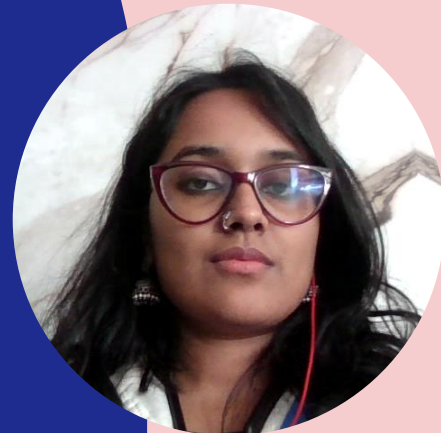


PYGETPAPERS AND PASTORALISM: HARNESSING BIG DATA FOR THE LITTLE GUY

Team Remediators

(Shiwani, Maansi R, Swathi G, Gunjana B, Shashank B)



VISION

- Problem data abundance
- Our focus: Solution data
- Climate impacts (observed + projected) easier to substantiate than adaptation strategies
- Diverse knowledge sources for adaptation – Traditional and Scientific
- IPCC: Need for incorporation of both





WHY PASTORALISM?

- Sustenance in livelihood practice
- Manifests as mobility as adaptation in several communities
- Considered ‘problematized’ practice by state
- Blamed for land degradation due to overgrazing: MYTH
- Recent research: adaptive & sustainable land use system in areas with high soil and climate variability

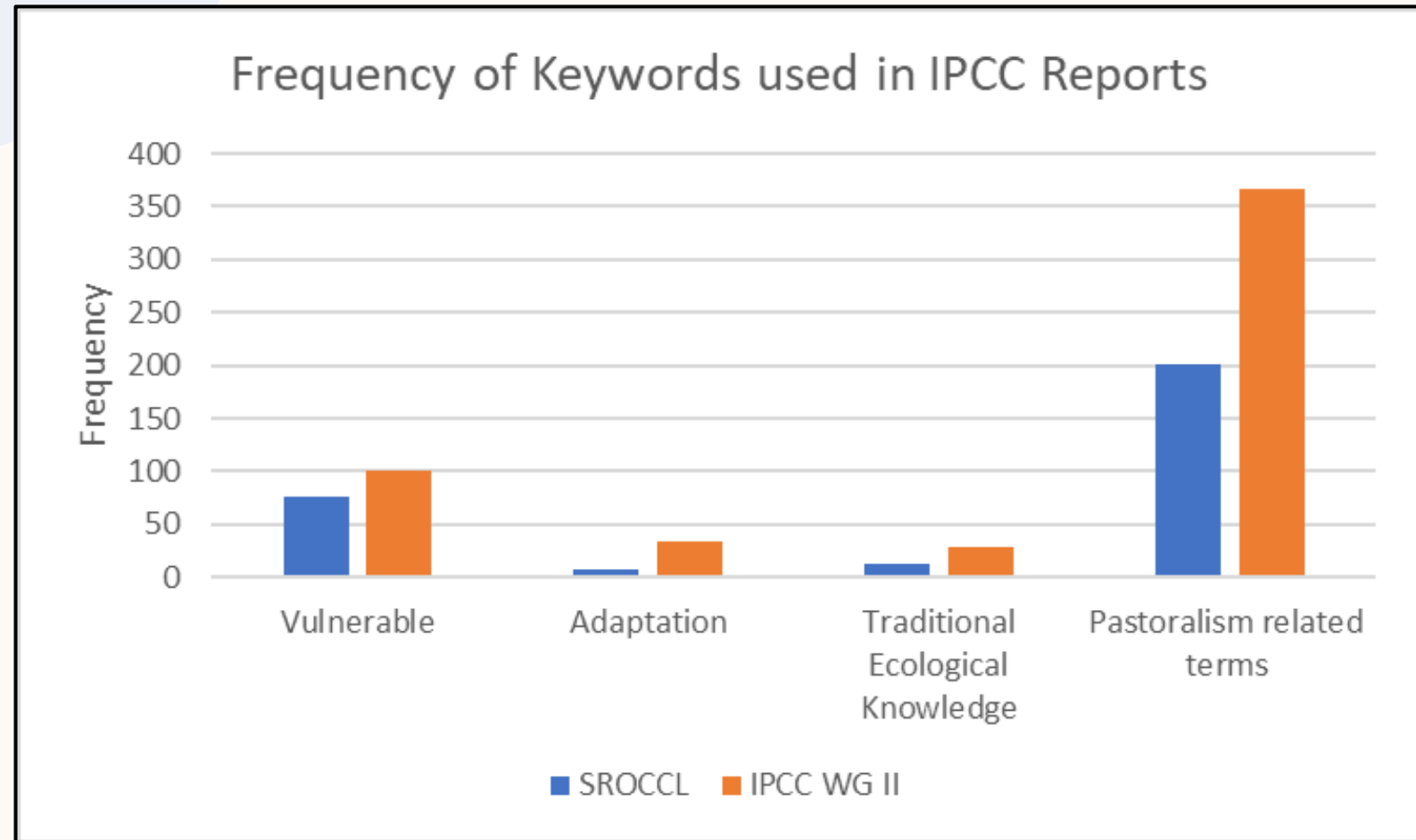


PASTORALISM IN IPCC REPORTS

	Vulnerability	Adaptation	Traditional Ecological Knowledge (TEK)	Total mentions
SROCCL	77	8	13	201
IPCC WG II	100	33	28	366

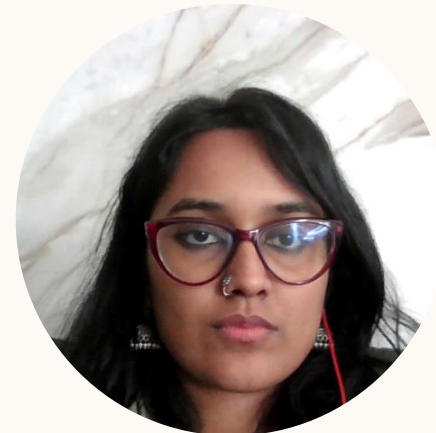
* Rest included in Glossary, Index, Annex, Citations, Factual Information, Statistics

DATA VISUALISATION



AIM

- Create **Outreach Resource** for Pastoral Communities on Actionable Adaptation Strategies
- Create **repository** of strategies including TEK of Pastoralists around the world categorised by Ecosystem, Livestock, Climate Problem Encountered, Efficacy etc.
- Further scope: To enable reports to address local stakeholders directly



MINING IPCC REPORTS

- IPCC Reports: Governments and Scientific Community
- Overview and Case Studies
- Acknowledges TEK and need for TEK + scientific practice, but no comprehensive specific repository
- Knowledge, references in IPCC reports + ecosystem-specific climate literature = outreach resource written for pastoral communities



TOOLS USED

Software used	Task performed
Gephi and R	Network analysis for keywords
Excel	To formulate graphs
Pygetpapers	Retrieved academic papers by searching for specific keywords.



team_remidaiators mriirs_hackathon_feb_24.ipynb ☆

File Edit View Insert Runtime Tools Help Last saved at 12:12AM

+ Code + Text

Connect Colab AI

```
--FILTER FILTER [C] Filter by key value pair (only crossref supported)

[ ] !pygetpapers -q "traditional ecological knowledge AND pastoralism AND climate change" -c -k 10 -o "test1"

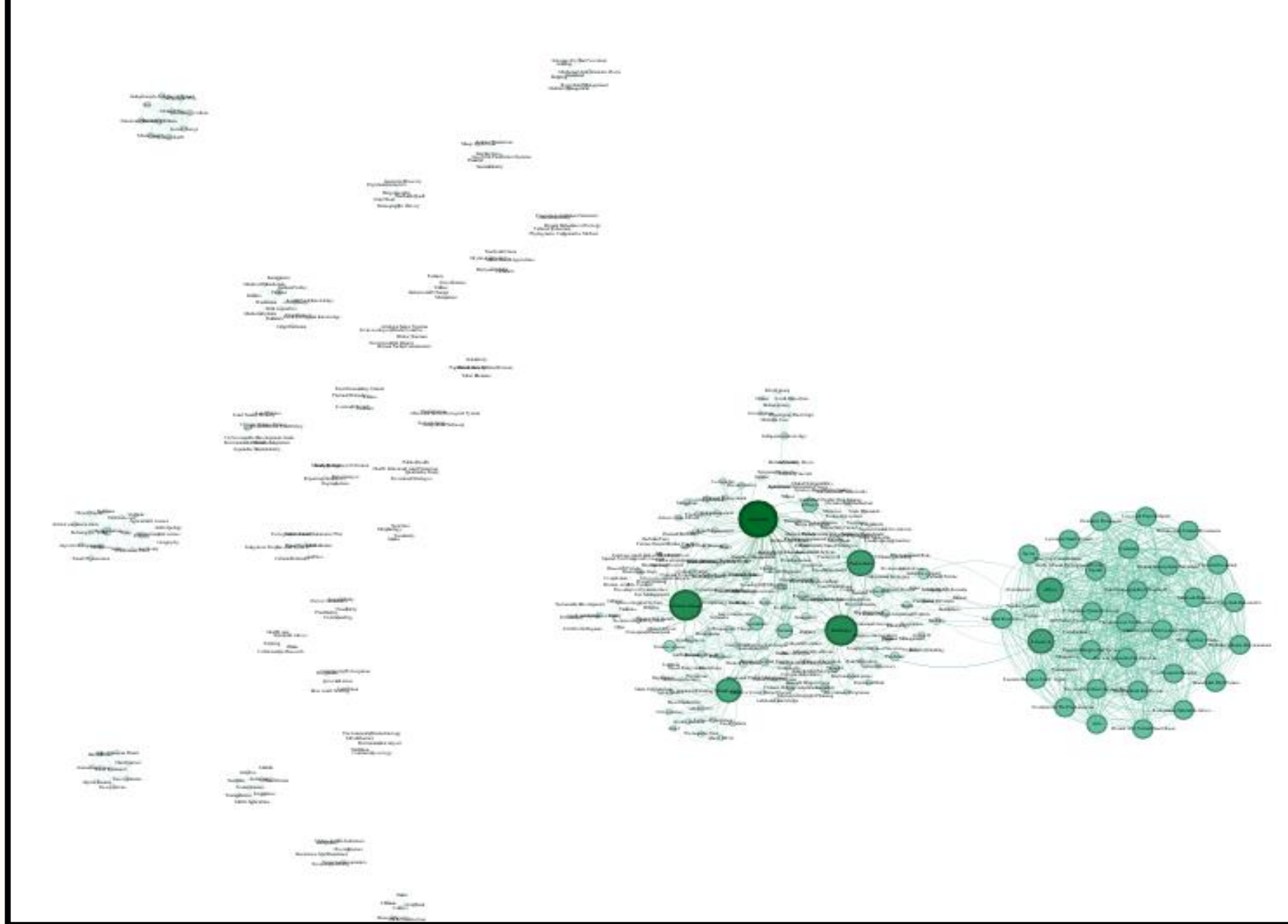
INFO: Total Hits are 256
WARNING: Could not find more papers
10it [00:00, 78398.21it/s]
100% 10/10 [00:13<00:00, 1.30s/it]

[ ] !pygetpapers -q "RESULTS: 'adaptation strategy' AND pastoralism AND traditional ecological knowledge AND climate change" -p -c -k 30 -o "usethis"

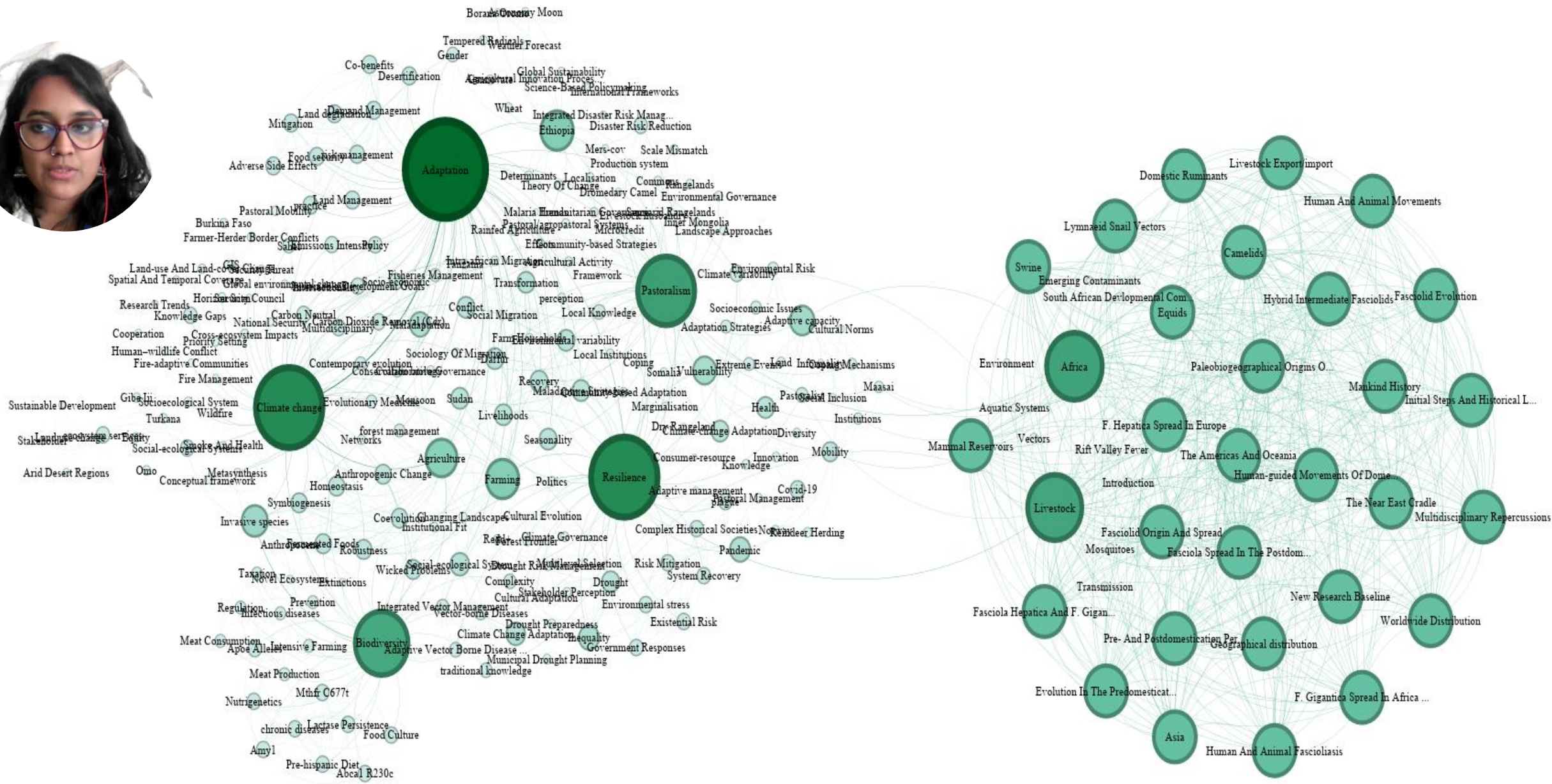
INFO: Total Hits are 93
WARNING: Could not find more papers
30it [00:00, 146653.99it/s]
 0% 0/30 [00:00<?, ?it/s]INFO: Wrote the pdf file for PMC10457510
INFO: Wrote the pdf file for PMC10457510
 3% 1/30 [00:07<03:28, 7.18s/it]INFO: Wrote the pdf file for PMC10825354
 7% 2/30 [00:15<03:33, 7.61s/it]INFO: Wrote the pdf file for PMC10460749
INFO: Wrote the pdf file for PMC10460749
10% 3/30 [00:22<03:21, 7.47s/it]INFO: Wrote the pdf file for PMC9942907
13% 4/30 [00:27<02:49, 6.53s/it]INFO: Wrote the pdf file for PMC10691405
INFO: Wrote the pdf file for PMC10691405
17% 5/30 [00:31<02:24, 5.78s/it]INFO: Wrote the pdf file for PMC9815565
INFO: Wrote the pdf file for PMC9815565
20% 6/30 [00:37<02:14, 5.61s/it]INFO: Wrote the pdf file for PMC10666633
```



Using pygetpapers to download academic papers on TEK, Pastoralism & Climate Change



Network Analysis Graph of keywords used in downloaded papers using Gephi

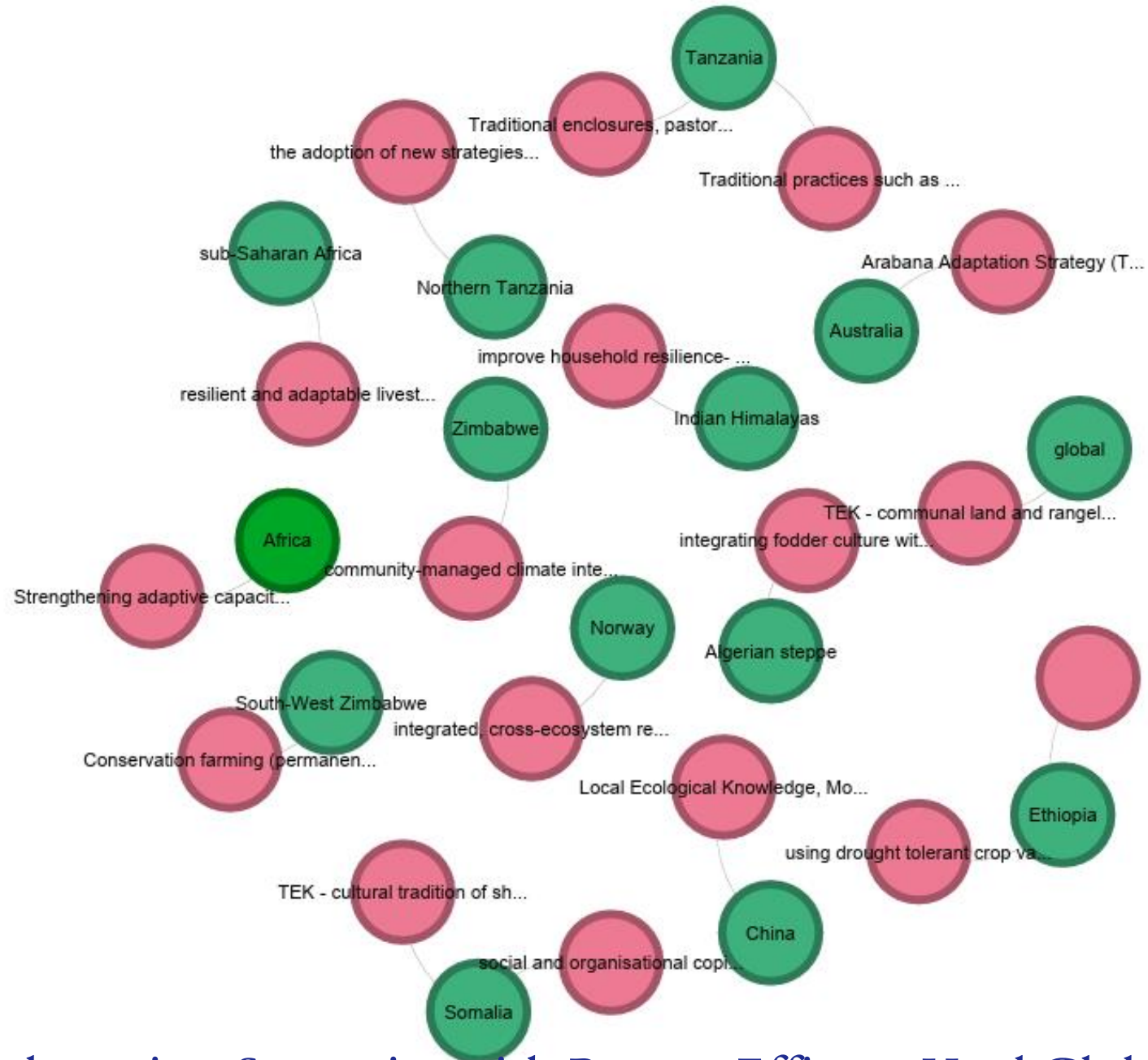


Zoomed in part of Network Analysis Graph representing relevant Keywords

	A	B	C	D	E	F	G	H
1	Title	Region	Type of Nomad	Climate Impact	Ecosystem	Mitigation	Efficacy	Barriers
2	Impact of climate change and v	South-West Zimbabwe	Semi-pastoralism	Rain-fed agriculture affected by c	semi-arid	Conservat	Both successful	poor clim
3	Understanding vulnerability and	Somalia	pastoralism and agro-pas	Droughts due to weather variability	not mentioned	TEK - cult	Successful	Marginal
4	Nitrogen cycling in pastoral live	sub-Saharan Africa	pastoralism	climate variability	semi-arid	goats as s	Successful	
5	Sustainability Evaluation of Pas	Algerian steppe	pastoralism	climate variability	rangelands			
6	The global climate of land politic	global	pastoralism	Land degradation	terrestrial	TEK - communal land and rangelands as buffer aga		
7	Indigenous knowledge and rang	Tanzania	Patoralism	Decline in biodiversity and conflic	Rangelands	Traditional	Successful	Challeng
8	Household livelihood resilience	Indian Himalayas	Patoralists	the resilience of vulnerable small	Mountainous region	The results	Successful	
9	Goat hair as a bioindicator of environmental contaminants and adrenal activation d			The authors hypothesized that th	Alpine ecosystem	The study demonstrated that goat hair analysis can		
10	Impact and adaptation of climat	Ethiopia	Small holder farmers	Reduced crop yields, livestock ni	Agriculture	Farmers have adopted various adaptation socioecc		
11	Fifteen research needs for unde	Norway	Sámi reindeer pastoralism	Warming Climate	Tundra	The authors emphasize the need for integrated, cro		
12	Impact of climate change and v	Zimbabwe	semi pastoralism	heat waves, protracted droughts,	semi arid	community successful		
13	Vector-borne disease and clin	Africa	agro-pastoral communities	vector borne diseases	drylands	Strengthening adaptive capacity through community		
14	Indigenous knowledge and rang	Tanzania	Agro pastoralists	Degradation of rangeland-biodivi	Rangelands	Traditional enclosures, pastoral mobility	Populatio	
15	Understanding vulnerability and	Somalia	pastoralists and agro-pas	droughts and conflicts	not mentioned	(1) social and organisational coping strategies, (2) c		
16	Adaptive Capacity in Tanzanian	Northern Tanzania	pastoralists	drought	rangeland	the adoption of new strategies (e.g., purchi		
17	Country, climate change adapta	Australia	Arabana people (Indigen	climate variability	not mentioned	Arabana A	successful	

Tabulation of Actionable TEK data from Manual Sorting of Papers



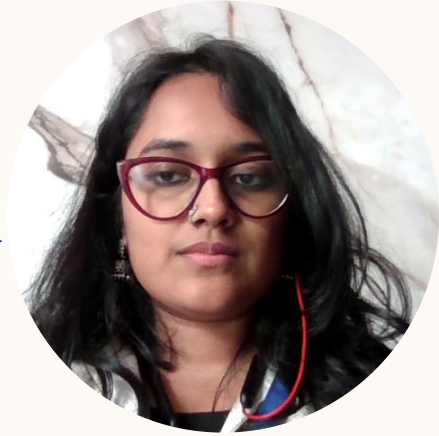


Adaptation Strategies with Proven Efficacy Used Globally



SAMPLE OUTREACH RESOURCE

- Use of small grains and small livestock
- Avoid tilling the land to conserve productivity
- Use existing crop residue as organic matter
- Keep goats instead of cattle to avoid cattle raids in conflict-prone areas
- Register communal property under Community Land Act, 2016 (Kenya)
- Use drought-resistant varieties of crops (with region & ecosystem-specific list)



THANK YOU!

Team Remediators

**School of Human Ecology and CUES, Dr.
B.R. Ambedkar University**

**Team Members: Shiwani, Maansi Rawat, Swathi
Gangadharan, Gunjana Boruah, Shashank
Bhardwaj**

