

# Exploring social vulnerability through narratives: A mixed-methods approach to develop storylines of vulnerability for heat and flood related risk in Austria

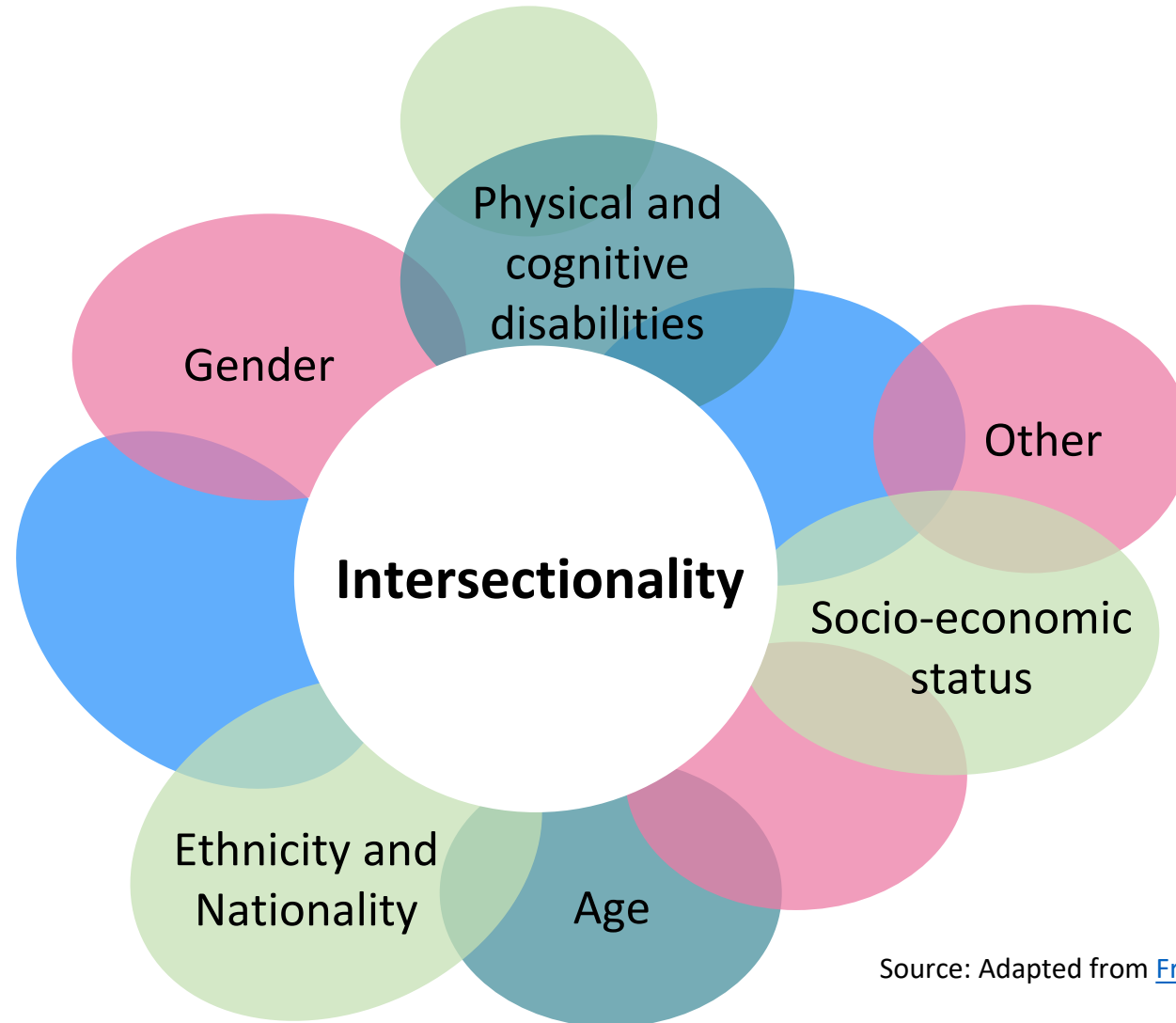
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13th June | 2024

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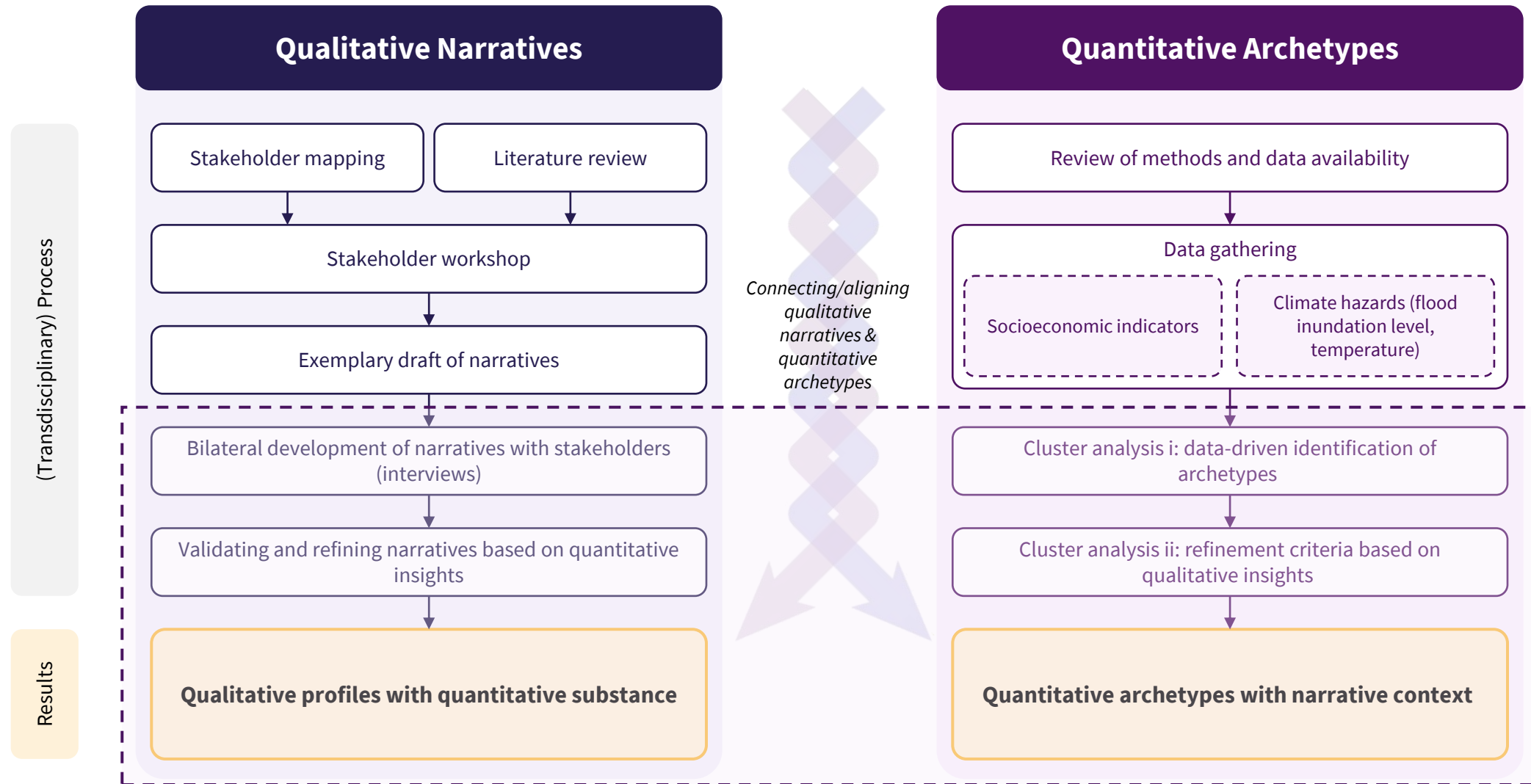
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# Intersectional social vulnerability



Source: Adapted from [Freiwilligendienste für Alle](#)

# Methodology



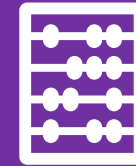
# Why exploring intersectional social vulnerability through narratives?



Development of climate adaptation policies to reduce vulnerability and enhance adaptive capacity



Communication on different governance levels for awareness raising



Addition to and contextualization of quantitative vulnerability assessments

# Overview of results | Qualitative

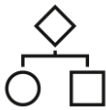
## Process/Input



Conducted a workshop & interviews to identify vulnerability drivers

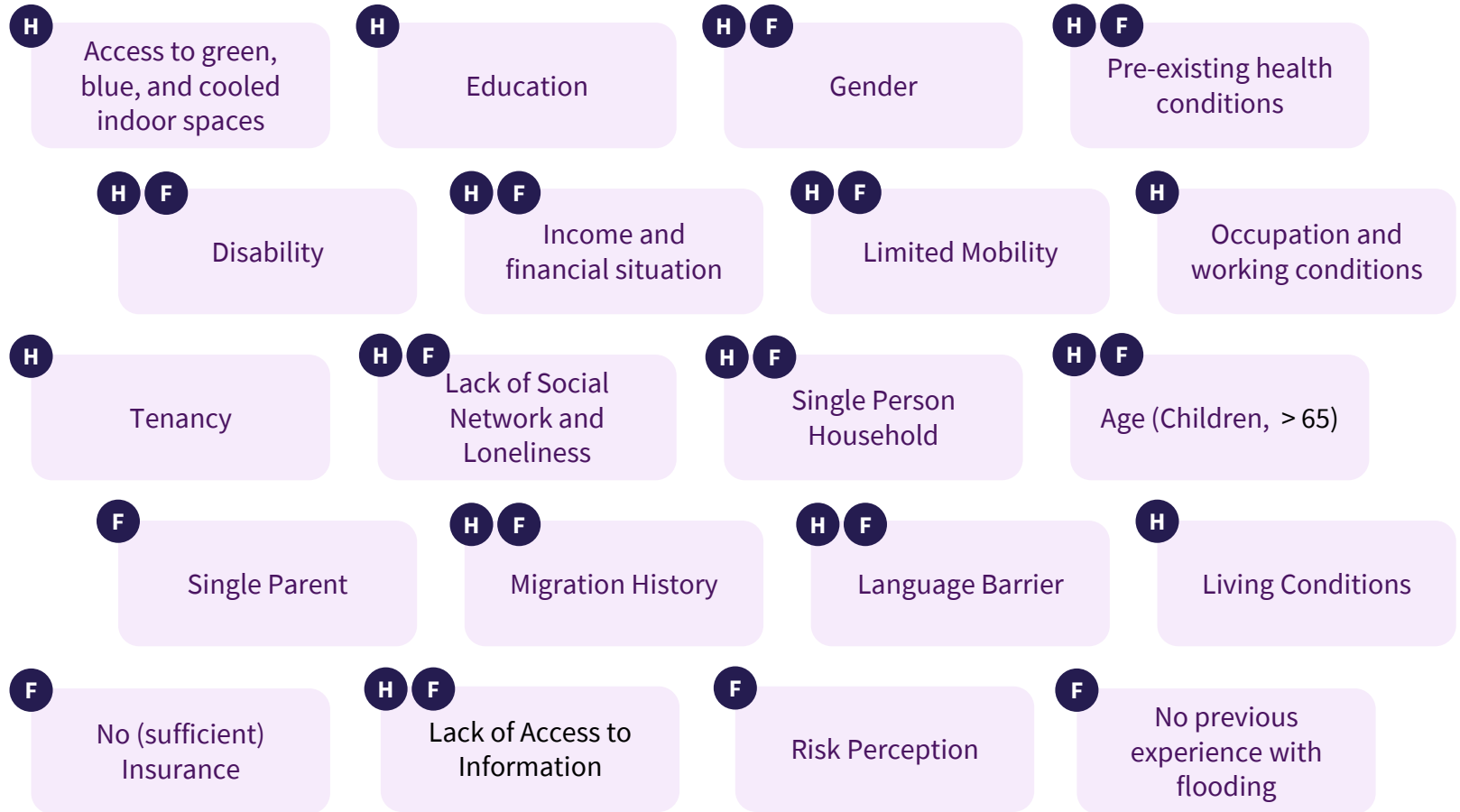


17 different participating organizations



Identified indicator combinations which showcase the intersectionality - stakeholder mental models

## Frequent vulnerability drivers



# Overview of results | Quantitative

## Data

Variable	Type	Mean	Median	Share of total sample
<b>Income (in EUR)</b>	Continuous	30184	24690	n.a.
<b>Age &gt; 65</b>	Binary	n.a.	n.a.	22%
<b>Blue collar worker</b>	Binary	n.a.	n.a.	20%
<b>Sector of employment</b>	Manufacturing	Binary	n.a.	23%
	Outdoor: agriculture, forestry, construction	Binary	n.a.	5%
	Other		n.a.	72%
<b>Population density (inhabitants per grid cell, population weighted)</b>	Continuous	4142	1198	n.a.
<b>Average annual income of 1x1km cells by inhabitant (in EUR)</b>	Continuous	27842	27158	n.a.

Socio-economic data

Climate impact data

Heat: Average number of Kysely days experienced annually by a person in our sample (2012-2022) (SPARTACUS)

Flood: Flood exposure data from GLOFRIS model (Ward et al. 2017)

## Clustering

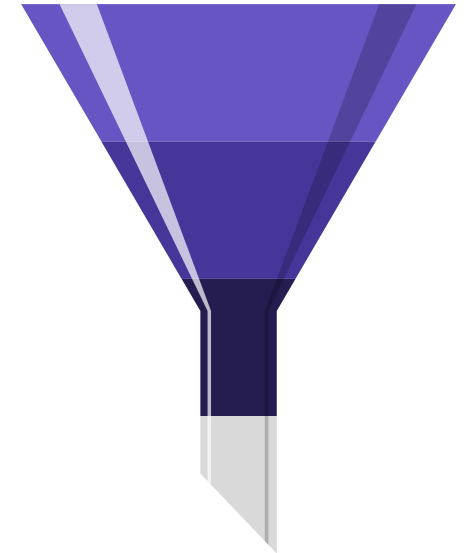
**Multivariate statistical analysis (clustering)** to identify risk profiles (clusters)



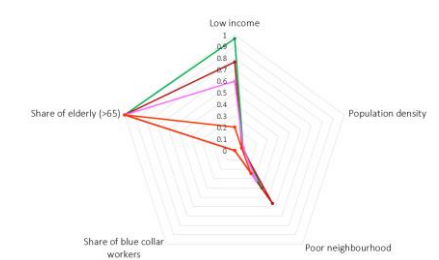
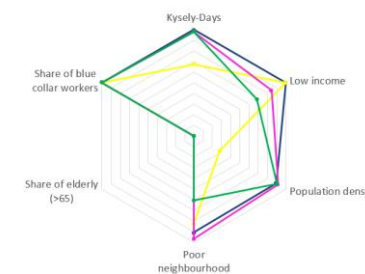
**Input qualitative research:** to identify key vulnerability drivers (individually and intersectionally)



Result: **High-risk clusters**, characterized by similar patterns within the clusters

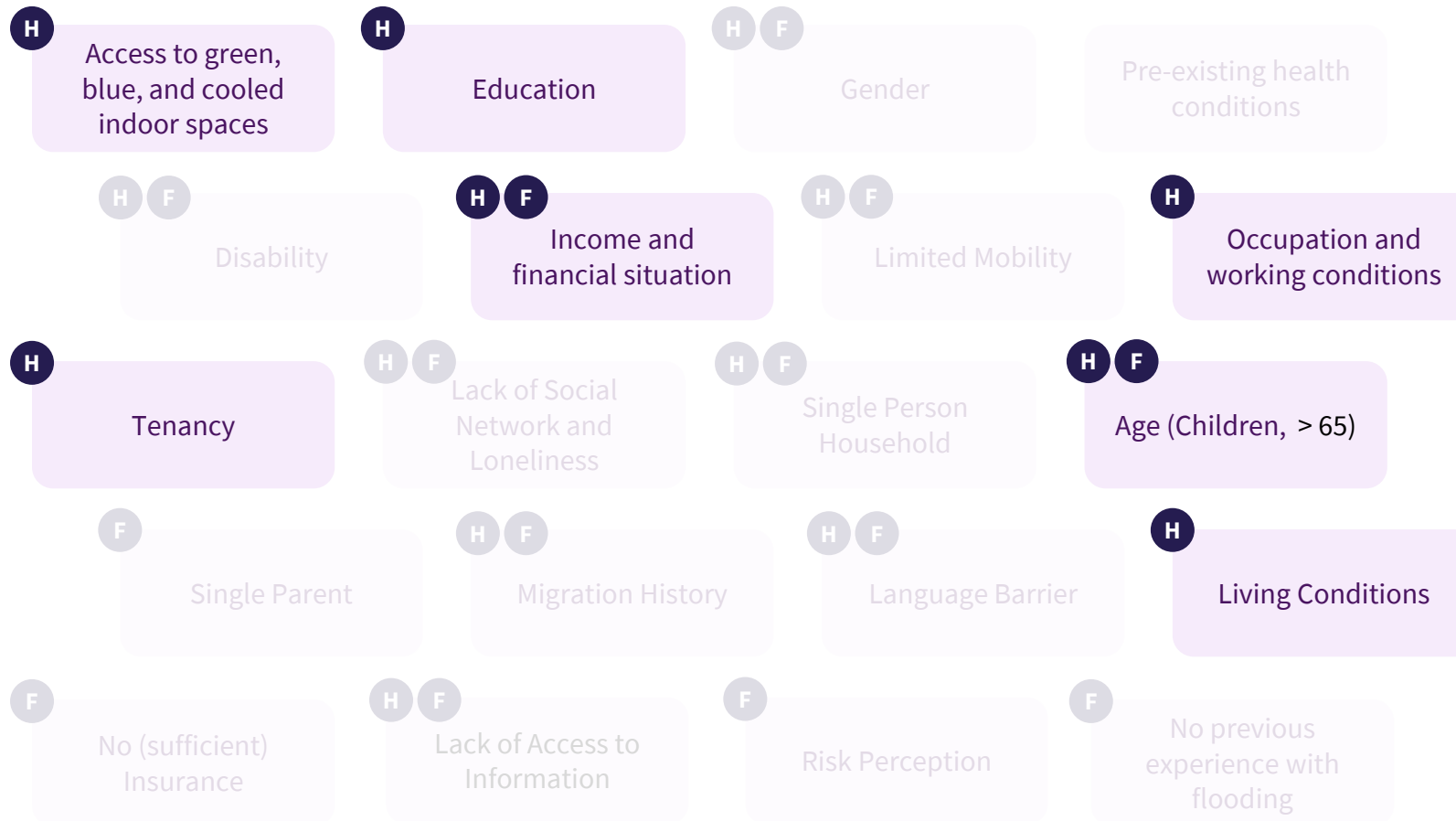


## Results



# Overview of results | Narrative 1 Heat

## Cluster 1: Blue collar worker (family) in urban area, poor living conditions



# Overview of results | Narrative 1 Heat

## Cluster 1: Blue collar worker (family) in urban area, poor living conditions



19 – 25 kysely days per year



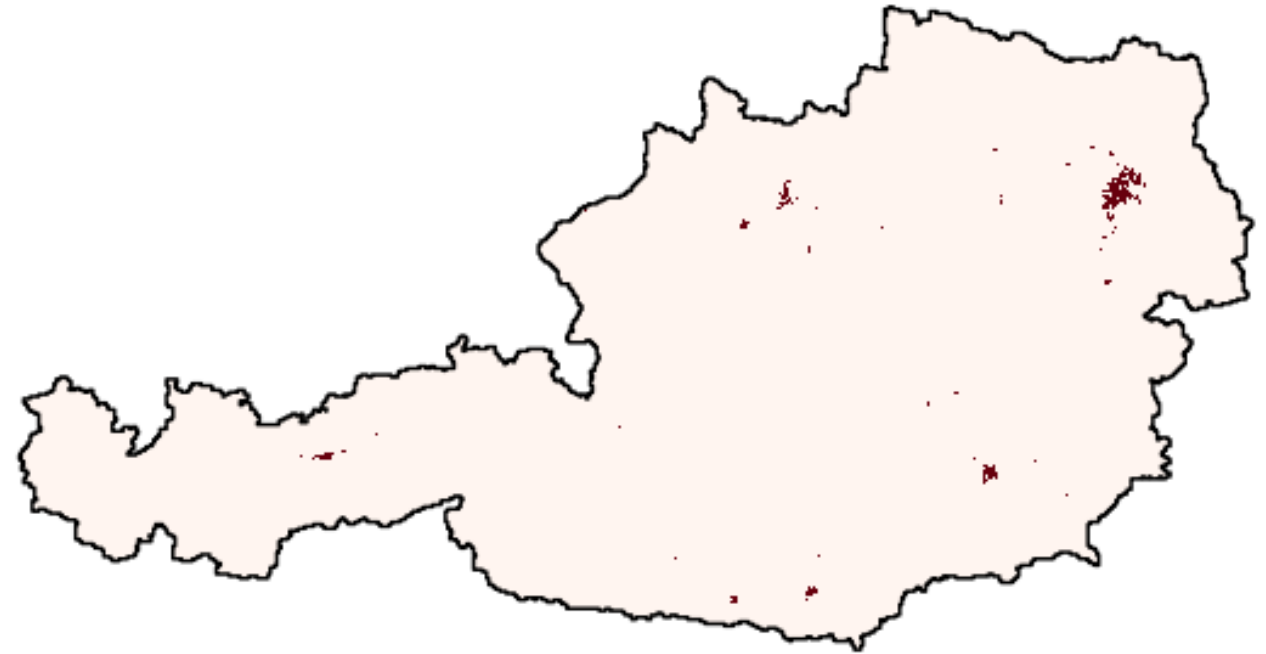
Very low ( € 6.4 tsd.) to middle (€ 30 tsd.) gross annual income



210 tsd. workers of which 30 tsd. are employed in the construction sector, agriculture or forestry

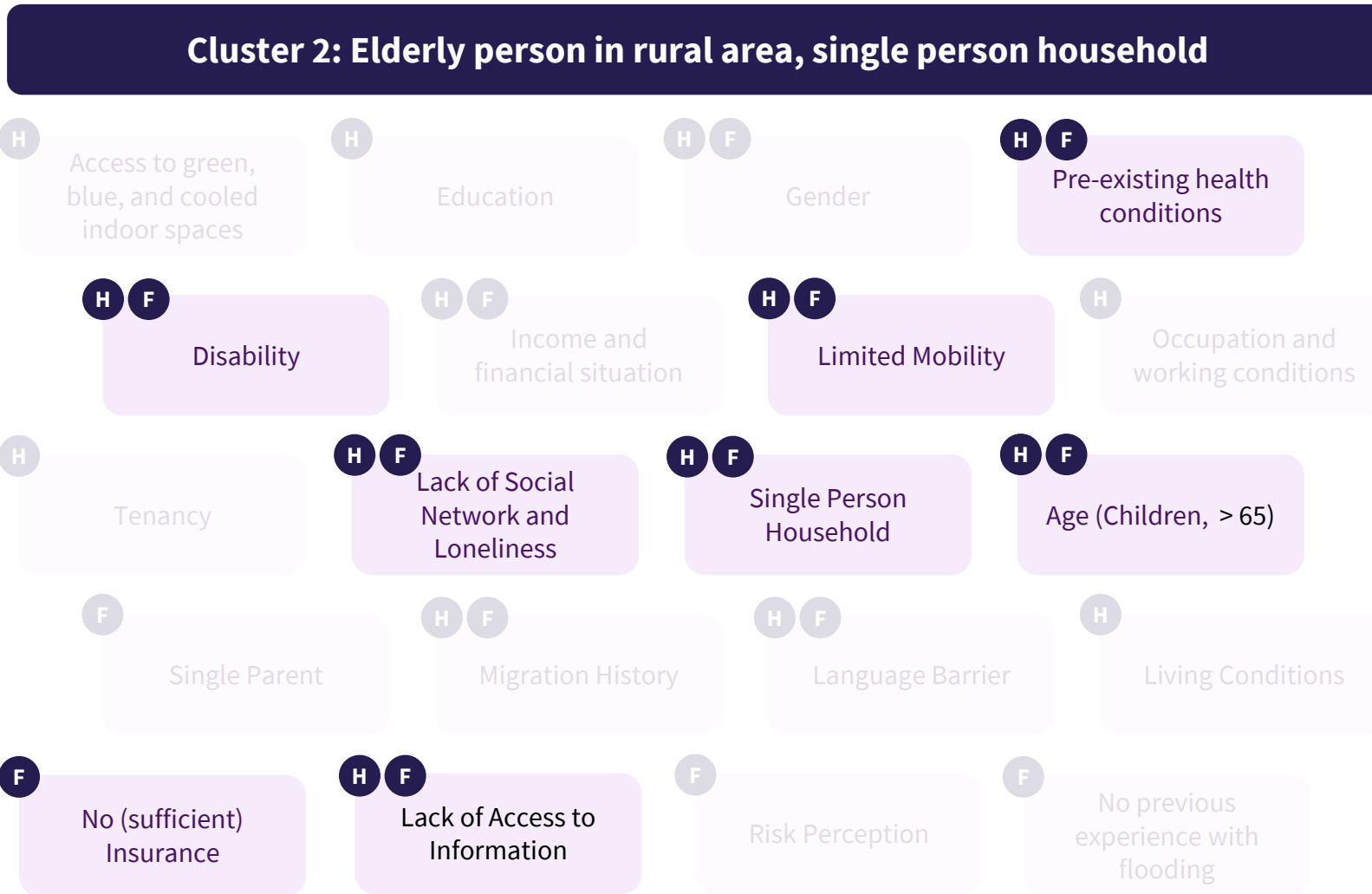


Living in very densely populated areas with a low average income





# Overview of results | Narrative 2 Flood



# Overview of results | Narrative 2 Flood

## Cluster 2: Elderly person in rural area, single person household



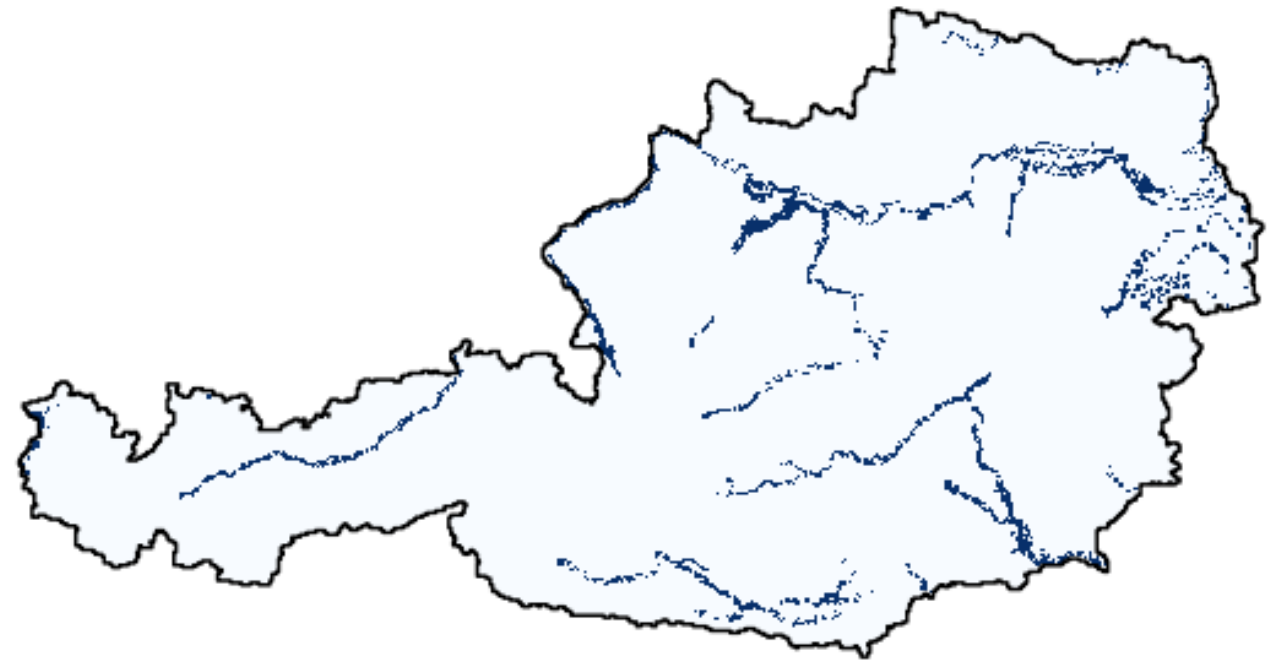
340 tsd. people



Of which 170 tsd. with very low (€8 tsd.) to low (€21 tsd.) income



Predominantly living in rural to suburban areas



# Conclusions and next steps



**Narratives reveal complexity:** Exploring stakeholder experiences regarding intersectional social vulnerability revealed and captured some of the complexity of vulnerability.

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**Similar drivers, different effects:** Vulnerability to heat and flooding is driven by similar factors, but they are context-specific

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**Policy development:** Considering different risk profiles and multiple burdens is essential in the targeted development of adaptation measures to avoid exacerbating existing inequalities.

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**Next steps:** Developing storylines of different profiles for vulnerable households based on the narratives and clustering results for stakeholder application

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# Thank you.

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