



# Identification of food environmental factors hindering dietary diversification A mixed methods study in rural south India

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*Session 8B: Food Environments & Drivers of Food Choice*

*ANH Academy Week*

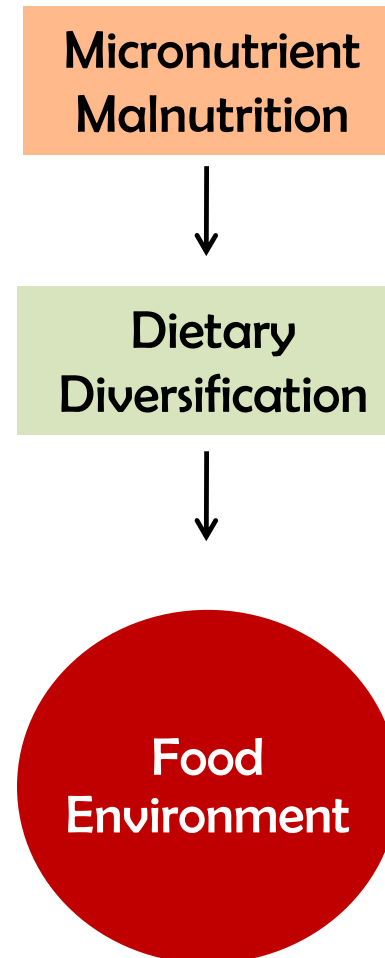
*28<sup>th</sup> June '19*



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## Background

- Food environments (FE) physical, economic, policy and socio-cultural context that influences people's consumption choices and nutritional status
- Widely studied in developed countries
- Lacunae of studies in India – FE and Diet Diversity
- Assessment - objective, but also subjective
- Need - A multi-dimensional comprehensive approach



# Objective

To measure five dimensions of food environment (i)availability (ii)accessibility (iii)affordability (iv)acceptability and (v)accommodation of a diverse food and its influence on diet diversity of children in rural middle income households

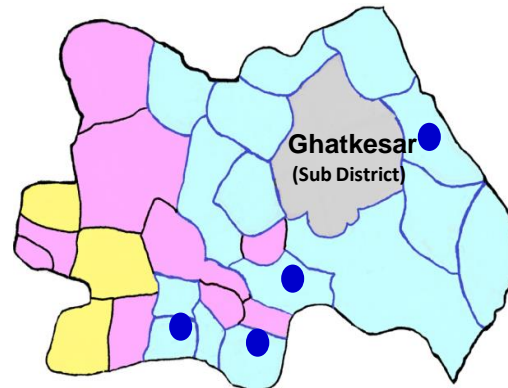
FE	Availability	Accommodat ion	Accessibility	Affordability	Acceptability
Stake holder	Vendor & Caregiver	Vendor & Caregiver	Caregiver	Caregiver	Caregiver

# Study Area

Telangana State



Ghatkesar (15 villages)



■ Villages ■ Sub-urban ■ Urban

## Inclusion Criteria

- Village with >500 HH
- 3-5 family size
- 6-10 Y old child
- SLI >24
- Literate mother

Mixed  
methods

Quantitative  
Method

Qualitative  
Method

On-going Nutrition Communication Intervention project – aims to promote consumption of micronutrient rich foods – sample size (n=160) (CTRI Reg. No CTRI/2015/06/005836)

All of the villages are comparable with respect to target population



# Typical Grocery Shop



Only semi-perishable food item are sold



Few grocery shops - Perishable food item are also sold

# Weekly Market



T  
R  
O  
L  
L  
E  
Y



H  
A  
W  
K  
E  
R  
S



M  
O  
P  
E  
D

Push-cart



**M  
E  
T  
H  
O  
D  
O  
L  
O  
G  
Y**

Variable

Method

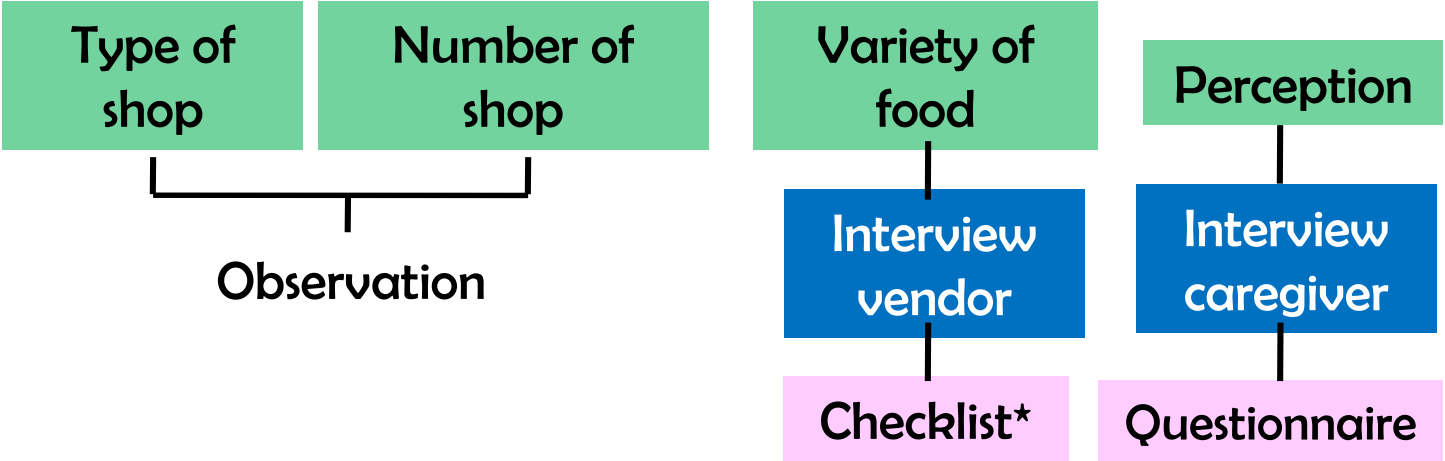
Material

Variable

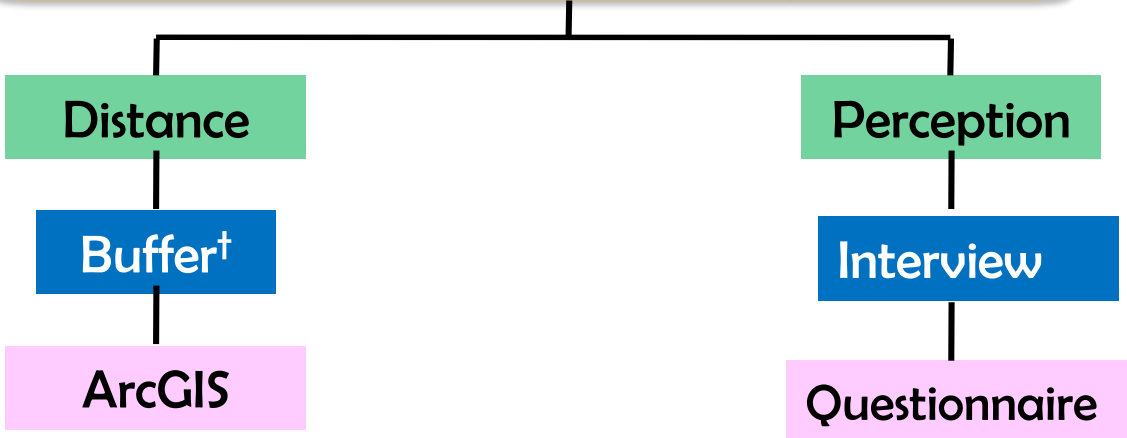
Method

Material

## Measuring Availability

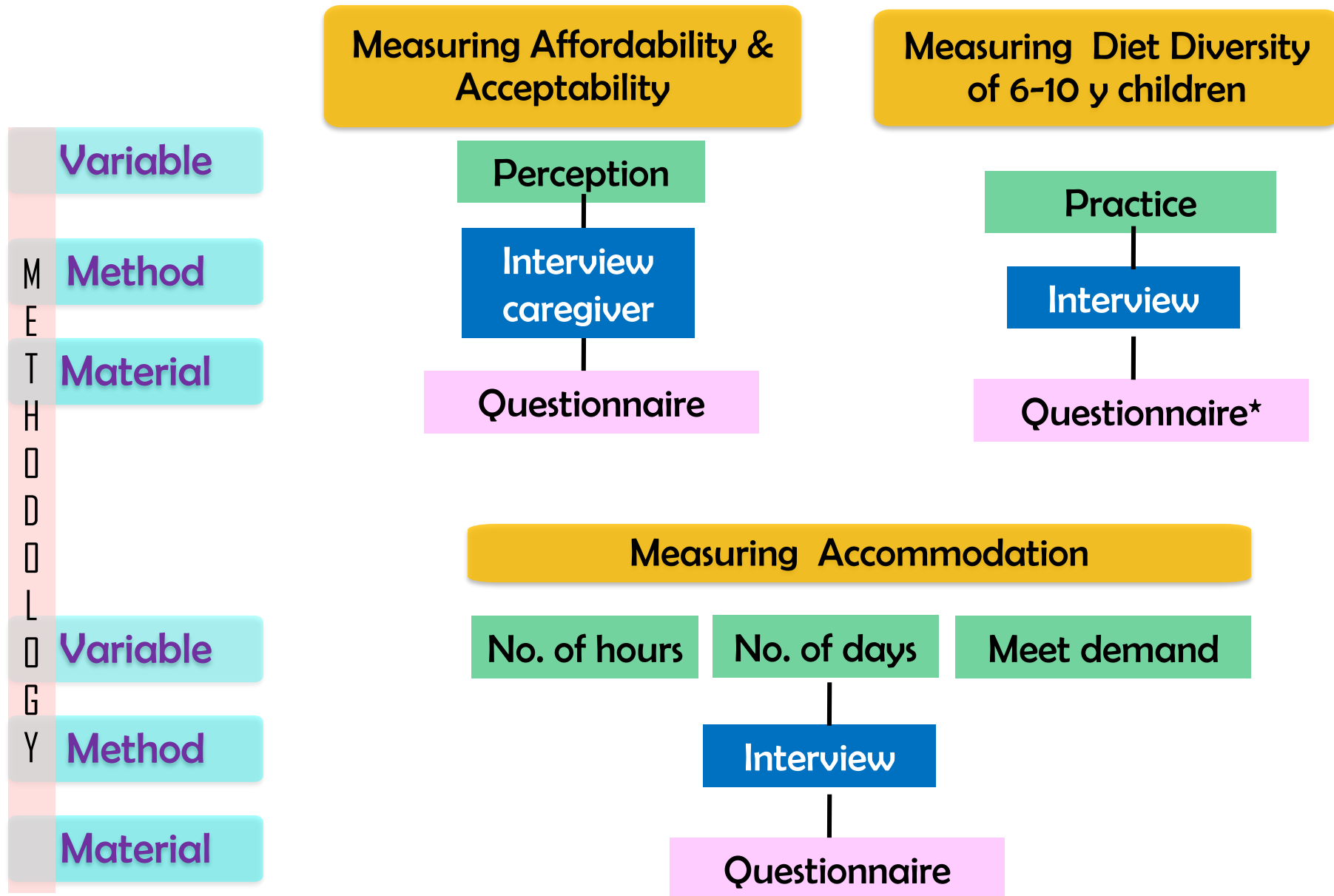


## Measuring Accessibility



\*14 food groups;197 food items. Prepared using Indian Food Composition Tables, 2017

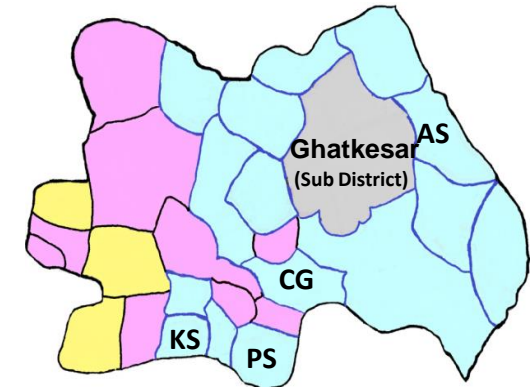
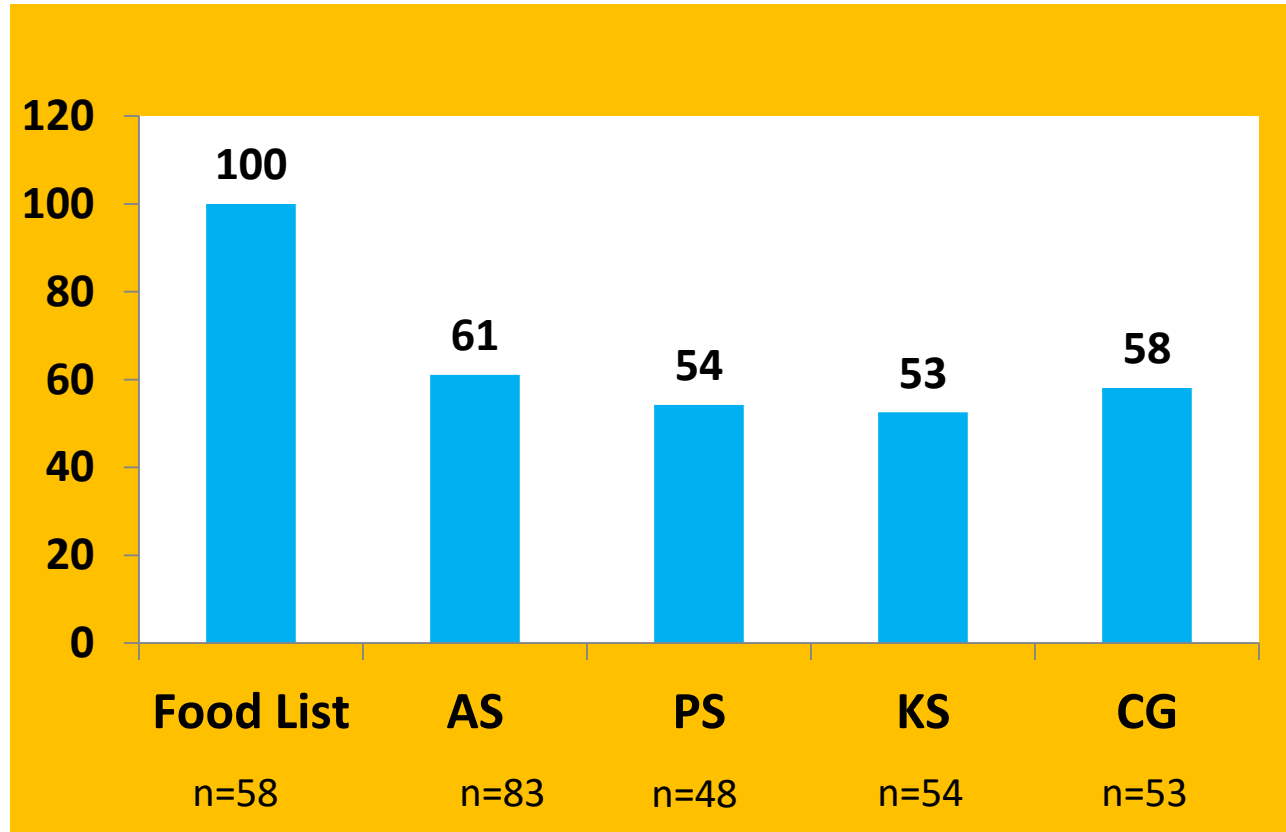
† Buffer zone created was 50m, 100m, 150m and 200m



\*A validated diet diversity score (DDS) specific to 6-10 y children was administered among caregivers

## Availability of semi-perishable foods (%)

## RESULTS



semi-perishable foods: cereals, millets, pulses, oil, fat, spices, condiments

### Villages

AS:Aushapur;

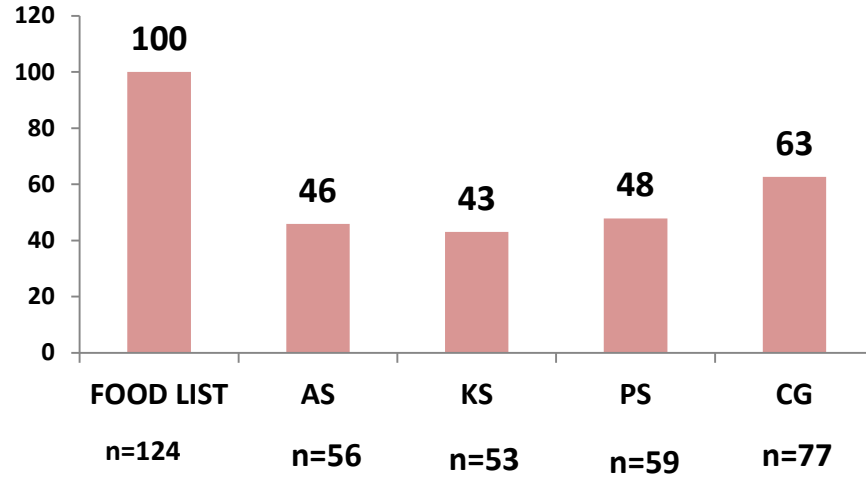
PS:Pratapasingaram;

KS: Kachwanisingaram;

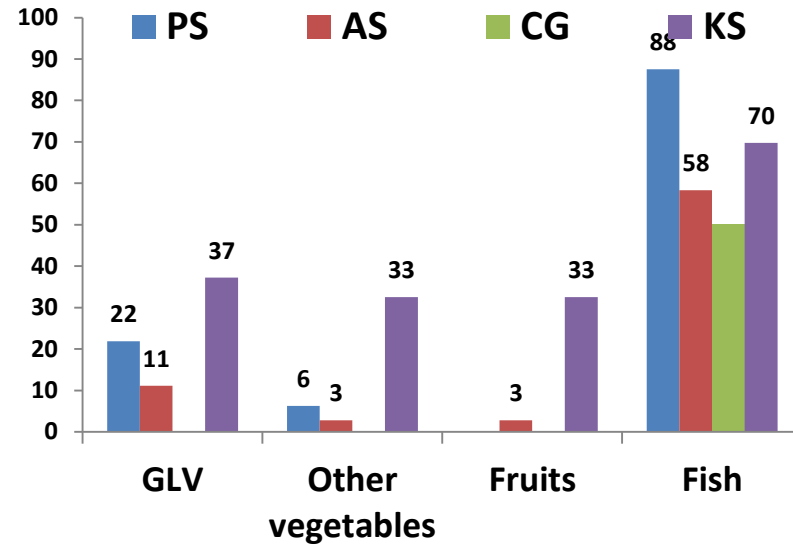
CG: Chowdaryguda



## Actual Availability of perishable foods (%)



## Perceived non-availability by caregivers



	AS	CG
Actual availability	46%	63%
Perceived availability (caregiver)	94%	100%

What matters?

Actual availability or perceived availability!

AS:Aushapur;

PS:Pratapasingaram;

KS: kachwanisingaram;

CG: Chowdaryguda

## Weekly market in Chowdaryguda



GLV

Other vegetables



Roots & Tubers

Dry Fish



Fruits

## Weekly market in Pratapasingaram



GLV

Roots & Tubers

Other Vegetables



Fruits



Dry Fish

## Weekly Market In Aushapur



GLV

Roots & Tubers

Other vegetables



Fruits

Not Available

Dry Fish

## Weekly Market In Kachwanisingaram



GLV

Roots & Tubers

Other vegetables

Not Available

Fruits



Dry Fish

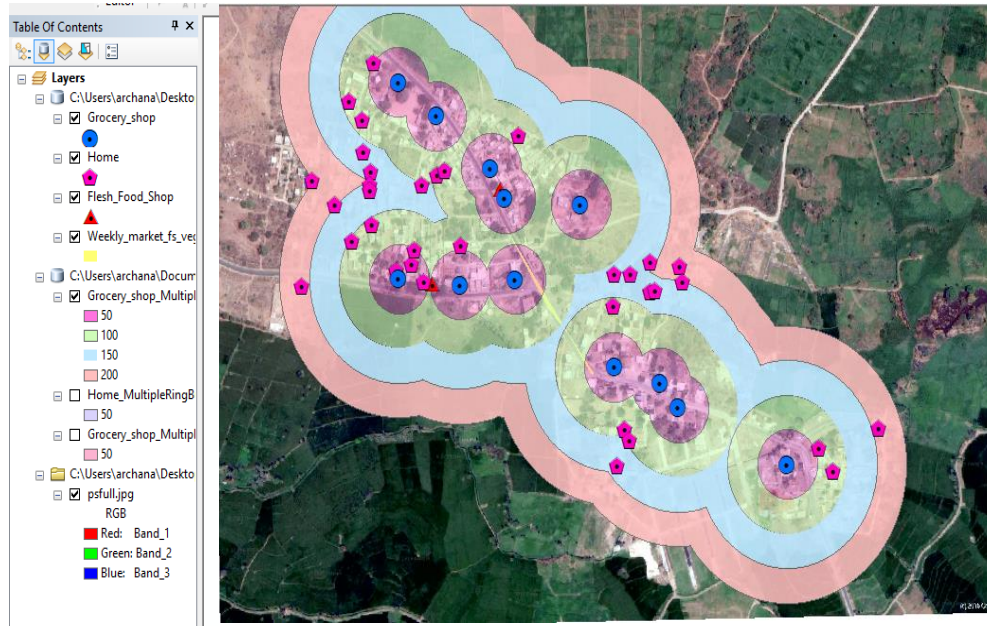
# Perceived Accommodation of Foods

	Grocery shops (n=42)	Flesh foods shop (n=10)	Hawkers	Weekly market
Shop open time	6.00 a.m to 9:00 p.m	9.00a.m to 9 p.	1 h in the morning or evening	5.30 p.m to 8.30 p.m
Duration	12 h	10 h	1 h	3 h
Number of days in a week	Daily	Daily	Twice/thrice a week	Once a week
Satisfying consumer demand	<p>“As consumers do not consume <i>bacchalikura</i> (GLV) we do not get them. We bring only those items consumed by people here” – Vendor (PS)</p>			Yes (Demand Driven)
Satisfied by the vendor service	Yes	Yes	limited food variety is sold	No
	<p>“It will be good if the fruits and vegetables markets are set up at least on alternate days in a week” – caregivers in KS,PS,AS</p>			

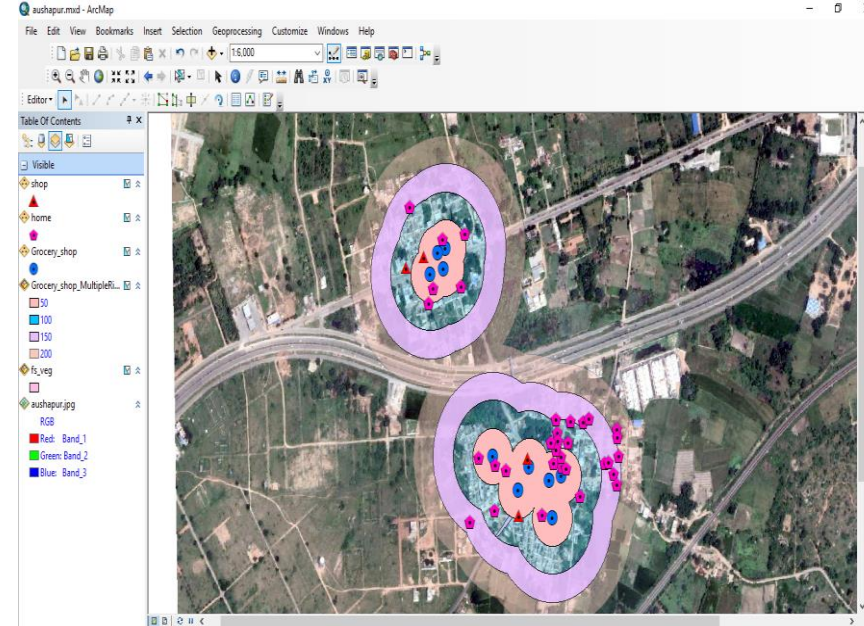


# ACCESSIBILITY TO SHOPS (<200m)

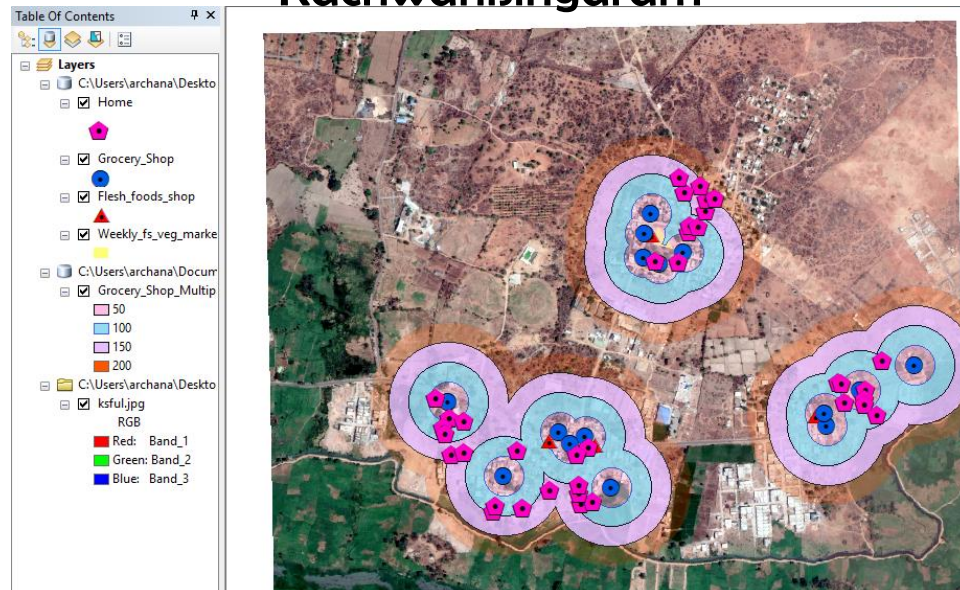
## Pratapasingaram



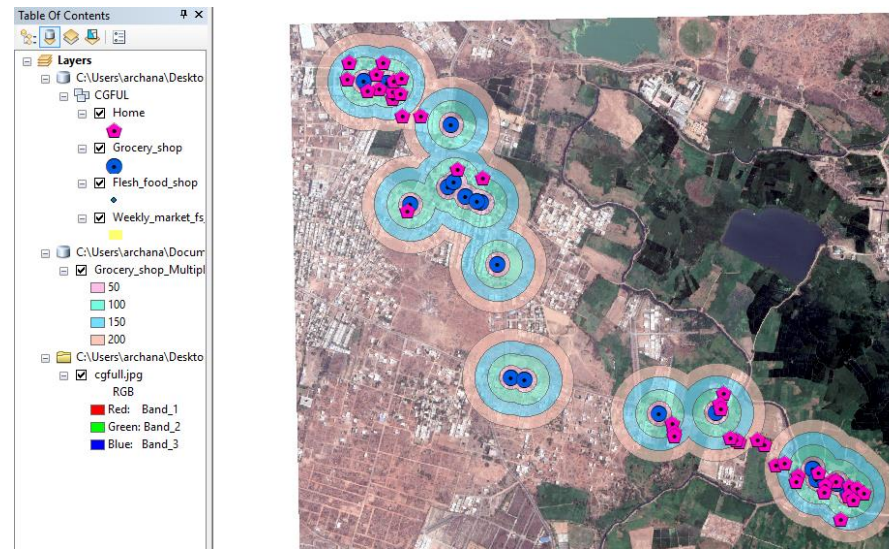
## Aushapur



## Kachwanisingaram

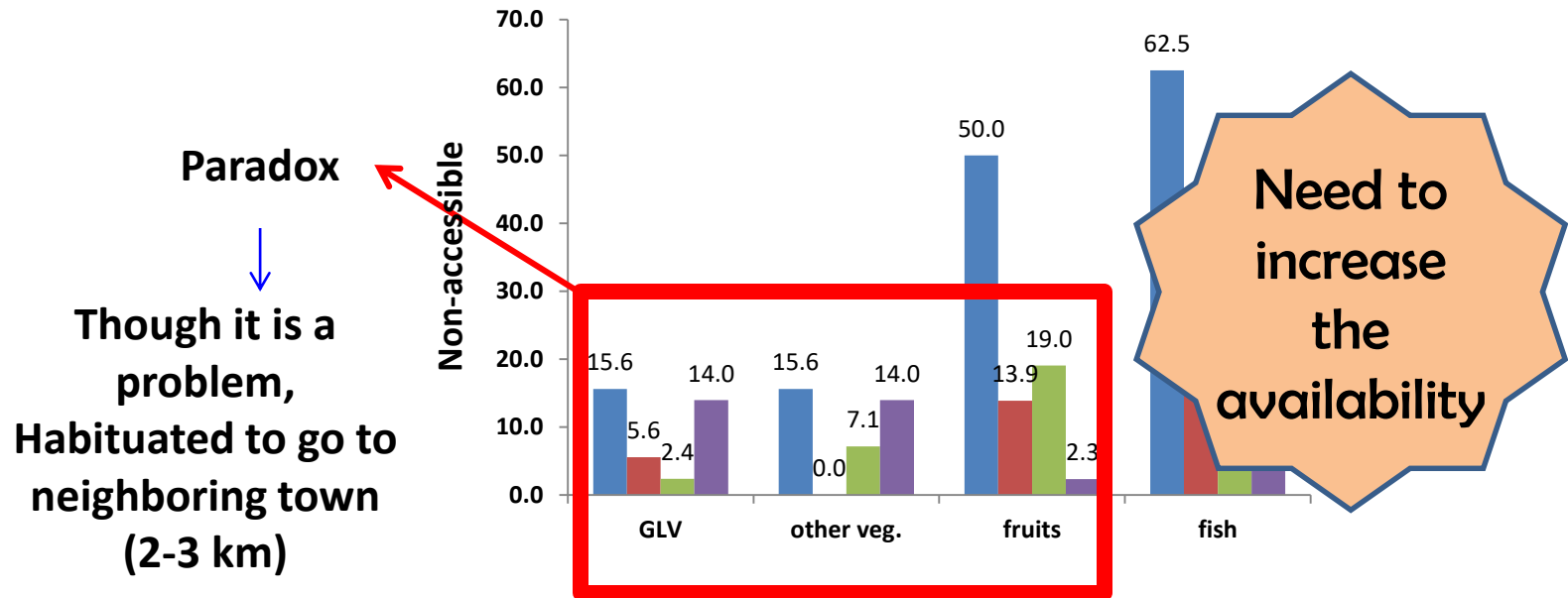


## Chowdariguda



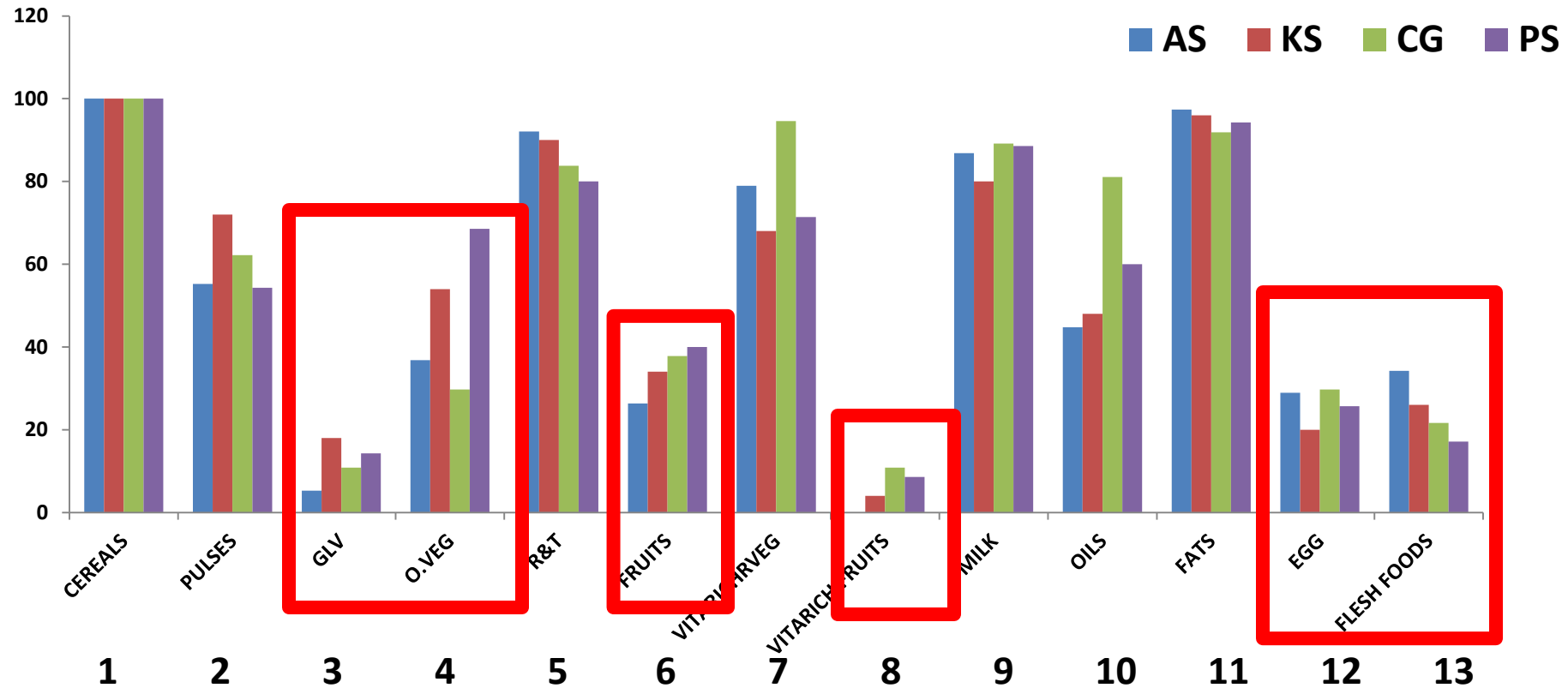
	AS	PS	KS	CG
	Accessibility			
Actual distance	200m	200m	200m	200m
Caregiver (semi-perishable)	Accessible distance	Accessible distance	Accessible distance	Accessible distance

Perceived accessibility to perishables by caregivers (n=160)





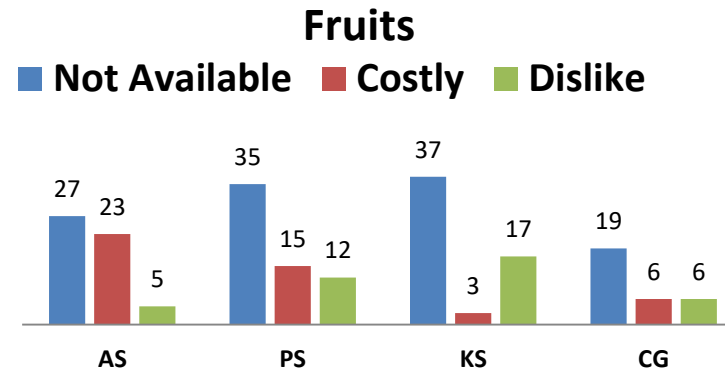
## Number of food groups consumed by the 6-10 year old children (n=160)



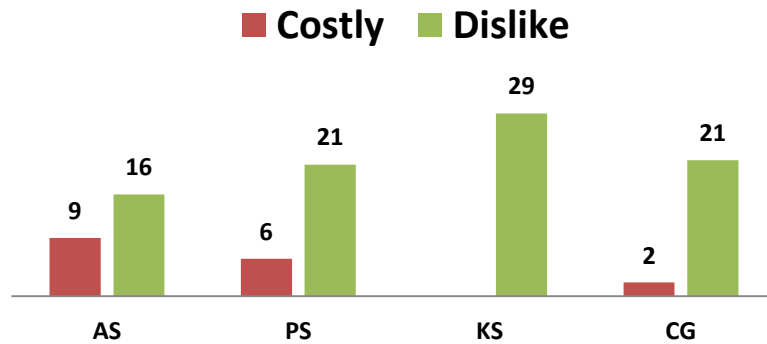
AS:Aushapur (DDS 8.5);  
PS: Pratapasingaram (DDS 8.9);

KS:Kachwanisinagaram (DDS 8.7);  
CG:Chowdariguda (DDS 8.2)

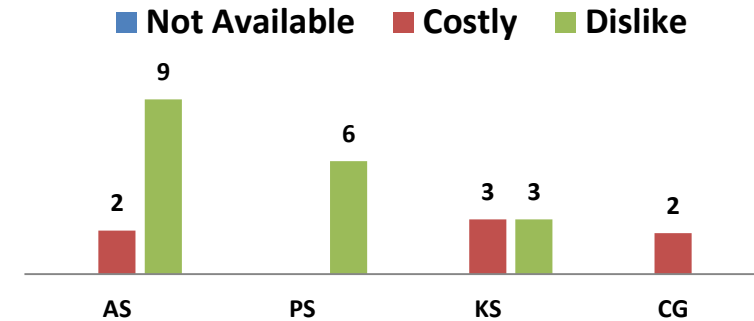
# Factors hindering diet diversification



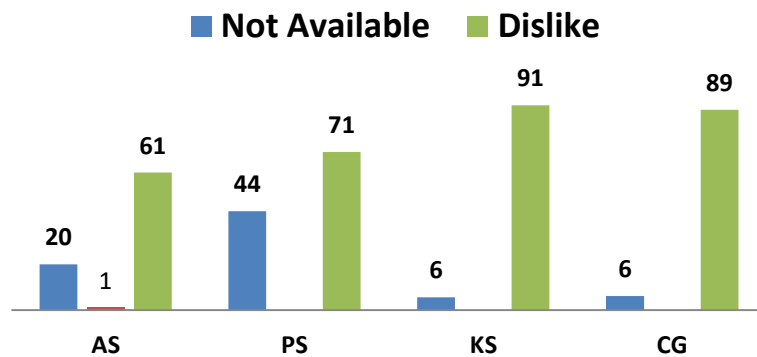
### Milk & milk products



### Other Vegetables



### Green Leafy Vegetables



### Fleshfoods/Pulses/Egg



## Conclusion

↑ availability  
with help of  
the local  
stakeholder

Middle income  
families too are not  
able to diversify  
because of cost  
-Promote locally  
grown perishables

Educate - ways  
and means to  
incorporate the  
foods in the  
menu

## Limitation

Conclusions cannot be generalized as this observation requires replication of the study across the spectrum of various economic groups and education background



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