

## DeSIRE Tenure track position #1: Spatial transformation of food systems

University: University of Twente  
Faculty: Faculty of Geo-information Science and Earth Observation  
Department: Department of Natural Resources  
Responsible Professor: Prof. Dr. Andy Nelson (a.d.nelson@utwente.nl)  
Expected to open: This position is expected to open around August 2018

### Description:

There is a call to transform food systems in many developing countries to make these systems more sustainable and resilient to slow onset crises. This call is especially focussed on food producing regions in the hinterlands of small and mid-sized cities (those with fewer than 500,000 inhabitants). These smaller cities are where 60% of urban food demand comes from and many of them are growing rapidly, but they do not receive the same level of attention from urban planners nor the same level of public and private investments as the larger "global" cities.

The economic potential of these cities remains largely untapped and agribusiness potential of their hinterlands is unrealised due to poor linkages between them. The 2017 FAO report on the State of Food and Agriculture recognises that "fostering urban-rural linkages through appropriate 'territorial strategies' can create a favourable business environment for farmers and help diversify rural economies through non-farm income opportunities, which are vital for building prosperous and sustainable rural communities".

Transforming food systems to meet growing and diversifying urban demand is seen as key to increasing sustainable production and building resilience to shocks by: increasing the diversity and value of food products; economically linking cities with their surrounding areas and generating more employment opportunities in farm and non-farm sectors (i.e. diversify opportunities inside and outside the city); reducing food losses and waste through modernised food chains, and forming a stronger rural-urban continuum that links these rural areas to their market towns and these towns to larger regional hubs and major cities.

This position would explore the spatial component of these transformations and territorial strategies to:

- characterise the potential benefits and trade-offs when raising rural productivity, efficiency and resilience in these new food systems (*resilience measuring methods and tools*);
- trace these benefits throughout the rural-urban continuum from rural areas to capital cities (*resilience measuring methods and tools*), and;
- guide the design of interventions in land use, land ownership, access to technologies and credit that support small- and medium-sized, rural food- and non-food enterprises (*resilience as design*).

The position requires strong modelling skills and use of RS and GIS derived information to model spatial and temporal characteristics of current and future resilient food systems (productivity, sustainability and land use/management).

### Position in framework of the programme (please delete what is not applicable):

- Approaches/discipline: GIS and RS / spatial modelling / mathematical modelling / agent based modelling/ cross-cutting methodologies / Policy & Governance aspects
- Scale/application area: Agri-Food systems in the hinterland of market cities. Ethiopia is a target country.

### Synergy with other tenure track position(s):

- Monitoring the resilience of artificial and natural infrastructure in cities and urbanized deltas (UT, Engineering Technology)
- Operational Measures for the Assessment of Resilience and Sustainability of Complex Adaptive Systems (WUR, Plant Sciences)
- Governing Resilience of the RURBAN Metropolis (UT, Behavioural, Management and Social Sciences)