

Household Livelihood and Groundwater

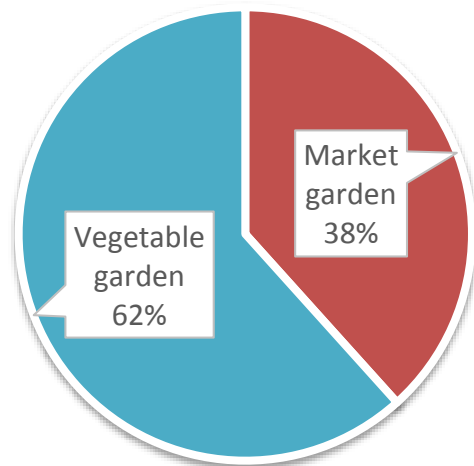
Jordan
Vinckevleugel



Groundwater use for on-farm activities

For crops

- 70% grow vegetables and fruits
- 65% earn money from it
- Vegetable garden: 480 m²
- Market garden: 4000 m²
- Income: 26% of the household income



For livestock

- 80 % raise poultry (30 heads)
- 40% raise cattle (12 heads)
- 57% earn money from it
- Income: 22% of the household income



Determinant of household income

Ordinary Least Square (OLS) regression model

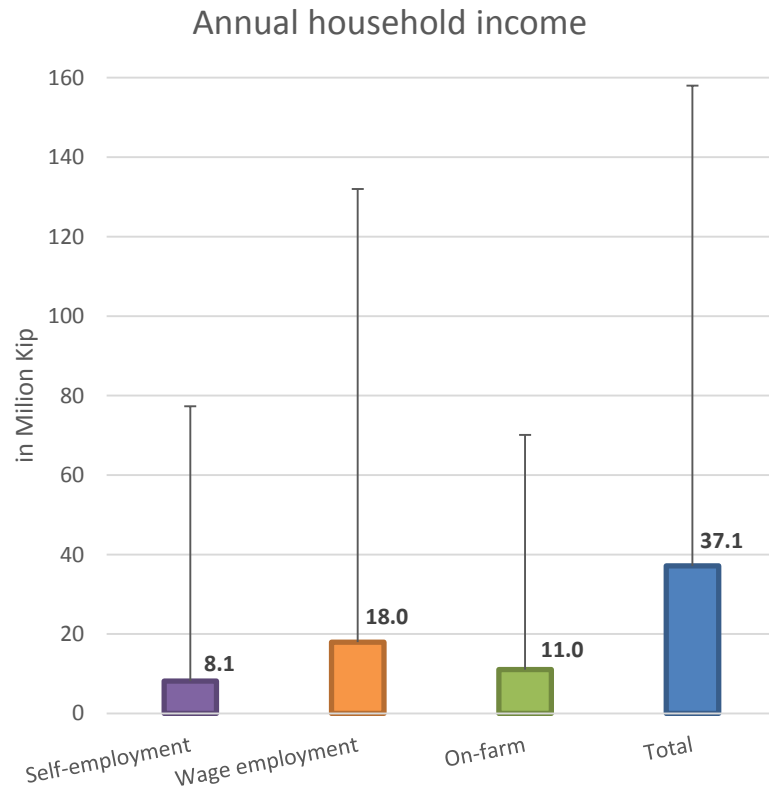
- Variables related to groundwater use are statistically significant
- Revenue from irrigated crops and livestock have a positive impact on household income
- Greater impact from irrigated crops than from livestock

Explanatory variables	Coefficients	Standard error
hhh_age	.006	.005
act_edu	-.041	.061
actcons_rat	.221	.283
nonpad_ha	-.504*	.263
pad_ha	.007	.080
livstck_head	-.006	.005
agri_ast	.001	.009
nonpad_inc	.048***	.011
pad_inc	.052***	.017
fish_inc	.097	.084
lvstck_inc	.026***	.006
selfempl_inc	.037***	.006
wageempl_inc	.025***	.003
(Constant)	1.777***	.328

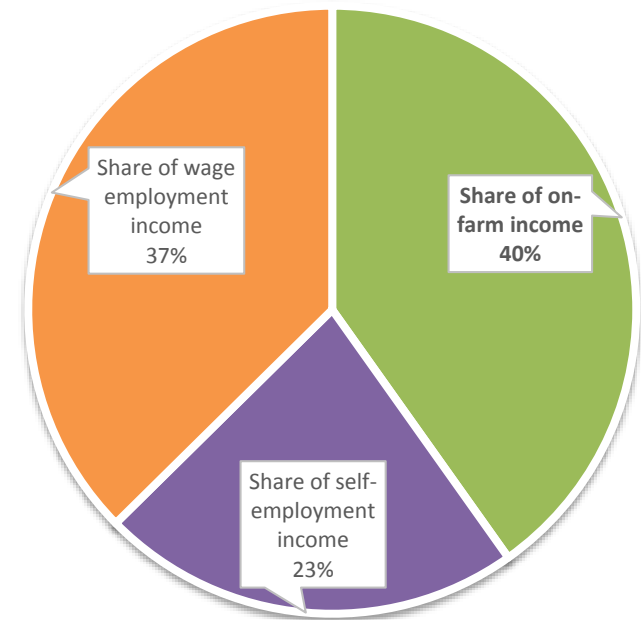
R²: 0.829
df regression = 13; df residual: 46
F: 17.182; P-value: 0.000
* significant at 1%; ** significant at 5%; *** significant at 1%

Source of household income

Descriptive statistics



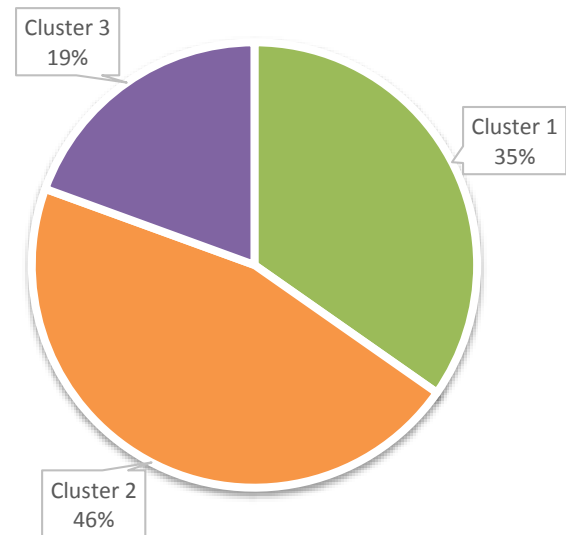
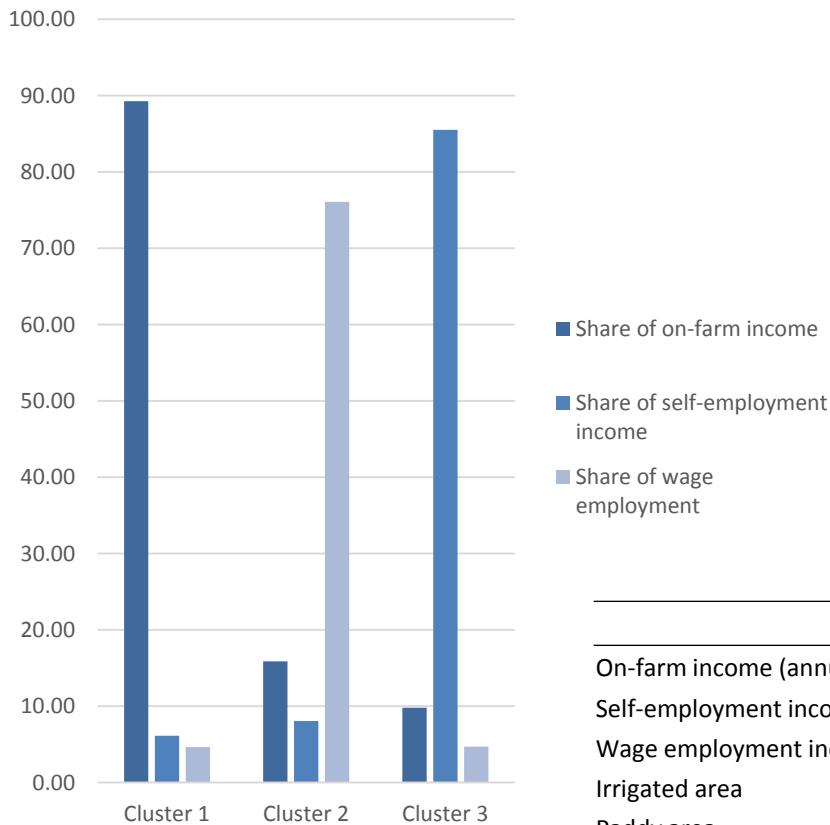
Share household income sources



➤ Diversification plays a critical role in household livelihood strategy

Livelihood strategies

K-means cluster analysis



	Unit	Cluster 1	Cluster 2	Cluster 3	Sample means
On-farm income (annual)	M LAK	20.8	7.2	2.7	11.0
Self-employment income (annual)	M LAK	2.8	3.1	29.5	8.1
Wage employment income (annual)	M LAK	1.6	37.5	1.1	18.0
Irrigated area	ha	0.26	0.04	0.04	0.12
Paddy area	ha	1.62	0.97	0.36	1.08

Conclusion

- Groundwater use for agriculture contributes to a significant part of farm household livelihood
- Off-farm activities are attractive and can generate high income
- Livelihood strategies are important to take into account when implementing development project

Thank you for your attention!

any question?