

# **Roles of small ruminants in the improving rural livelihood – Case study in Egypt**

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Section 1

# **LIVESTOCK FARMING SYSTEMS IN EGYPT AND OBJECTIVES**

# Main farming systems

- The rainfed production system : a complex system based on livestock, annual crops (mainly barley), tree, and off farm jobs. This system is well developed by traditional farmers and Bedouins in North coastal zones.
- The irrigated production system: the typical mixed agriculture-livestock system that represents the majority of farms in the Delta and Nile Valley (around 76% of farming systems in Egypt).
  - Mixed livestock system with large ruminants (cattle and buffaloes), small ruminants and poultry.
  - Feeding system based on **berseem**, green corn and external feedstuff and concentrates

# Contrasting livestock farming system

Campement, Burg El Arab



Farmyard ou housing system  
New valley



# Berseem : the main feed resource...

**Collect or**



**graze**



# More generally...

At the regional level, sheep and goat ensure many functions :

- Food security: Around 23.5% of meat production and 25.3% of milk production;
- Subsistence in very harsh conditions thanks to their mobility and rusticity, low capital
- Strong adaptive capacity to climatic changes;
- Satisfy cultural and family events
- Factor/dynamism of social networks from the family until the region

# Objectives...

- To analyze the contributions of small ruminants activities to reduce vulnerability
- Analysis also the diversity of the roles of small ruminants in three contrasted regions of Egypt: the pastoral systems of North West Coastal zone (Matruh), the intensive systems in the Nile Valley (Sohag governorate) and the oasian systems in west desert of Egypt (New Valley governorate).

# Within a first collaborative project CIRAD-INRA-APRI-ICARDA

- to promote the capacity of livestock farmers and their ability to cope with the major challenges, **focusing on feed gap, climatic changes, and emerging markets;**
- to promote **understanding of the constraints along the commodity value chain** (production to consumption), and the emerging opportunities for value additions, differentiating and branding quality products;



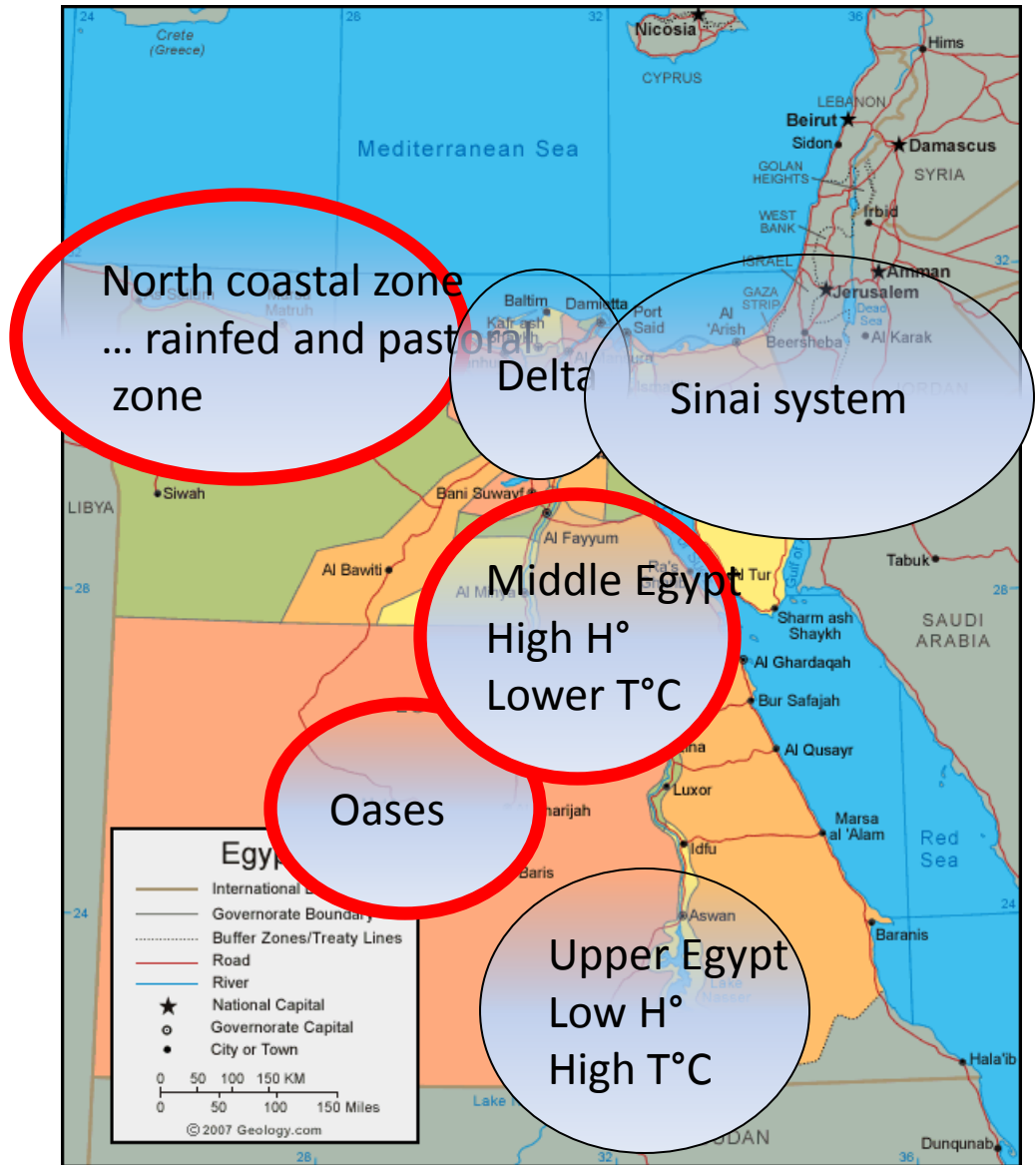
Section 2

# **METHODS AND MATERIALS**

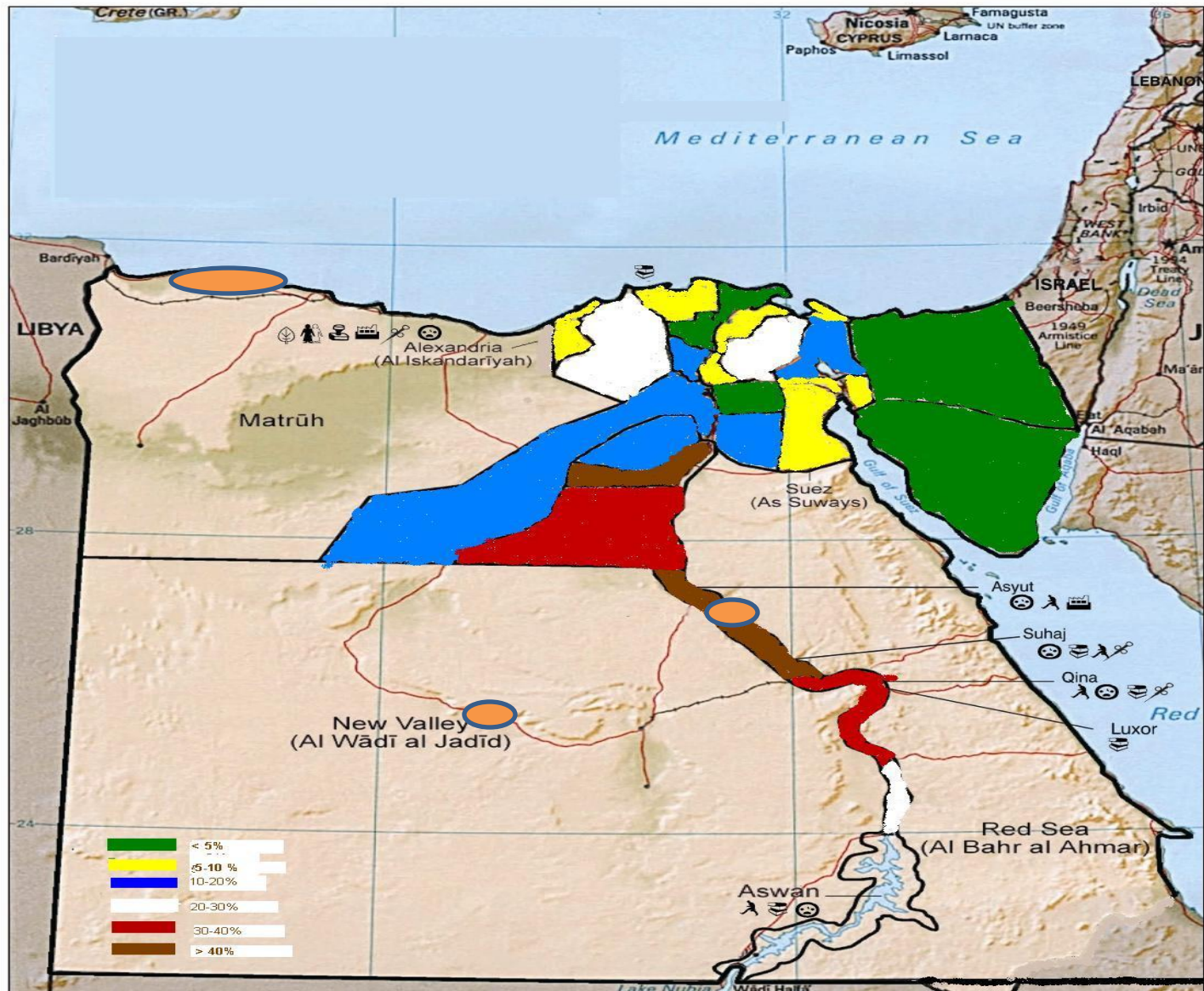
# Variation of resource management (land, water access and management)

→ feed constraints → social, technical and market adaptation

- Climate gradient ( $T^{\circ}\text{C}$ ,  $H$ , radiation)
- → a biotic stresses
- Physiological and biochemical adaptative processes
- Demand/market



# Poverty Map



# Rapid description of the sample in the 3 zones

(Source: survey, 90 farmers, 2010)

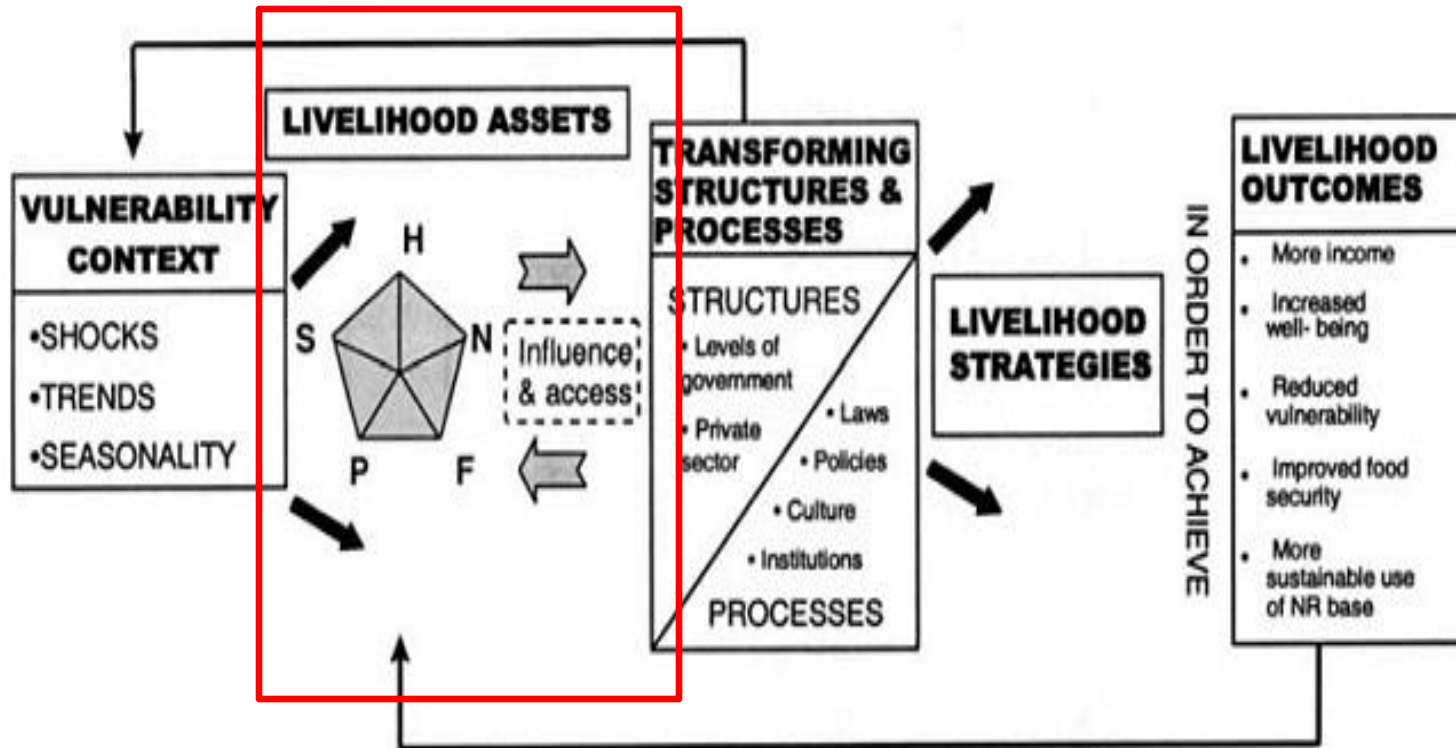
Governo rate	Location	Sample (flock size)
Matruh	<ul style="list-style-type: none"><li>- Matroh</li><li>- Negila</li><li>- Sidi Barani</li></ul>	30
Sohag	<ul style="list-style-type: none"><li>- Sohag city : 2 villages</li><li>- Al Muncha : 2 villages</li><li>- Saqolta : 2 villages</li></ul>	30
New Valley	<ul style="list-style-type: none"><li>- El Karga</li><li>- Darlha</li><li>- Paris</li></ul>	30

# Vulnerability .. definition

- to Chambers (2006), vulnerability is the exposure to contingencies and stress and difficulty coping
- Adger (2006) prefers the term of social vulnerability
  - "the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the lack of capacity to adapt" (p268)
- ...the vulnerability approaches **the human (in)capacities to withstand an external shock** that is difficult to predict even if its threat is permanent

# Schema of the livelihood approach

(Source: Carney, 1999)



# Capital asset approach

- Human capital: education, active, family size
- Physical capital: small ruminant, large ruminant, irrigated land, total land
- Financial capital: off farm job

Section 3

# **FIRST RESULTS: DESCRIPTION OF THE FARMING SYSTEMS**



# Rapid description of farming system in the 3 zones

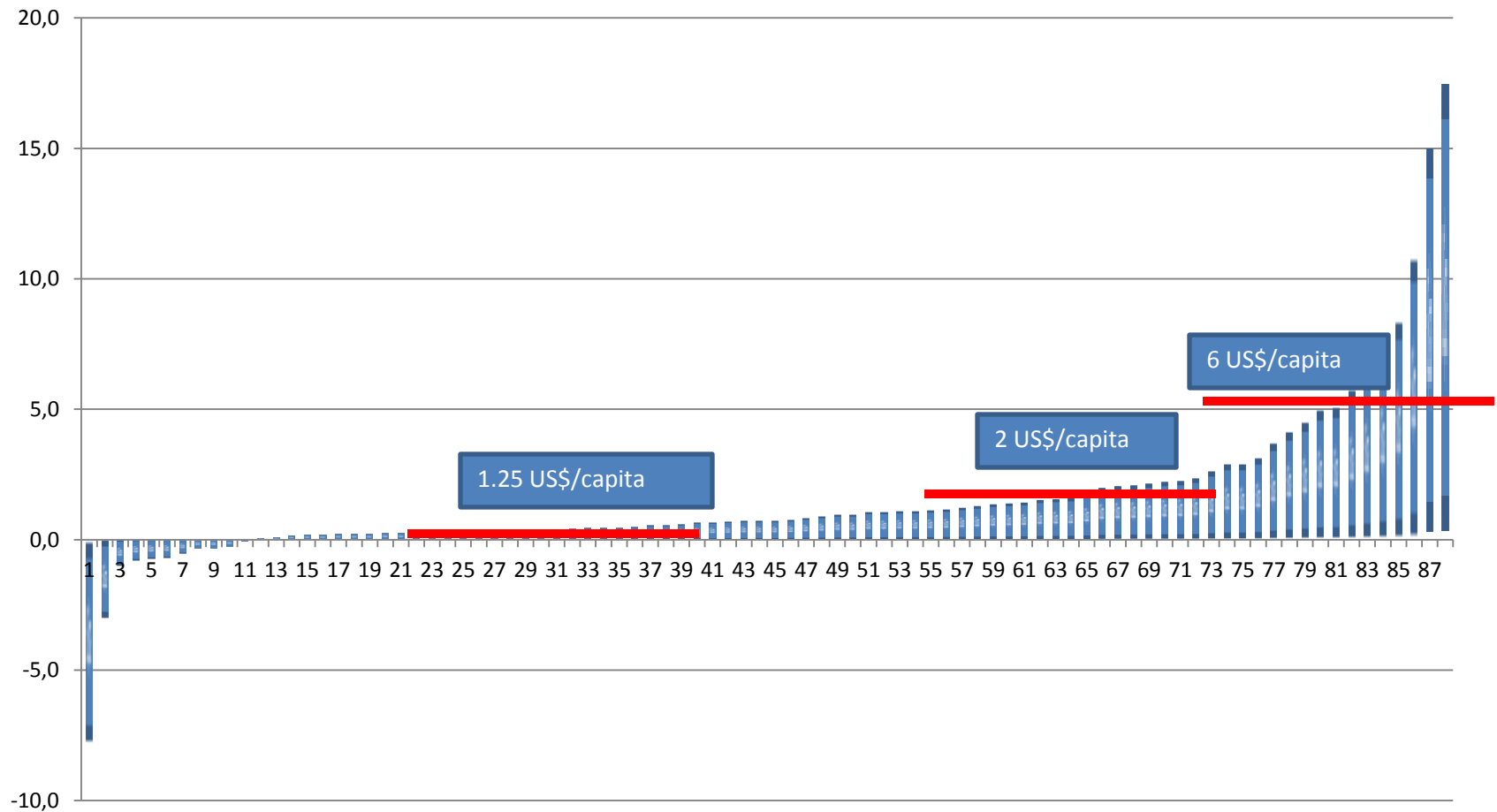
(Source: survey, 90 farmers, 2010)

Zone	Farming system	Share of fodder crop on cultivated area (%)	Av. Small ruminant stock (heads)	Av. large ruminant stock (heads)	Feed cost per SR head (LE/head)
Sohag	Mixed crop-livestock farming system	66,5% [15%] (Green corn: 36,8%; berseem: 18,2%)	7 [15,68]	4 [4,84]	105 [187]
New Valley	Oasian system	58,9% [16%] (Alfafa: 23,5%; berseem:17,6%; green corn: 16,02%)	54 [87,10]	28 [45,61]	66 [124]
Matruh	Agro-sylvo-pastoral system	75,26% [20%] (Barley: 83,4%)	112 [155,93]	1 [3,95]	459 [205]

Section 4

# **SOME INDICATORS OF POVERTY AND VULNERABILITY**

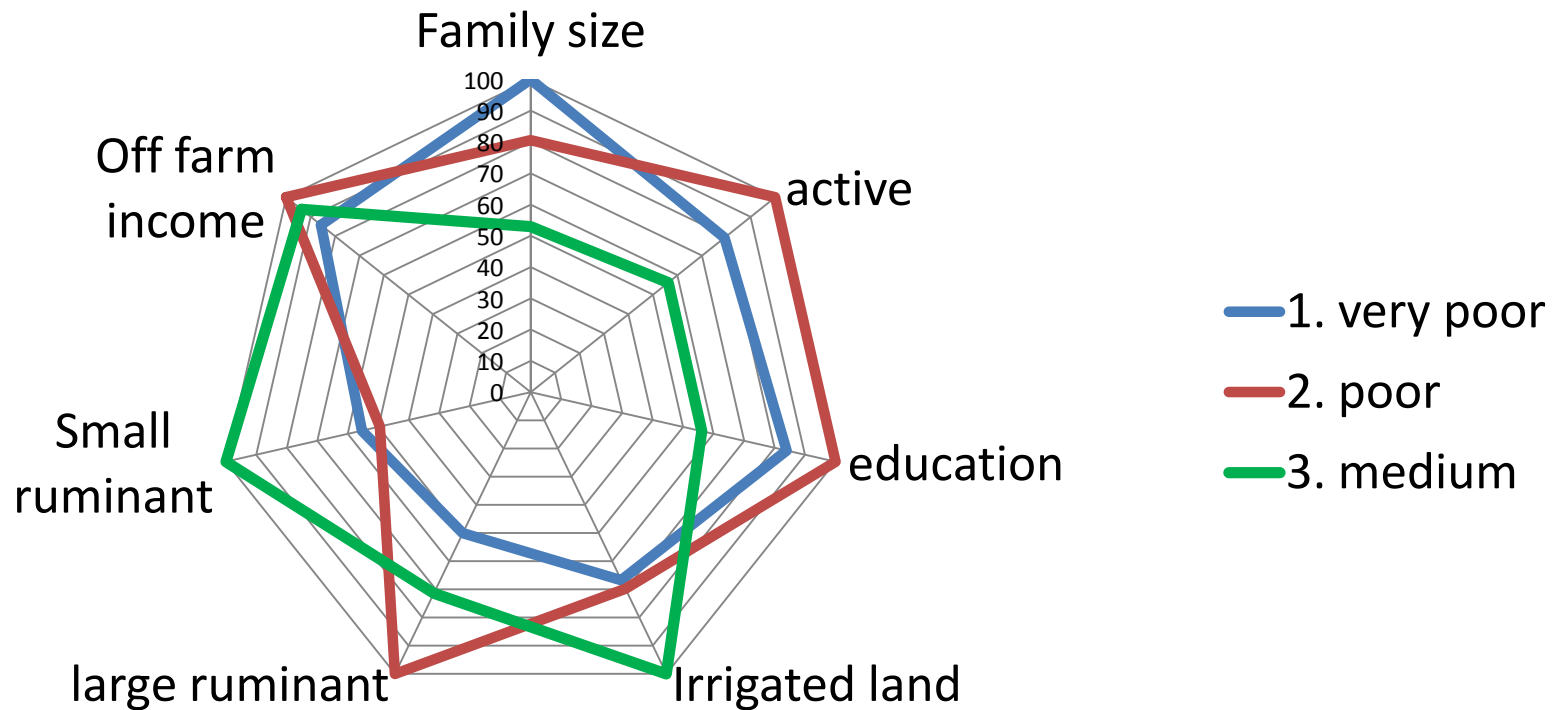
# Net income per capita and per day for all sample (Survey: 90 farms, CIRAD/APRI, 2010)



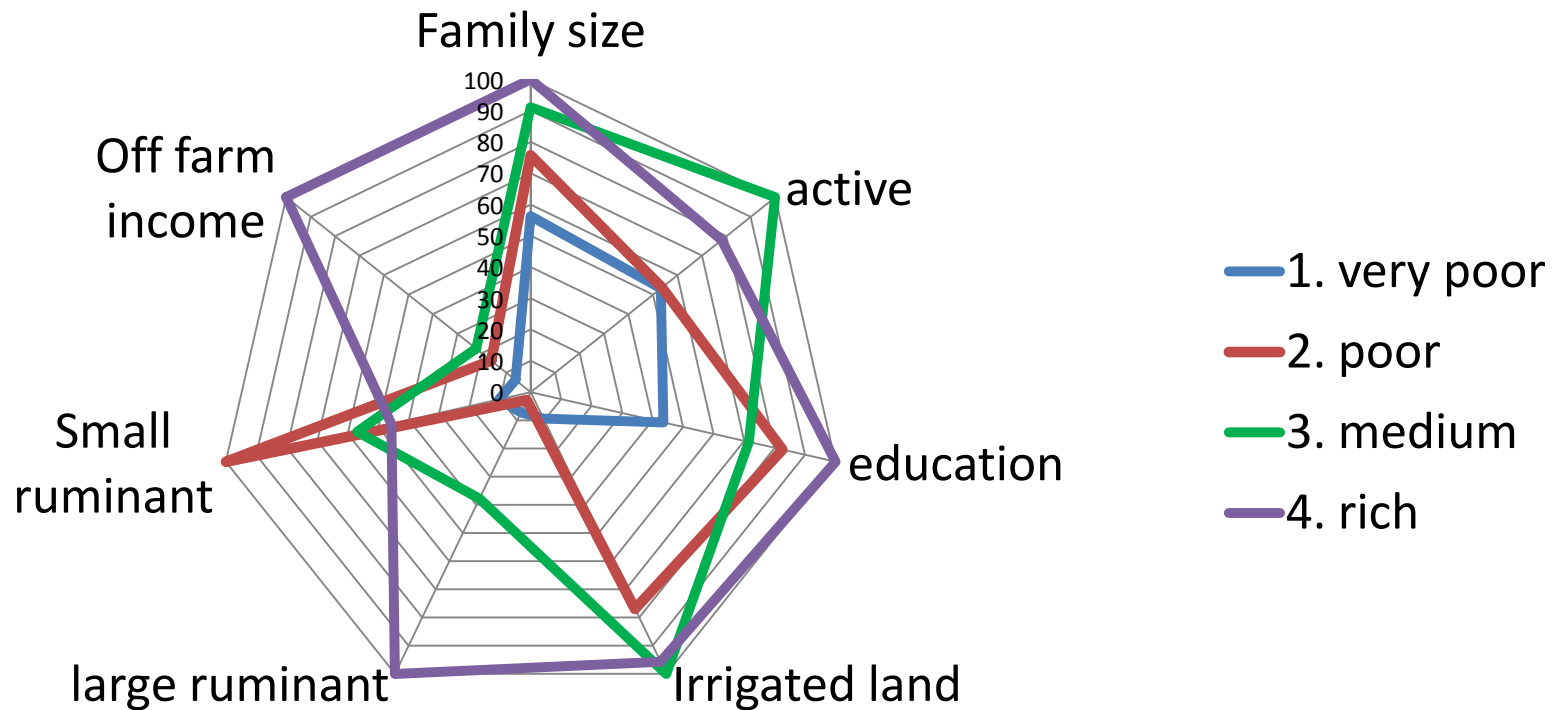
# Repartition of the regional sub sample between the different levels of poverty (Survey: 90 farms, CIRAD/APRI, 2010)

	Very poor (less than 1.25 US\$/day)	Poor (between 1.25 and 2 US\$/day)	Medium (between 2 and 6 US\$/day)	Rich (more than 6 US\$/day)
Matruh	<b>76,7%</b>	23,3%	0,0%	0,0%
New valley	37,9%	13,8%	27,6%	20,7%
Sohag	34,5%	34,5%	31,0%	0,0%
<b>All sample</b>	<b>50,0%</b>	<b>23,9%</b>	<b>19,3%</b>	<b>6,8%</b>

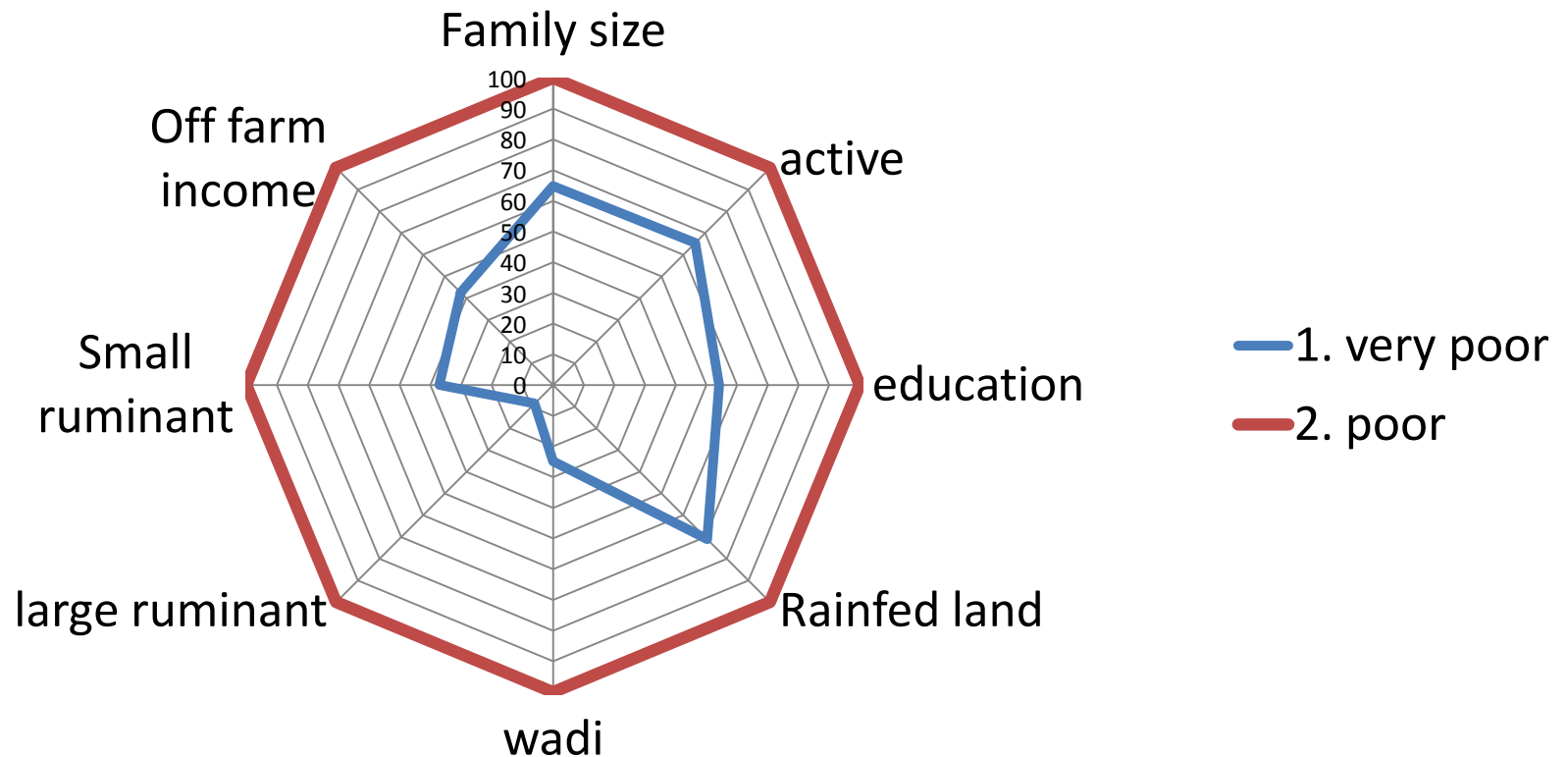
# capital asset radar for Sohag



# capital asset radar for New Valley



# capital asset radar for the North Coastal zone



# Main reasons to become poor according to farms (Survey: 90 farms, CIRAD/APRI, 2010)

Region	Drought	Land fragment ation	Social events	Employ ment	Livestock risk	Other
Matruh	<b>91.7%</b>	0%	0%	6.3%	0%	2.1%
Sohag	0%	<b>54.9%</b>	<b>21.6%</b>	9.8%	13.7%	0%
New Valley		<b>56.7%</b>	10.0%	<b>16.7%</b>	16.7%	0%



# Main factors to escape poverty according to farms (Survey: 90 farms, CIRAD/APRI, 2010)

region	Employment/ Off farm	Development project	Livestock development	Social support	Other/ No answer
Matruh	38.0%	32.4%	18.3%	2.8%	8.5%
Sohag	64.4%	17.8%	8.2%	6.8%	2.7%
New Valley	26.6%	20%		16.7%	36.7% (cost of life)

Section 5

# **DISCUSSION AND CONCLUSION**

# For New valley... Roles of SR to escape poverty

- For the landless and very small land owners, sheep and goat **provide the main source of income to escape the poverty trap.**
  - Poor farmers used mainly the common land along the canal or ground berseem after large ruminants.
- As soon as the farmers are able to invest in large ruminants (cattle or buffaloes), sheep and goat become basically cash flow while large ruminant provide a sort of family insurance.

# In Sohag: role of SR for diversification

- In Sohag governorate, sheep and goat constitute one way of income diversification for the “medium” household who haven't the human resource to be employed in other sector.
- In the 'poor' categories, the farmer prefers to invest in large animals that constituted a more consequent social and economic capital.

# In Matruh... SR a traditional activity for rainfed zone

- The livestock development is mainly cited as one way to escape poverty where livestock represent the main asset faced to drought events.
  - The perception of livestock to escape the poverty is completely linked to the livestock size.
- But not only... During drought events the main sources of cash flow come off farm diversification, mainly through the social networks at the Libyan-Egyptian border
- Another way: capture the support from development project such as the Matruh Resource Management Project (MRMP) that had prevailed during ten years in the region.

# Main conclusion

- The factors to escape poverty are more diversified and they are well **embedded in the history of each area**
- But the analysis of poverty profile conducted to several questions. In Matruh, we need to distinguish the structural poverty from the conjonctural poverty linked to climatic conditions.
  - In Matruh, an important economic activity emerges from the social network in the society. This activity is based on livestock activities (exchange of animals, keeper activities) and smuggling activities at the Lybian-Egyptian border that can be linked.
- However the key roles of small ruminant stock in the different farming/household systems explain **its increasing population at the regional and the national level.**