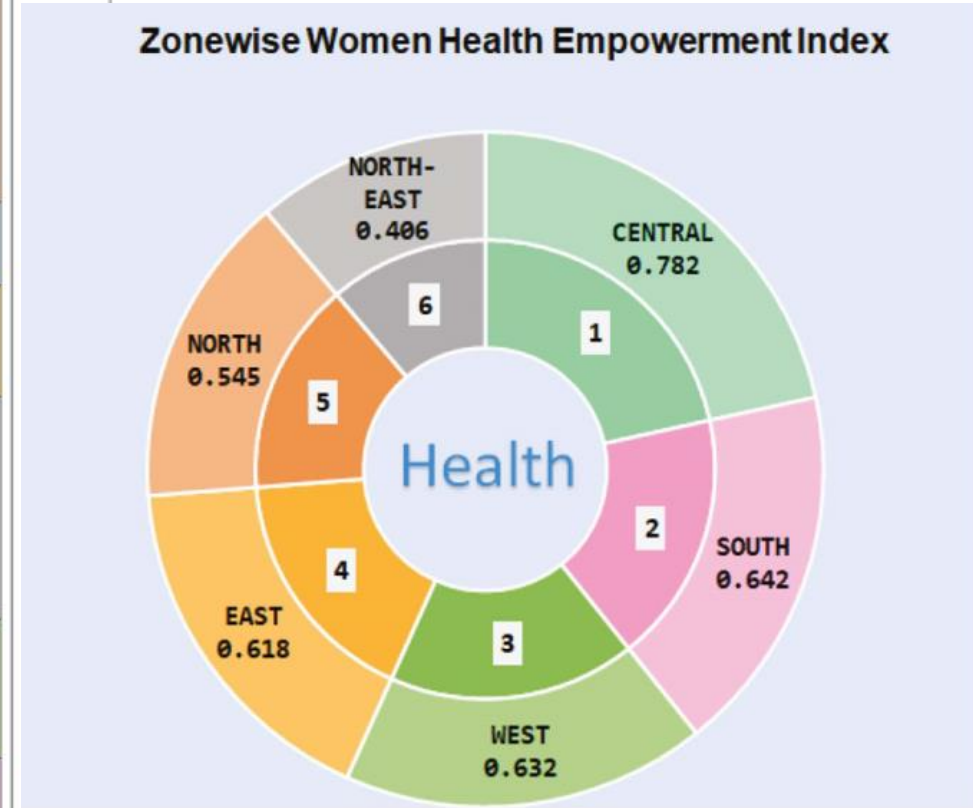
The prevalence of cancer among women state wise has been shown by bar diagrams using two parameters – incidence rate per 100000 population and death rate per 100000 population in 2015-16. The rate of incidence is highest in the state of Kerala followed by Karnataka, Mizoram, Delhi, Goa, Haryana etc. The rate of death is highest in the state of Mizoram followed by Karnataka, Kerala, Haryana, Odisha etc.

Source: MoHFW, NFHS, WCD, NTEP, MoHFW Disease Study 1990-2016

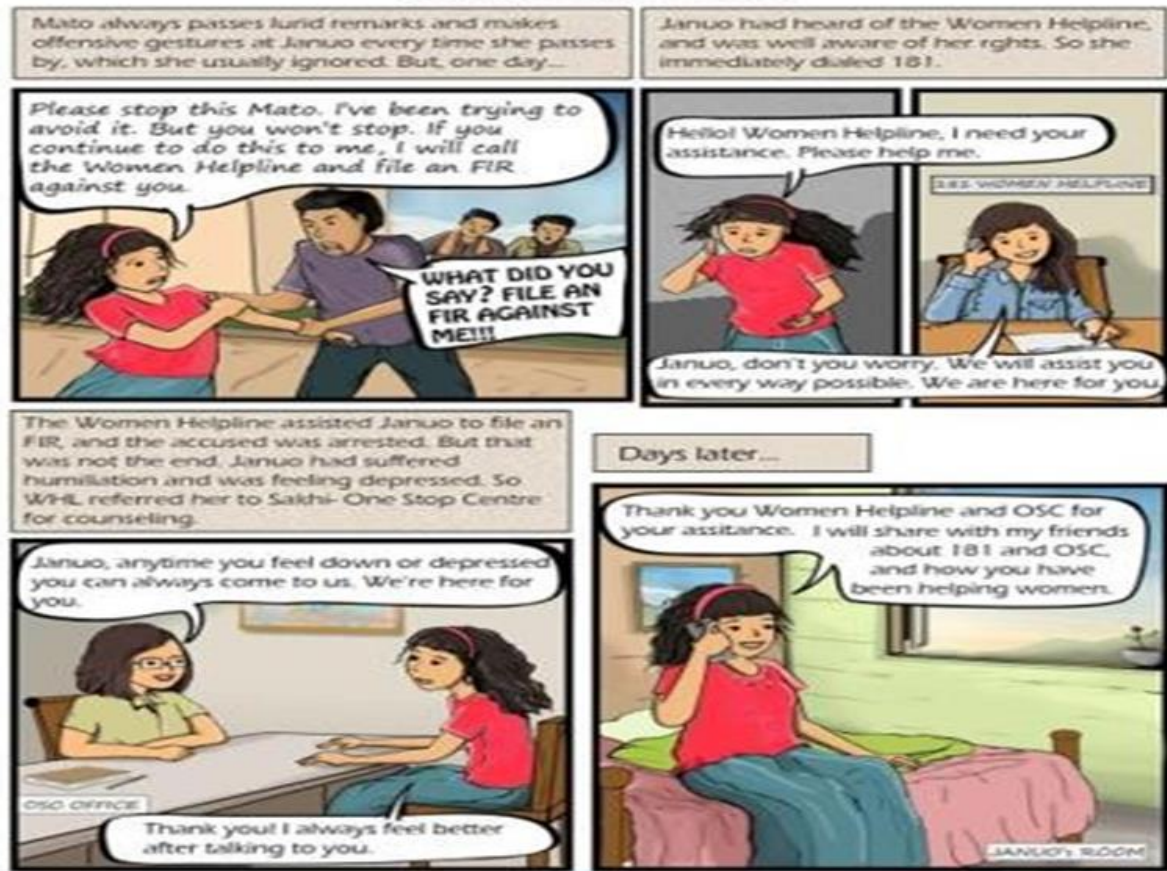
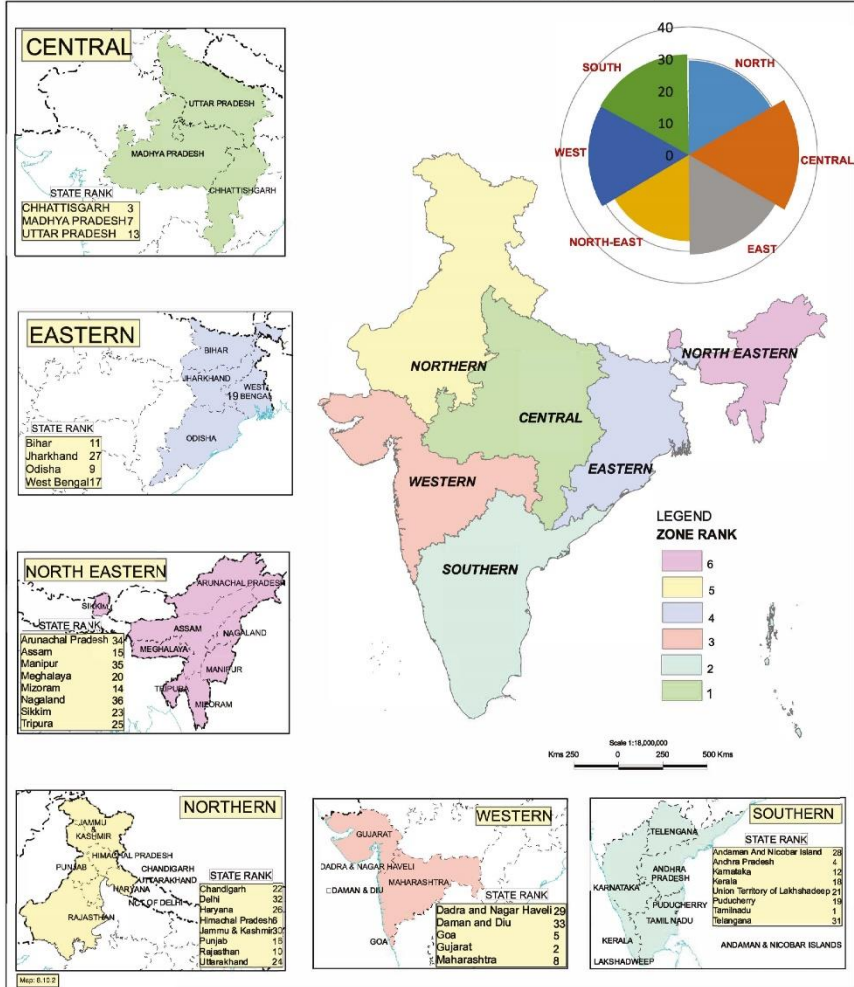


### 3.1.6.2 Zone and State wise Scoring Based on Health Empowerment

Zone	Zone Rank	State/UT	State Rank	Intra-State Rank	Health Indicator	Health Yojana	Health Infrastructure	Health Issues	Health Nutrition	State-wise Index	State-wise Grade	State-wise Index (0-1 Scale)	Zone-wise Index (0-1 Scale)
NORTH	5	Chandigarh	22	4	53.36	32.50	5.64	15.72	38.59	29.16	Medium	0.53	0.545
		The NCT of Delhi	32	8	49.62	35.00	4.34	12.20	24.90	25.21	Low	0.33	
		Haryana	26	6	51.38	44.50	3.70	12.14	29.96	28.34	Medium	0.48	
		Himachal Pradesh	6	1	65.89	37.72	8.43	10.99	46.18	33.84	High	0.76	
		Jammu & Kashmir	30	7	58.93	35.08	2.65	12.65	24.90	26.84	Medium	0.41	
		Punjab	16	3	58.56	36.95	5.97	14.88	38.56	30.98	High	0.62	
		Rajasthan	10	2	60.58	63.84	5.23	7.88	28.05	33.12	High	0.73	
Uttarakhand	24	5	59.34	36.44	5.96	9.93	32.68	28.87	Medium	0.51			
CENTRAL	1	Chhattisgarh	3	1	62.26	49.31	18.35	9.69	45.81	37.08	Very High	0.93	0.782
		Madhya Pradesh	7	2	59.29	52.08	5.22	10.24	39.26	33.22	High	0.73	
		Uttar Pradesh	13	3	55.24	70.68	2.10	8.48	25.32	32.36	High	0.69	
EAST	4	Bihar	11	2	53.24	71.84	3.62	8.15	26.21	32.61	High	0.70	0.618
		Jharkhand	27	4	51.21	36.48	4.04	7.87	39.28	27.78	Medium	0.46	
		Odisha	9	1	58.52	36.39	12.97	10.62	47.09	33.12	High	0.73	
		West Bengal	17	3	54.57	38.08	9.15	7.77	42.53	30.42	Medium	0.59	
NORTH-EAST	6	Arunachal Pradesh	34	6	44.28	29.63	17.63	8.86	16.97	23.47	Low	0.24	0.406
		Assam	15	2	62.36	49.91	3.86	7.42	34.42	31.59	High	0.65	
		Manipur	35	7	41.85	28.77	3.19	10.08	22.34	21.25	Very Low	0.13	
		Meghalaya	20	3	52.15	33.87	9.75	16.28	36.40	29.69	Medium	0.55	
		Mizoram	14	1	58.56	34.50	12.74	16.04	38.10	31.99	High	0.67	
		Nagaland	36	8	39.35	31.43	2.74	8.16	12.20	18.77	Very Low	0	
		Sikkim	23	4	58.33	32.21	9.04	11.70	34.41	29.14	Medium	0.52	
Tripura	25	5	53.14	32.01	16.39	8.51	32.29	28.47	Medium	0.49			
WEST	3	UT of Dadra & Nagar Haveli	29	4	50.94	30.85	8.47	10.01	34.49	26.95	Medium	0	0.632
		UT of Daman & Diu	33	5	49.76	26.31	4.55	12.32	25.81	23.75	Low	0.25	
		Goa	5	2	72.46	33.24	4.60	17.79	43.64	34.35	High	0.79	
		Gujarat	2	1	59.68	77.43	6.33	10.27	36.98	38.14	Very High	0.98	
		Maharashtra	8	3	51.95	61.30	4.36	15.81	32.21	33.13	High	0.73	
SOUTH	2	Andaman & Nicobar Islands	28	7	51.45	32.35	2.77	11.69	38.74	27.40	Medium	0.44	0.642
		Andhra Pradesh	4	2	53.74	46.61	19.53	11.89	50.55	36.46	Very High	0.90	
		Karnataka	12	3	52.30	55.15	7.71	9.53	38.12	32.56	High	0.70	
		Kerala	18	4	55.55	35.85	12.60	17.94	30.03	30.39	Medium	0.59	
		UT of Lakshadweep	21	6	56.29	29.53	2.00	13.83	45.67	29.46	Medium	0.54	
		Puducherry	19	5	55.20	31.40	8.57	11.50	44.47	30.23	Medium	0.58	
		Tamil Nadu	1	1	55.91	65.42	16.38	10.60	44.34	38.53	Very High	1	
Telangana	31	8	52.31	9.06	16.98	12.51	42.23	26.62	Low	0.40			



3.1.6.3 Zone wise Health Empowerment Index Ranking



**Disclaimer:**  
The characters and events portrayed in this comic strip are all fictitious. Any resemblance to actual events or persons, living or dead, is entirely coincidental.

S. No.	Type of Institution	Total Number of Institutions covered
1.	One Stop Centres	699
2.	Family Counselling Centres	661
3.	Special Cells	522
	<b>TOTAL</b>	<b>1,882</b>

**ARE WE PROVIDING ENOUGH SAFE spaces?**

## 3.1.6 Women Health Empowerment Index

### 3.1.6.1 Index Based Scoring of Women Health Empowerment

The Health Women Empowerment Index of India is a consolidated index of State wise Female Health Analysis based on the following five sub-categories:

1. Health Indicator ( $I_{G1}$ )
2. Health Yojana ( $I_{G2}$ )
3. Health Infrastructure ( $I_{G3}$ )
4. Health Issues ( $I_{G4}$ )
5. Health Nutrition ( $I_{G5}$ )

These individual indices are assessed based on several parameters shown in the table below:

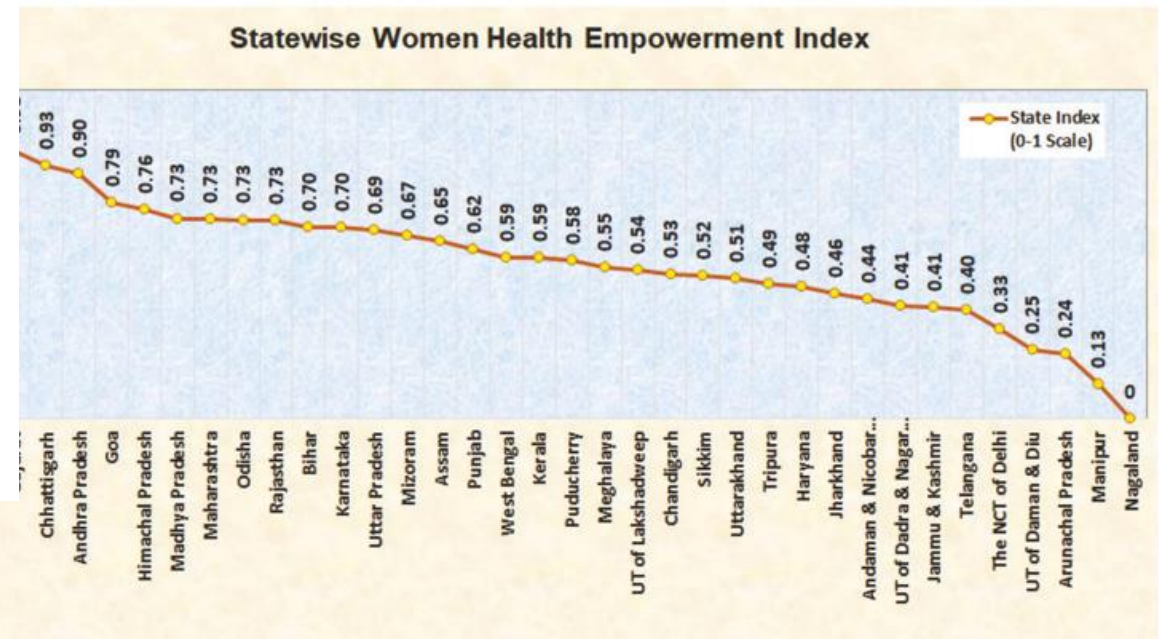
#### Methodology in brief:

The aggregated health index is the simple average of the five indices, considering their contributions are equal in weightage. Here, all of the five sub-indices are calculated in 0-100 Scale where they consider the measure of their respective parameters. We have standardized each of the health index to a 0-1 scale to maintain a uniformity across all indices. The actual State wise Index ranges between 18.77 to 38.35.

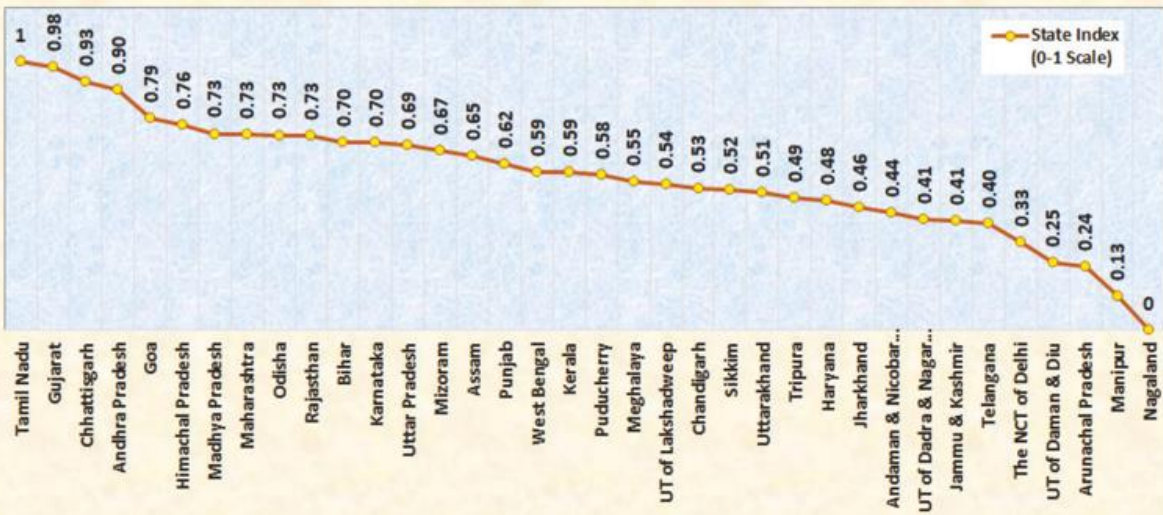
#### Formula Used:

### Interpretation:

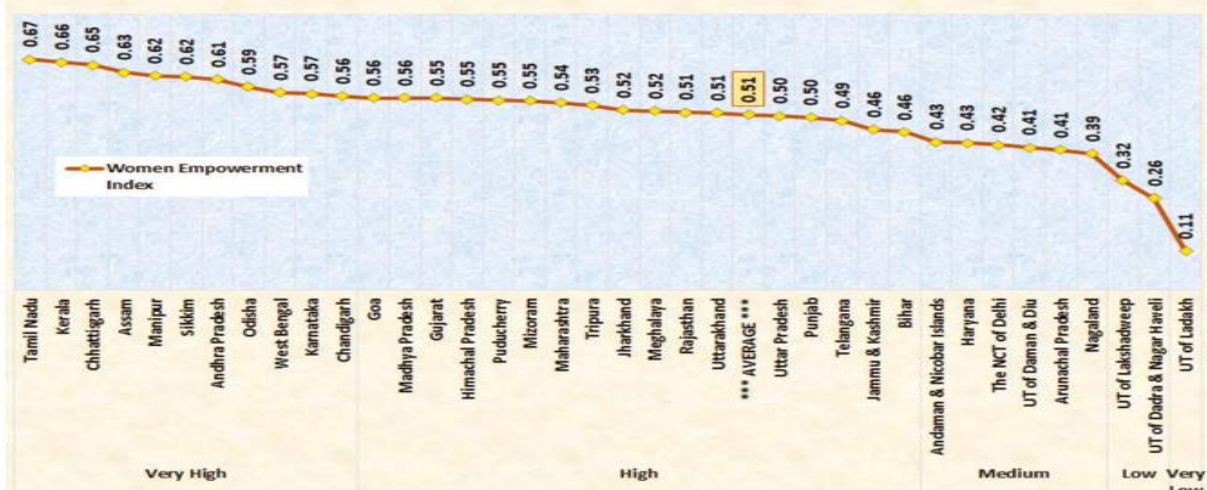
From the Index Table, we see that Tamil Nadu is the highest-ranking state, whereas North-east Manipur and Nagaland are performing very poorly. Hence considering all the five factors mentioned, we can interpret that the states in the lower categories need focus to improve their health facilities. Zone wise, the north-east region needs to be focused significantly to improve women empowerment of India as a whole.



Statewise Women Health Empowerment Index



Statewise Women Empowerment Index according to their Ranks



## WOMEN EMPOWERMENT ATLAS OF INDIA: Science & Technology Perspective

A Geospatial Study on the following nine sub-themes:

- 1 Women Mainstreaming Science and Technology Support
- 2 Demographic Empowerment
- 3 Women Health Empowerment
- 4 Women Education Empowerment
- 5 Women Safety and Support
- 6 Women Livelihood Empowerment
- 7 Women Leadership and Gender Mainstreaming
- 8 Women Agency and Decision Making
- 9 Government Initiatives & Women Empowerment

# Biggest Challenge :

- ✓ **DATA COLLECTION/**
- ✓ **DATA VALIDATION/**
- ✓ **DATA ACCEPTANCE/**
- ✓ **INTEROPERABILITY CONCERNS IN  
MAPPING SOCIAL SPACES**
- ✓ **DATA PERMISSION-OPEN SOURCE**



Dear Respondent,

Namaskar/Greetings!

Gender equality, equity, and parity are important concerns in general, and especially during of the COVID-19 pandemic is of paramount importance to the society at large and particularly the issue of women empowerment.

The Department of Geography, Kirori Mal College, University of Delhi and National Atlas Thematic Mapping Organisation (NATMO) are pleased to extend an invitation for you to participate as a Key Informant for the Survey on " Perception of Women and Livelihood in India, Under the project titled Women empowerment atlas: science & technology perspective of science and development vision Government of India. (FILE SEED/WS/2019/100(G)).

We would kindly request you to participate in this Survey so as to enable a meaningful outcome to the Project. We request 10-15 minutes of your time. Through the survey, we will draw & collate your experience and views which will be utilized to fulfill the objective of the survey. Thus, your participation is important for the success of this initiative.

Your participation as a Key Informant is valuable. Responses given by you will be kept confidential and used only for the aforementioned purpose. Your identity will not be disclosed in any of the project results. Participation as a key informant does not involve any compensation.

[GET STARTED](#)

TRAINED TELE-SURVEYORS HELPED IN THIS

STATE	TOTAL NO. OF DISTRICTS	NUMBER OF DISTRICTS RESPONDED	NU
Andaman and Nicobar	3	2	
Andhra Pradesh	13	13	
Arunachal Pradesh	25	3	
Assam	34	13	
Bihar	38	0	
Chandigarh	1	1	
Chhattisgarh	28	10	
Dadra and Nagar Haveli and Daman and Diu	3	0	
Delhi	11	1	
Goa	2	0	
Gujarat	33	25	
Haryana	22	11	
Himachal Pradesh	12	2	
Jammu and Kashmir	20	14	
Jharkhand	24	11	
Karnataka	31	23	
Kerala	14	14	
Ladakh	2	0	
Lakshadweep	1	0	
Madhya Pradesh	55	29	
Maharashtra	36	33	
Manipur	16	2	
Meghalaya	11	0	

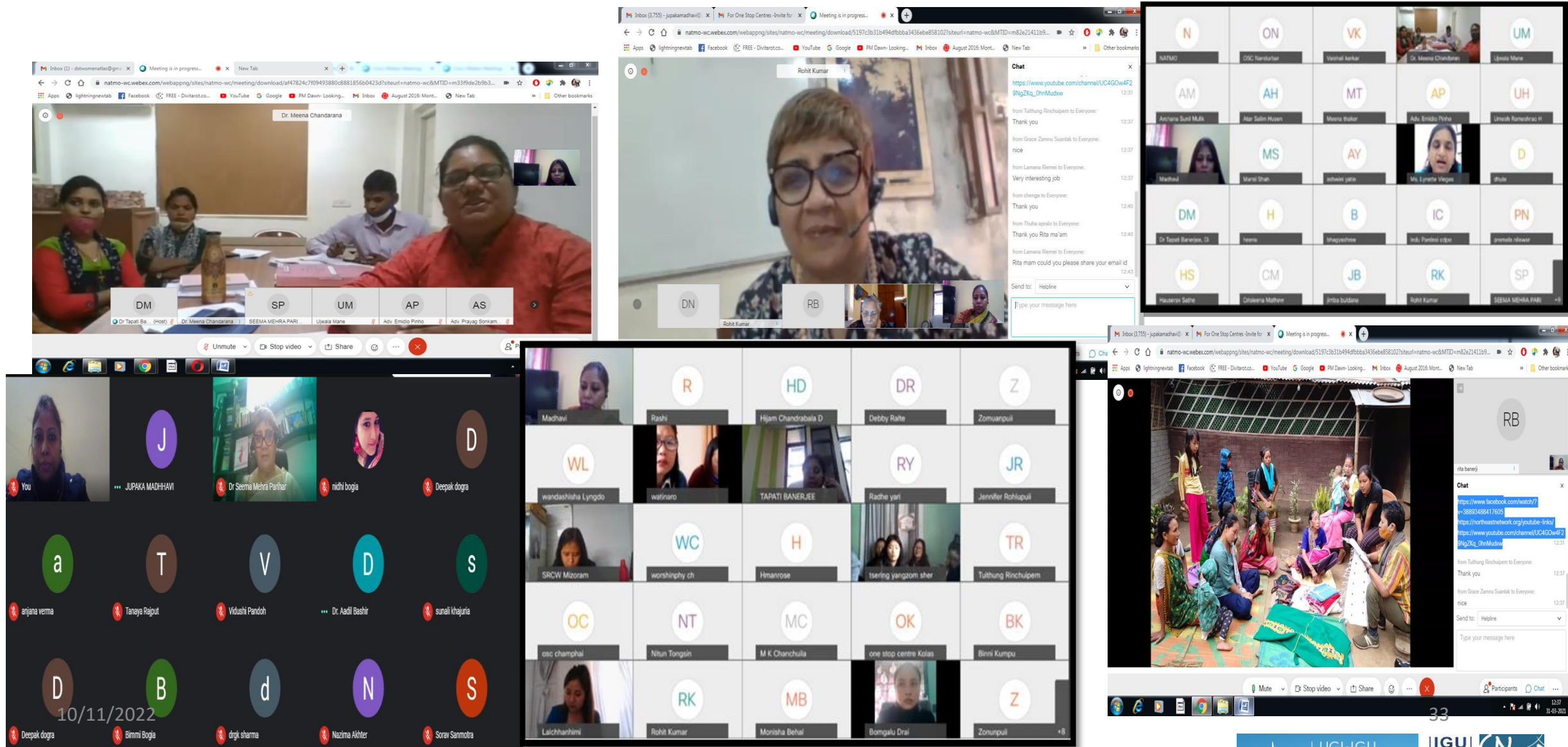
**Dear Respondent,**

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Gender equality, equity, and parity are important concerns in general, and especially during of the COVID-19 pandemic is of great importance to the society at large and particularly the issue of women empowerment.

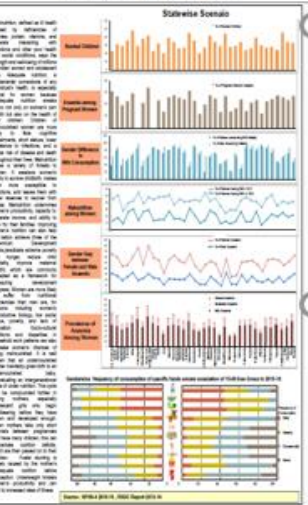


# MAPPING THE INTERACTIVE SESSIONS : ON EMPOWERMENT OF RURAL WOMEN FOR SCALING OF THEIR LIVELIHOOD

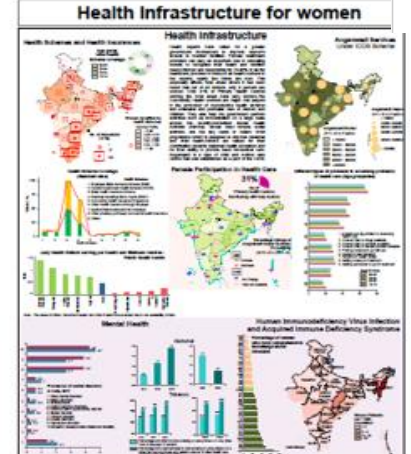
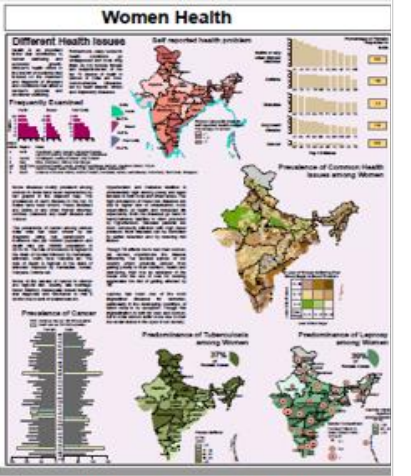
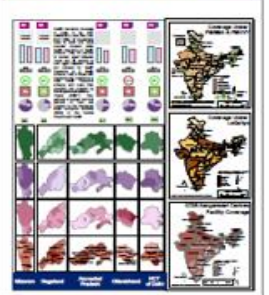
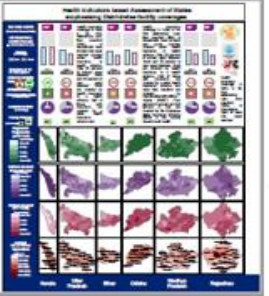
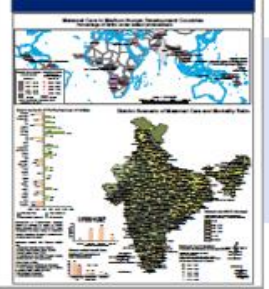
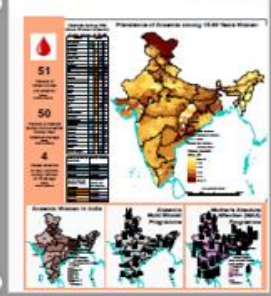
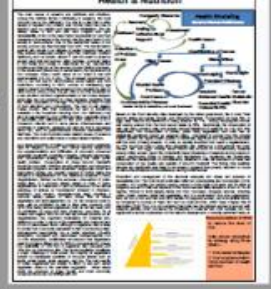
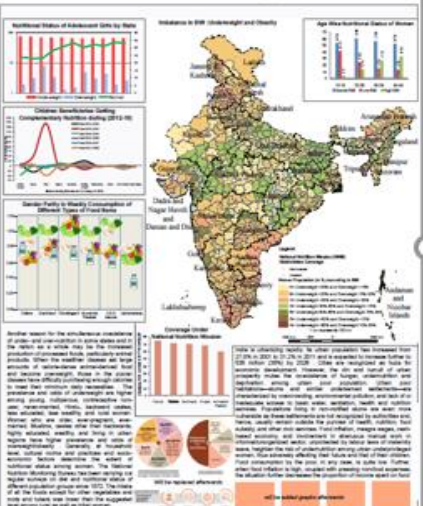


# WAY FORWARD HEALTH EMPOWERMENT

## Women Health and Nutrition



## Nutritional Status among Women



# Delphi method: 50 indicators on Gender Health to 9 indicators

The present study is conducted in four stages. In stage one, to achieve an unbiased result, opinions of the experts' from different disciplines (Medical, Psychology, Sociology, Economics, Population Studies and Geography), who are working with Gender health issues for more than a decade have been collected following Delphi technique

- After exploring more than 50 indicators on gender health, following 9 women related health indicators/variables were identified:
  1. Maternal Mortality Rate,
  2. Maternal Mortality Ratio,
  3. Total Anaemia Rate,
  4. Women suffering from moderate to severe anaemia (%),
  5. Modern methods of contraceptive used (%),
  6. Women visited ANC (%),
  7. Delivery at home (%),
  8. Delivery by skilled persons (%) and
  9. Sex-Ratio.

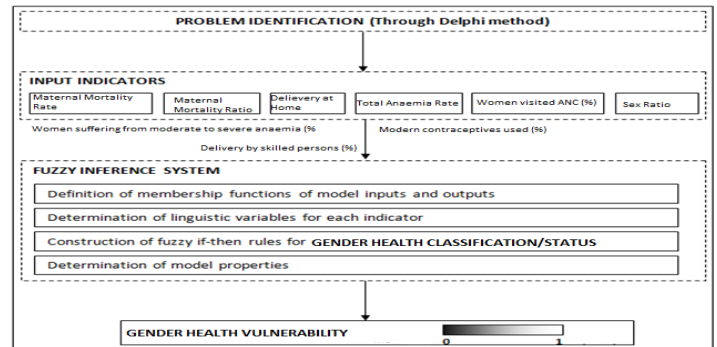
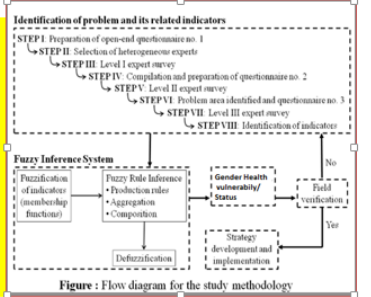
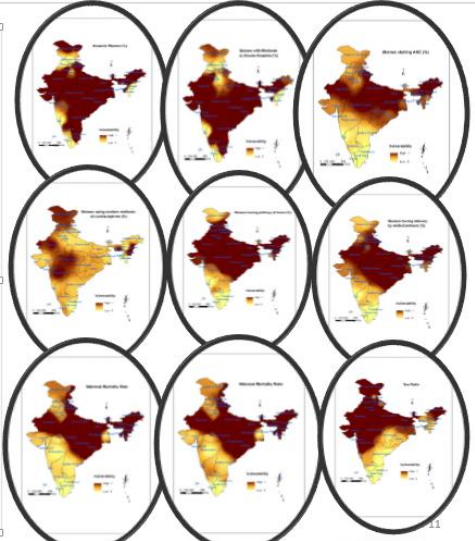


Figure: GIS mapping Framework

In stage three, the generated fuzzy vulnerability maps for all the selected variables were integrated with the intersection based 'AND' operator. Using the fuzzy overlay tools, the final 'women health vulnerability map' showing the least to most vulnerable regions in India is generated.



	Sex Ratio Index	Woman Household Dev Index	Woman Education Index	Woman Family Planning Index	Woman HDM Index	Woman Financial Support Index	Woman Anaemic Index	Nutritional Index	Wt. Woman Empowerment Index
Sex Ratio Index	1								
Woman Household Dev Index	-0.16	1							
Woman Education Index	-0.06	0.26	1						
Woman Family Planning Index	-0.24	0.39	0.29	1					
Woman HDM Index	-0.07	0.68	0.66	0.61	1				
Woman Financial Support Index	0.21	-0.54	-0.51	-0.16	-0.38	1			
Woman Anaemic Index	-0.01	-0.20	-0.15	-0.03	0.09	0.19	1		
Nutritional Index	-0.09	-0.10	-0.07	-0.25	-0.33	0.19	-0.29	1	
Wt. Woman Empowerment Index	0.14	0.55	0.57	0.47	0.62	0.16	-0.41	0.24	1

**Correlation:**  
**Positive:** In a positive relationship both variables tend to move in the same direction: if one variable increases, the other tends to also increase.  
**Negative:** In a negative relationship the variables tend to move in the opposite directions: if one variable increases, the other tends to decrease, and vice-versa.

- Here:-
1. Woman Education Index is positively correlated with Woman Household Dev Index
  2. Woman HDM Index is positively correlated with Woman Household Dev Index, Woman Education Index, Woman Family Planning Index
  3. Wt. Women Empowerment Index is positively correlated with Woman Household Dev Index, Woman Education Index, Woman HDM Index.

✍️ Edit thumbnail



Women Empowerment Atlas of India: Science & Technology Perspective (Parihar, S.M. & Bannerjee, T., 2022) is the First-ever women empowerment atlas in the world and the first-ever women empowerment atlas with a science and technology perspective. This geo-analytical study of the integrated women empowerment science and technology index is based on nine sub-indices. It includes geo-visualization of 300 + gender-disaggregated data. The gender parity index captures the actual diversity of India.

📄 Application by [Seema\\_Mehra\\_Parihar](#)

Created: Oct 9, 2022 Updated: Oct 9, 2022 View Count: 0

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### Description

✍️ Edit

The Vastness and diversity of India and its significant population make this country unique and promising. Women empowerment is the most effective tool for development. Sustainable Development Goal 5 is all about Women’s Empowerment and Gender Parity.

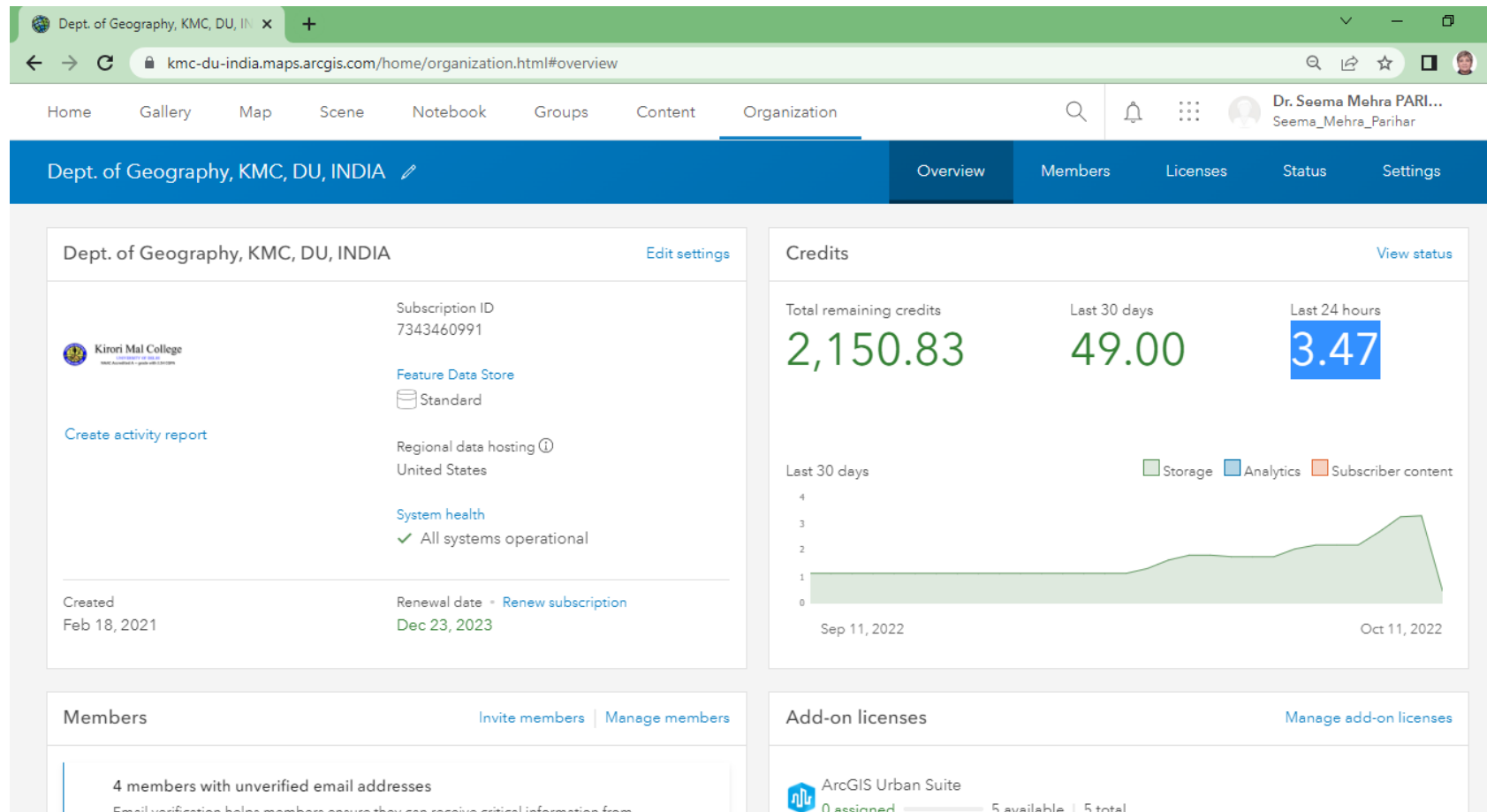
- First ever women empowerment atlas in the world.
- First ever women empowerment atlas with science and technology perspective. (Women Empowerment Atlas of India: Science & Technology Perspective, is conceptualised by SEED Division, Department of Science and Technology, India, and prepared by Kirori Mal College, University of Delhi and NATMO, Kolkata Parihar, S.M. & Bannerjee, T. 2022).
- Geo visualization of 300 + gender-disaggregated data first time in the world.
- The gender parity index captures the actual diversity of India.
- Geo analytical study of the integrated women empowerment science and technology index is based on nine sub-indices:
  1. [Women Mainstreaming Science & Technology Support Empowerment Index](#)
  2. [Demographic Women Empowerment Index](#)
  3. [Women Health Empowerment Index](#)
  4. [Women Education Parity & Support Empowerment Index](#)
  5. [Women Safety & Support Empowerment Index](#)

**WAY FORWARD: DATA SHARING IN ALL FORMATS ARE WE WILLING ???;**

Owner

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# FINANCIAL CONSTRAINTS



Dept. of Geography, KMC, DU, INDIA

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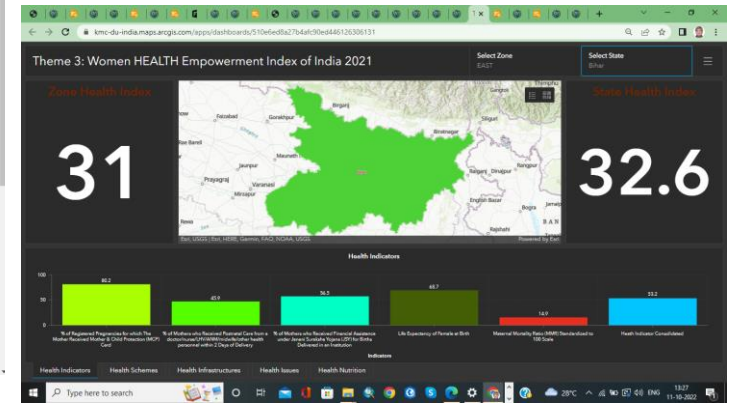
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1-10 of 10 in Women Empowerment Atlas 2022

Title	Modified
INTEGRATED Women Empowerment Index of India 2021	Oct 9, 2022
THEME 9: GOVERNMENT INITIATIVES & WOMEN EMPOWERMENT Index of India 2021	Oct 9, 2022
THEME 8: WOMEN AGENCY AND DECISION MAKING Index of India 2021	Oct 9, 2022
THEME 7: WOMEN LEADERSHIP & GENDER MAINSTREAMING Index of India 2021	Oct 9, 2022
THEME 6: WOMEN LIVELIHOOD Empowerment Index of India 2021	Oct 9, 2022
THEME 5: WOMEN SAFETY AND SUPPORT Empowerment Index of India 2021	Oct 9, 2022



### Theme 3: Women HEALTH Empowerment Index of India 2021

Select Zone: EAST

Select State: All States

Zone Health Index: 31

State Health Index: 30.1

Health Indicators

% of Registered Pregnancies for which The Mother Received Maternal & Child Protection (MCP) Card	93.3
% of Mothers who Received Potential Care from a doctor/nurse/LAW/AM/ML/other health personnel within 2 Days of Delivery	99.2
% of Mothers who Received Financial Assistance under Janani Suraksha Yojana (JSY) for Babies Delivered in an Institution	40.6
Life Expectancy of Female at Birth	70.2
Maternal Mortality Ratio (MMR) Standardized to 100 Scales	11.7
Health Indicator Consolidated	54.4

Members per user type: 4 assigned, 1 available, 5 total

GIS Professional Advanced

### INTEGRATED Women Empowerment Index of India 2021

Description

The vastness and diversity of India and its significant population make this country unique and promising. Women empowerment is the most effective tool for development. Sustainable Development Goal 5 is all about Women's Empowerment and Gender Parity.

- First ever women empowerment atlas in the world.
- First ever women empowerment atlas with science and technology perspective. (Women Empowerment Atlas of India: Science & Technology Perspective, is conceptualized by SEED Division, Department of Science and Technology, India, and prepared by Klori Mal College, University of Delhi and NATMO, Kolkata. Parihar, S.M. & Banerjee, T. 2022).
- Geo visualization of 300+ gender-disaggregated data first time in the world.
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- Geo analytical study of the integrated women empowerment science and technology index is based on nine sub-indices:
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  - Demographic Women Empowerment Index.
  - Women Health Empowerment Index.
  - Women Education Parity & Support Empowerment Index.
  - Women Safety & Support Empowerment Index.
  - Women Livelihood Empowerment Index.
  - Women Leadership & Gender Mainstreaming Empowerment Index.
  - Women Agency & Decision-making Index.
  - Women Safety and Support Empowerment Index.
  - Government Initiative Women Empowerment Index.

With geospatial analysis of 300+ gender-disaggregated data spread across nine themes, we see that Tamil Nadu is the highest-ranking state, whereas Dadra & Nagar Havel stands last. Zone-wise, the northern region followed by the western zone needs to be focused significantly to enhance women's empowerment in India. Hence considering all the nine themes, we can interpret that the conditions of states in the lower categories need to improve women's support systems and related facilities.

Professor Seema Mehra Parihar  
Fellow, Delhi School of Public Health (DSPH), Institute of Eminence, Faculty, Klori Mal College UNIVERSITY OF DELHI, INDIA  
seempar@india.ac.in  
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Application

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Theme 6: WOMEN LIVELIHOOD Empowerment Index of India 2021

Application

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Theme 5: WOMEN SAFETY AND SUPPORT Empowerment Index of India 2021

Application

Created: Oct 9, 2022

Updated: Oct 9, 2022

View Count: 0

Credits (Attribution)

(Parihar, S.M. & Banerjee, T. 2022). Women Empowerment Atlas of India: Science & Technology Perspective. SEED Division, Department of Science and Technology, India.

WEI: Women Empowerment, WEA

PARIHAR-SEEMA M.-UNWGC 2022-WOMEN EMPOWERMENT-GENDER-DISAGGREGATED DATA

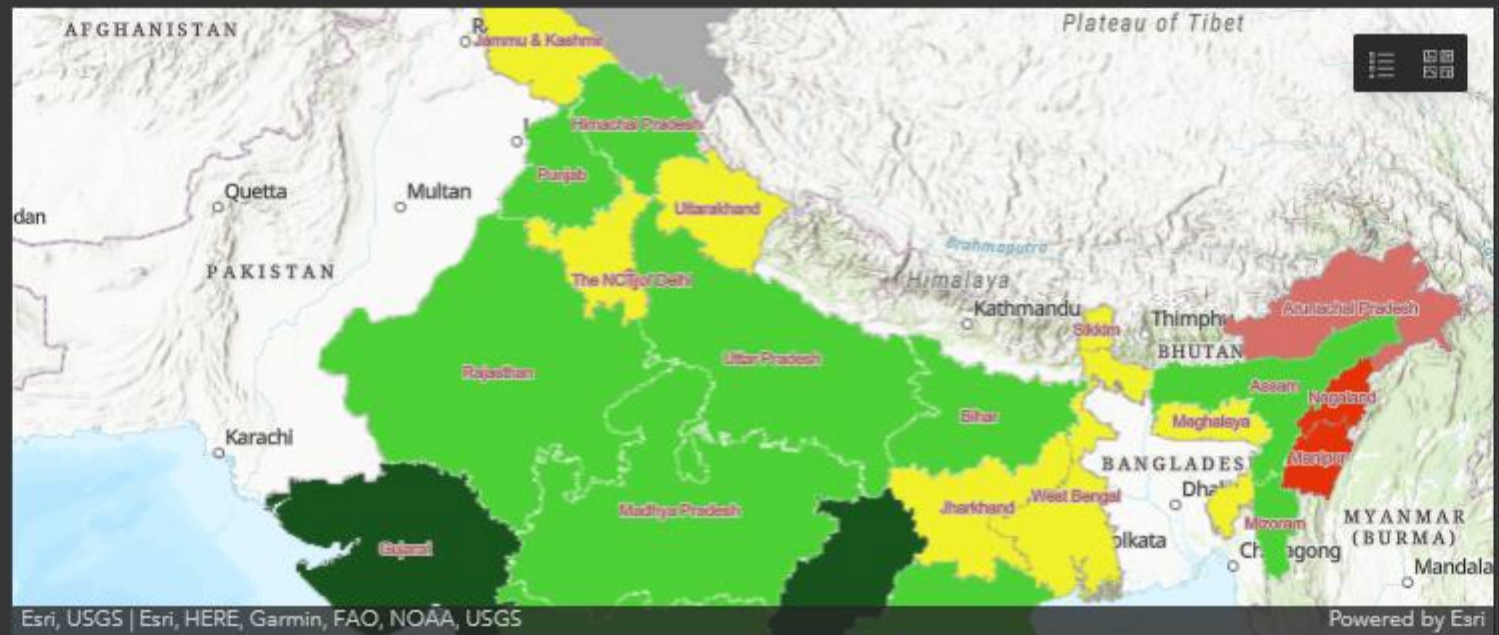
# Theme 3: Women HEALTH Empowerment Index of India 2021

Select Zone  
All Zones

Select State  
All States

Zone Health Index

# 30.1



State Health Index

# 30.1

## Health Indicators



Indicators

# Theme 3: Women HEALTH Empowerment Index of India 2021

Select Zone  
EAST

Select State  
Bihar

Zone Health Index

# 31



State Health Index

# 32.6

## Health Indicators



Indicators

# Theme 3: Women HEALTH Empowerment Index of India 2021

Select Zone  
NORTH

Select State  
Punjab

Zone Health Index

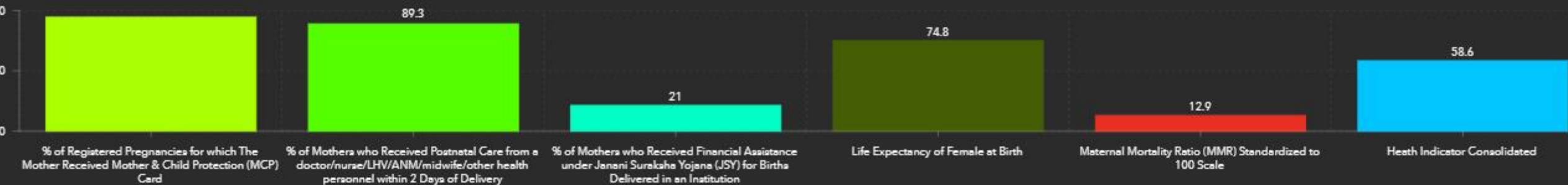
# 29.5



State Health Index

# 31

## Health Indicators



Indicators



# WHEN TO MAKE IT PUBLIC??????

The screenshot displays a Microsoft OneDrive interface with a 'Share' dialog box open. The dialog box is titled 'Share' and has a close button (X) in the top right corner. It contains the following elements:

- Set sharing level:** A section with a 'Revert' link. It lists three options:
  - Owner:** Owner of the item(s) has access.
  - Organization:** All members of your organization have access.
  - Everyone (public):** People outside your organization have access.
- Set group sharing:** A section with the text 'You don't have any groups to share to yet.'
- Buttons:** 'Save' and 'Cancel' buttons at the bottom right.

The background shows a document titled 'INTEGRATED Women Empowerment Index of India'. The document's description includes:

Women Empowerment Atlas of India (T. , 2022) is the First-ever women empowerment atlas with a science and technology perspective. It is an integrated women empowerment geo-visualization of 300+ gender-disaggregated data first time in the world. The gender parity index captures the actual diversity of India.

Application by Seema\_Mehra\_Parihar  
Created: Oct 9, 2022 Updated: Oct 9, 2022

**Description**

The Vastness and diversity of India and its significant population makes it the most effective tool for development. Sustainable Development Goals (SDG) is the most effective tool for development. Sustainable Development Goals (SDG) is the most effective tool for development.

- First ever women empowerment atlas in the world.
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- Geo visualization of 300+ gender-disaggregated data first time in the world.
- The gender parity index captures the actual diversity of India.

# IN THE END: In the end:

- ❑ The Geospatial Technologies have already evolved and have been extensively used in different branches of Geography.
- ❑ The strength of GI ecosystem is based on data, their accuracy and validation and geo-analytics.
- ❑ Present paper addresses this concern that emanates from the experience of bridging the missing gaps related to the gender disaggregated data in the making of an ongoing research project , “Women Empowerment Atlas :Science &Technology Perspective” .
- ❑ The biggest challenge in the project was in bridging the gender data gaps on the required sub-themes, considering the diversity of our country India. The folk saying "kos kos par badle paani, char kos pe baani" made the data collection geographically challenging on the one hand and pandemic expanded the scope for renegotiations and change across gender.

- ❑ Further, at vulnerable and marginalized places where for women the COVID 19 had been the "pandemic within pandemic," to collect data became challenging.**
- ❑ This paper further highlight different methodologies and challenges that occurred in data validation during pandemic.**
- ❑ Till now, we had readily available data sets of 188 gender-disaggregated data from two previous gender atlases and additional data sets of 106 variables present in published and unpublished reports of different themes.**

- ❑ But, this was not enough to delineate, visualize, and envision priority areas for improving women's HEALTH status OR WOMEN EMPOWERMENT SCORE >>>empowering them and visualise in the form of Gender Atlas, newer score cards and women empowerment indexes have been evolved and used to spatially address gender concerns.**
- ❑ Besides, in the age of artificial intelligence the challenge was to make use of the new age technologies and opportunities and create new dimensions in the field of analytics and intelligence. Usefulness of “Social Media Analytics (SMA) and Sentimental Analysis have been further highlighted.**
- ❑ All this have also pointed to a fact that there is an urgent need to update our geography curriculum if we wish to be current and useful in todays world where most decisions are location based.**

# Three Key Questions:

**The paper raises three questions:**

- 1) Do we need many complex geospatial tools and technologies while constructing gender-based maps or simply mapping social spaces?**
- 2) Have we considered concerns and challenges related to interoperability in social areas as we do it in physical spaces?**
- 3) Do we genuinely intend to visualise through meaningful maps the gender gaps and gender disparity through critical Women indicators today ? & specifically**  
**Do we genuinely intend to visualise through meaningful maps the gender gaps and gender disparity through critical health indicators today?**

# Biggest Challenge :

- ✓ **DATA COLLECTION/**
- ✓ **DATA VALIDATION/**
- ✓ **DATA ACCEPTANCE/**
- ✓ **INTEROPERABILITY CONCERNS IN  
MAPPING SOCIAL SPACES**
- ✓ **DATA PERMISSION-OPEN SOURCE**
- ✓ **REAL INTENTION : DO WE WANT  
GENDER PARITY GENUINELY?????**

# DATA SHARING WITH YOU ALL...

Documentary Link

<https://filmfreeway.com/ATLAS240>

SN	Item	URL
	<b>WEB ONLINE GIS 1-10 THEMES</b>	
	Integrated Women Empowerment Atlas of India	<a href="https://www.arcgis.com/home/item.html?id=597295900c4b407a961c9ca0d6c5c8ef">https://www.arcgis.com/home/item.html?id=597295900c4b407a961c9ca0d6c5c8ef</a>
1	Women Mainstreaming Science & Technology Support Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=c3d17b7fcdeb49e987626f04cf790bde">https://www.arcgis.com/home/item.html?id=c3d17b7fcdeb49e987626f04cf790bde</a>
2	Demographic Women Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=becbc3fff0f4609bbab4e4242594a2b">https://www.arcgis.com/home/item.html?id=becbc3fff0f4609bbab4e4242594a2b</a>
3	Women Health Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=e3d34f5d32ae459ca5e754004e1c4dbb">https://www.arcgis.com/home/item.html?id=e3d34f5d32ae459ca5e754004e1c4dbb</a>
4	Women Education Parity & Support Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=1932333b22244451b82e4a1e6ed6dfdb">https://www.arcgis.com/home/item.html?id=1932333b22244451b82e4a1e6ed6dfdb</a>
5	Women Safety & Support Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=58bc8806c420412e8385cf77a326c4b4">https://www.arcgis.com/home/item.html?id=58bc8806c420412e8385cf77a326c4b4</a>
6	Women Livelihood Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=07f01f15f4a3477481b7b65dd4f85d1f">https://www.arcgis.com/home/item.html?id=07f01f15f4a3477481b7b65dd4f85d1f</a>
7	Women Leadership & Gender Mainstreaming Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=e325fc81d2a4447fa776a0a6c581f3aa">https://www.arcgis.com/home/item.html?id=e325fc81d2a4447fa776a0a6c581f3aa</a>
8	Women Agency & Decision-making Index	<a href="https://www.arcgis.com/home/item.html?id=14b9d092e14249e1842250308a98bdc3">https://www.arcgis.com/home/item.html?id=14b9d092e14249e1842250308a98bdc3</a>
9	Government Initiative Women Empowerment Index	<a href="https://www.arcgis.com/home/item.html?id=72302af881e14d9391e40e4ff606980d">https://www.arcgis.com/home/item.html?id=72302af881e14d9391e40e4ff606980d</a>

Women Today

WOMEN EMPOWERMENT

1. Women stands with her... 2. What woman job she prefer... 3. From all our faces reflect the time... 4. Women is the only being... 5. The world is thin as ice to be captured...

What she lady to be cherished... 6. Then the moment of the Man... 7. The world is thin and empty black... 8. Women needs to stand that...

9. The greatest sign of a man's life... 10. Let a woman by any possible force... 11. A woman is not a thing... 12. Women supports life with utmost care...

10.

Empowerment is not what Is required to be brought 'Woman is the only way!' is what Every mind is to be taught

Never think the words always as nouns Sometimes, they work as adjective When people don't distinguish it They suffer with the meaning that they give

Woman and Man are the attributes With which the world is to be seen With Man, the humanity has suffered With woman, it has never yet been

Now the woman in everything Is to be invented on priority Only then will be established The Utopia based on humanity.

© Dr. Praveen Kumar Anshuman Date: 10.02.2022

IN THE END...



Kos kos par badle paani, chaar kos pe baani...



Local terrain and climatic conditions characterize... every kos, the dialect spoken changes after every two kos. Kos is an old Indian measure of distance, roughly, a little over two miles.

Geography matters

THANK YOU VERY MUCH for sparing your valuable time. Let us discuss now... Professor Seema Mehra Parihar, India smparihar @kmc.du.ac.in