

# Rural livelihood transformation under climate change: Some perspectives

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# BACKGROUND AND AIM



- This talk draws on:
  - a global level background paper for the **Global Commission on Adaptation 2019 flagship policy report "Adapt now: A global call for leadership on climate resilience"** that links rural livelihoods, food security and climate change <https://gca.org/global-commission-on-adaptation/report/papers>
  - research of my own and my students mainly in South Africa and Zimbabwe in support of some emerging livelihood trends and risks.

## OUR PREMISE

We argue that:

- transformation in rural livelihoods and the systems they are embedded in is vital to support climate change adaptation
- this requires fundamental and synergistic changes in several elements of the systems, adjusted for different local contexts, livelihood preferences and trajectories.

- AIM - In this talk I will:
  - pull out some of the **key understandings, learnings and messages** and spend time on looking at the **way forward**, which I hope will lead into a discussion that includes observations from Namibia
- I will do this by:
  - start with an **overview of current small-holder rural livelihoods**, the **new risks** they are exposed to, and
  - then move on to looking at **what is needed to adapt to these risks**, drawing out the need to consider the **complexity of rural livelihoods, transformation in current policy and practice**, and the need for consideration of **multiple perspectives and pathways**.

Transformation in multiple spheres urgently needed to support different trajectories and pathways

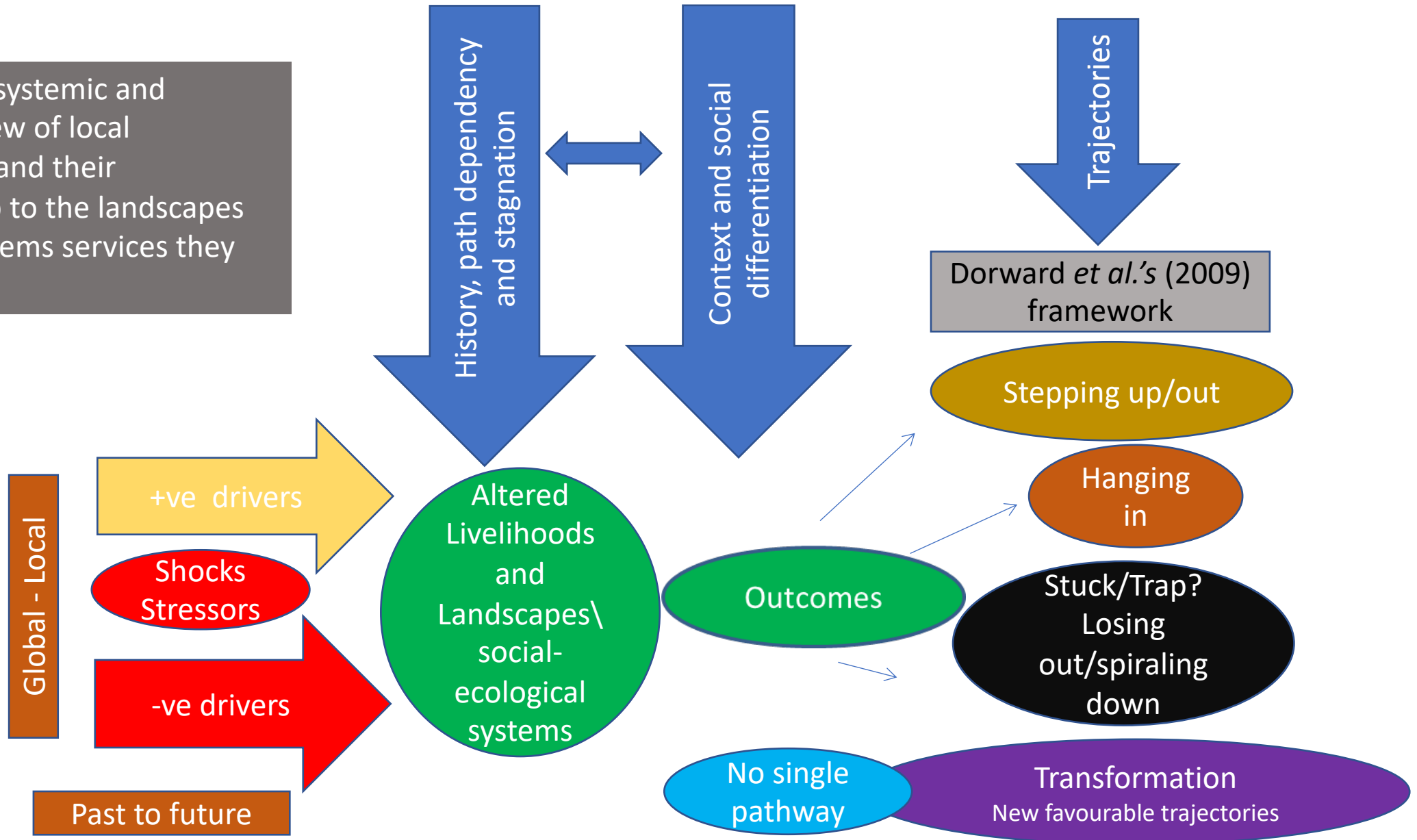
There is no single pathway!

WHAT DO SMALL-HOLDER  
LIVELIHOODS CURRENTLY  
LOOK LIKE AND WHAT TRENDS  
ARE WE OBSERVING?



# Thinking systemically about livelihood and landscape change, outcomes and trajectories

We need a systemic and dynamic view of local livelihoods and their relationship to the landscapes and ecosystems services they draw on.



# Some rural livelihood trends

- Changes in livelihood portfolios and **greater heterogeneity in livelihood activities** and income sources within and between households. More off-farm income.
- **> Migration and urbanisation** – temporary and permanent – less remittances back to rural home due increasing costs in urban areas and low wages
- Changes in rural populations towards **more elderly, young**, women.
- Greater **feminisation of agriculture**.
- Some **declines in farming** (especially large fields) – referred to as deagrarianisation or deactivation of arable lands. May or may not be permanent.
- **Where social welfare, increased dependence** on this and cash for food security.

These livelihood changes are generally accompanied by changes in landscapes and ecosystem service delivery

**Box 1. Declining arable farming in South Africa (Shackleton and Luckert 2016, Shackleton and Hebinck 2018).**

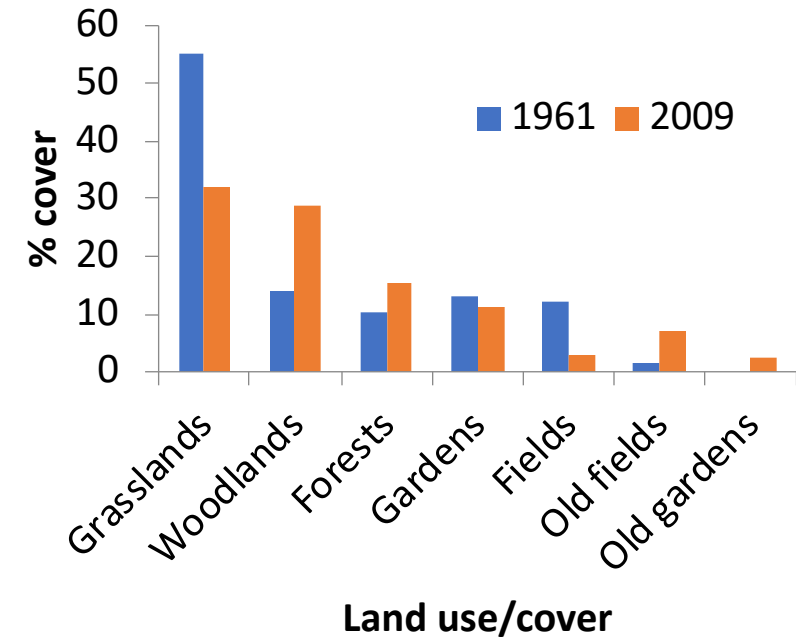
Livelihoods in rural Eastern Cape, SA are on new trajectories, with [agricultural production declining markedly](#), though with some households specialising in more intensive home gardens.

[Many factors are influencing the shift](#): reduced labour availability due to HIV/AIDS/ migration, increased risk associated with dryland cropping due to frequent poor seasons, changes in local aspirations values, and the availability of social security cash transfers, etc.

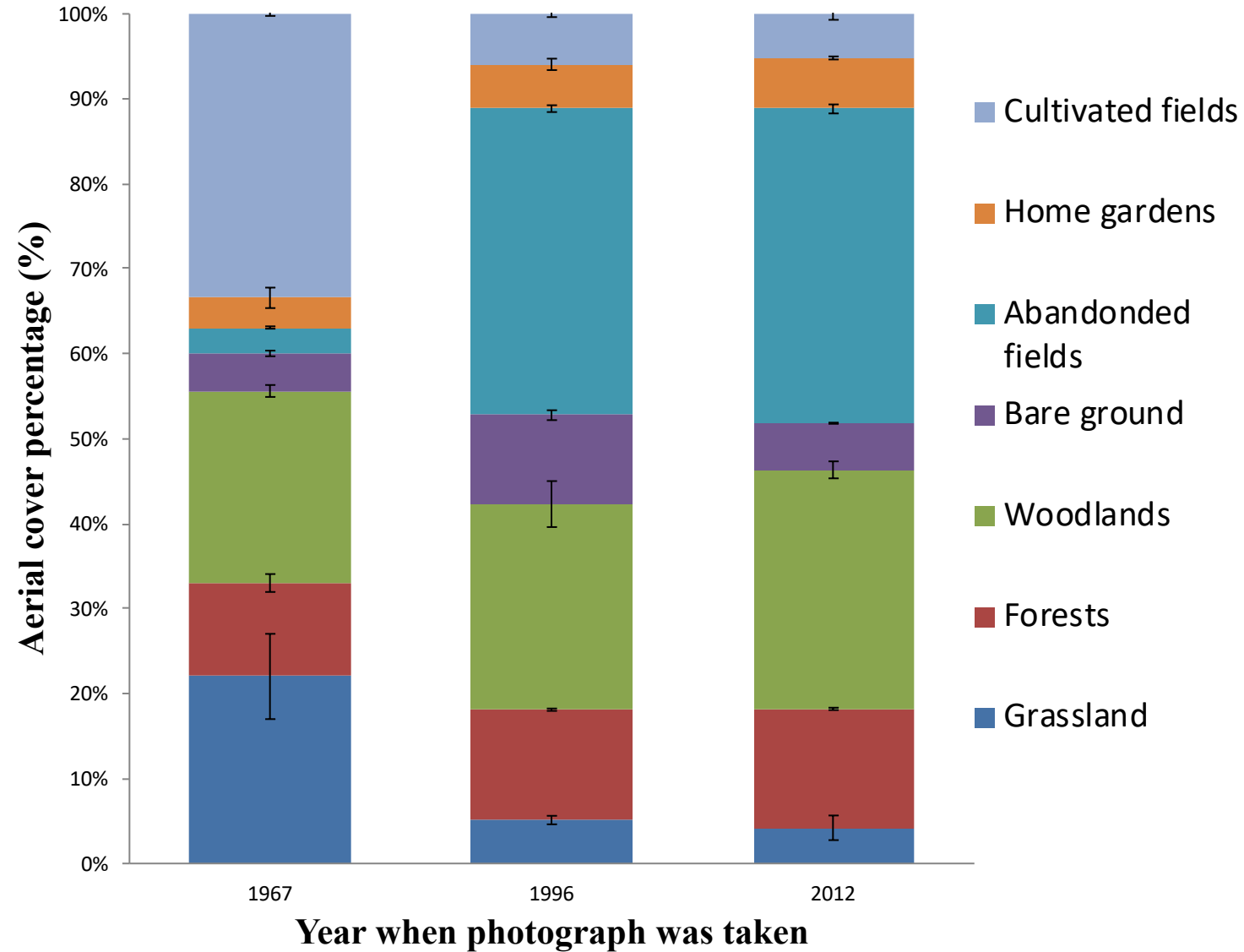
Higher level factors include [lack of investment in communal systems and insecure land tenure](#).

This trend, but without options to escape poverty together with poor education and other services, is leading to [entrenched rural poverty](#) and loss of social capital including a rise in rural crime and other socially unacceptable behaviours.

NAMIBIA???

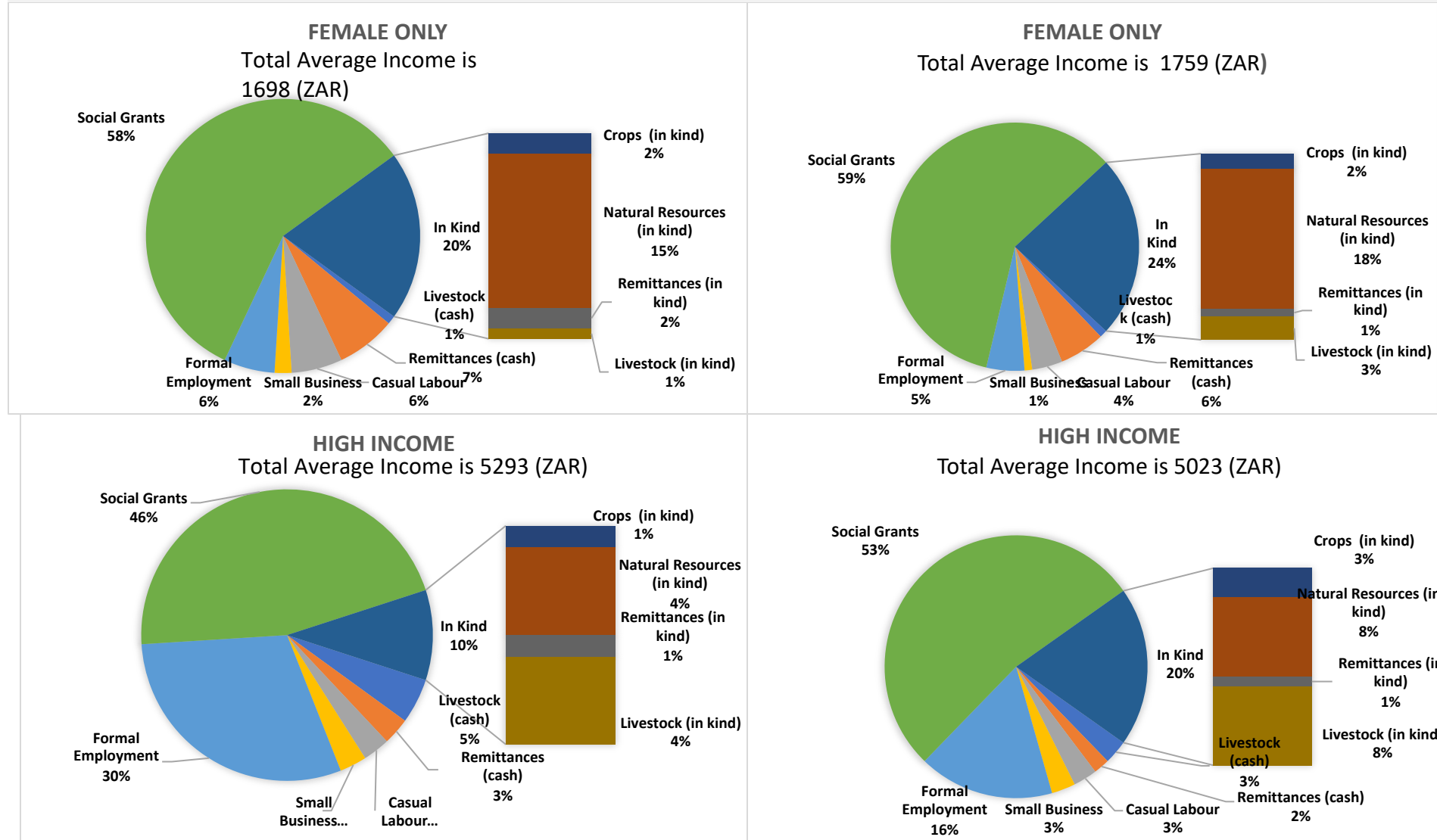


Shackleton, R., Shackleton, C., Shackleton, S. and Gambiza, J. (2013). Deagrarianisation and forest succession in abandoned fields in a biodiversity hotspot on the Wild Coast, South Africa. *PLoS ONE* 8(10)



Falayi (2017). Masters  
thesis

# Livelihood source differentiated across different social groups



Lesseyton – peri-urban

Willowvale - rural

# Some rural livelihood trends

- Some **intensification** – e.g. in home gardens.
- **Concentration of livestock** in fewer households.
- More **dependence on forest and other natural products** especially in semi-arid areas.
- **Changing value systems** and aspirations – especially amongst youth (less interest in agriculture in its present form at least).
- **Land grabbing** or > support that benefits large, scale commercial agriculture.
- **Decreases in farm size.**
- Loss of social capital and **changes in structure of households.**

BUT, small-scale production does persist globally

ANY THING THAT  
STANDS OUT IN  
NAMIBIA?

## What livelihood changes did we observe?

*Ranked order of rural income over time (1990-2015)*

Livelihood	1990 (Apartheid) Ranked source of income	2015 (Post-Apartheid) Ranked source of income
Government Grants	5	1
Sale of fuel wood	4	2
Home Gardens Produce	7	3
Sale of Livestock	6	4
Remittance from migrant workers	2	5
Fields	Not ranked	6
Formal employment	1	7
Food Parcels	3	-

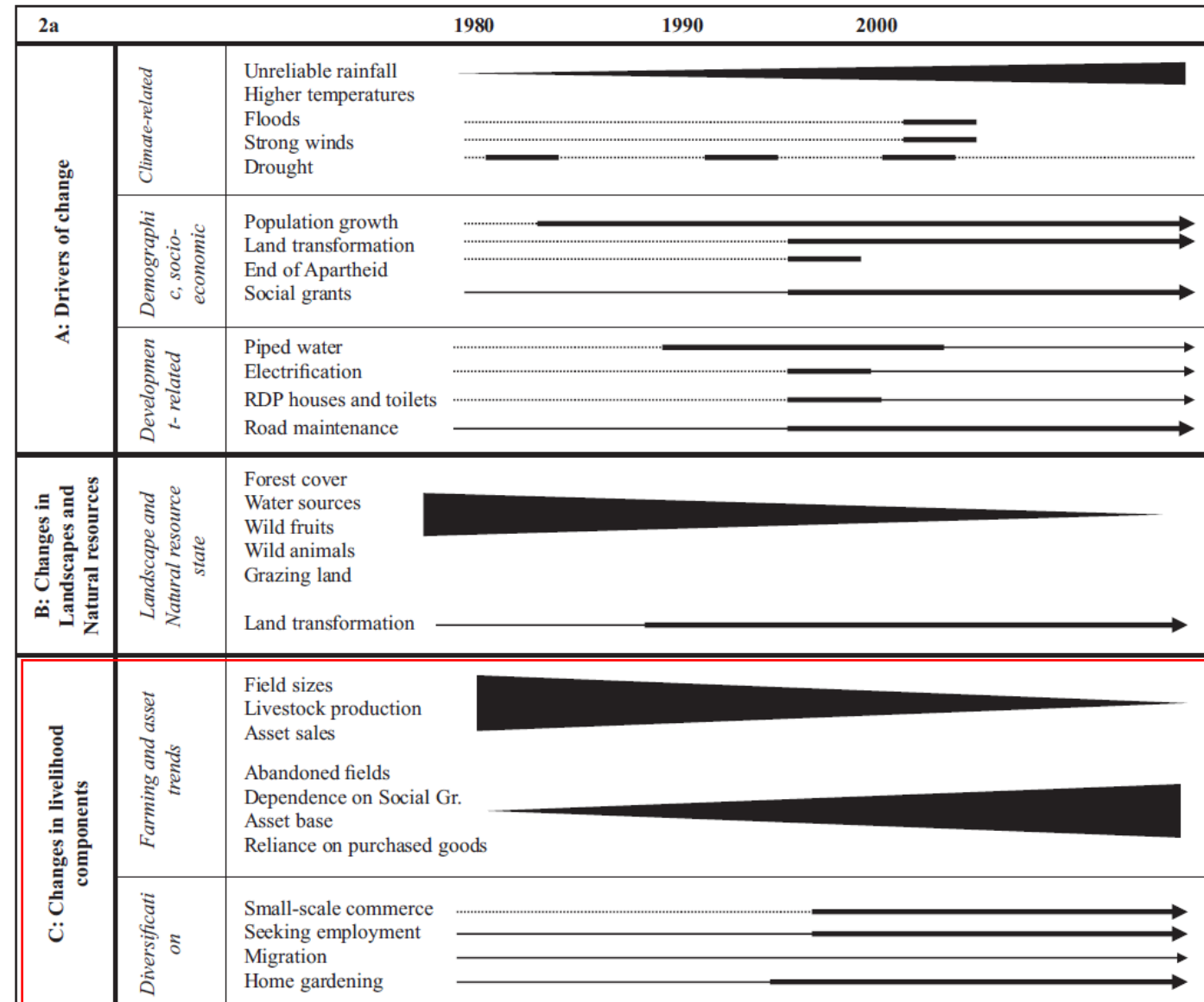
Falayi (2017). Masters thesis.

Falayi et al. (2019).  
Forests, Trees and Livelihoods

# What were the drivers of livelihood and landscape changes in Tshivulani (SA) Marwendo (Zimbabwe) over 30 years?

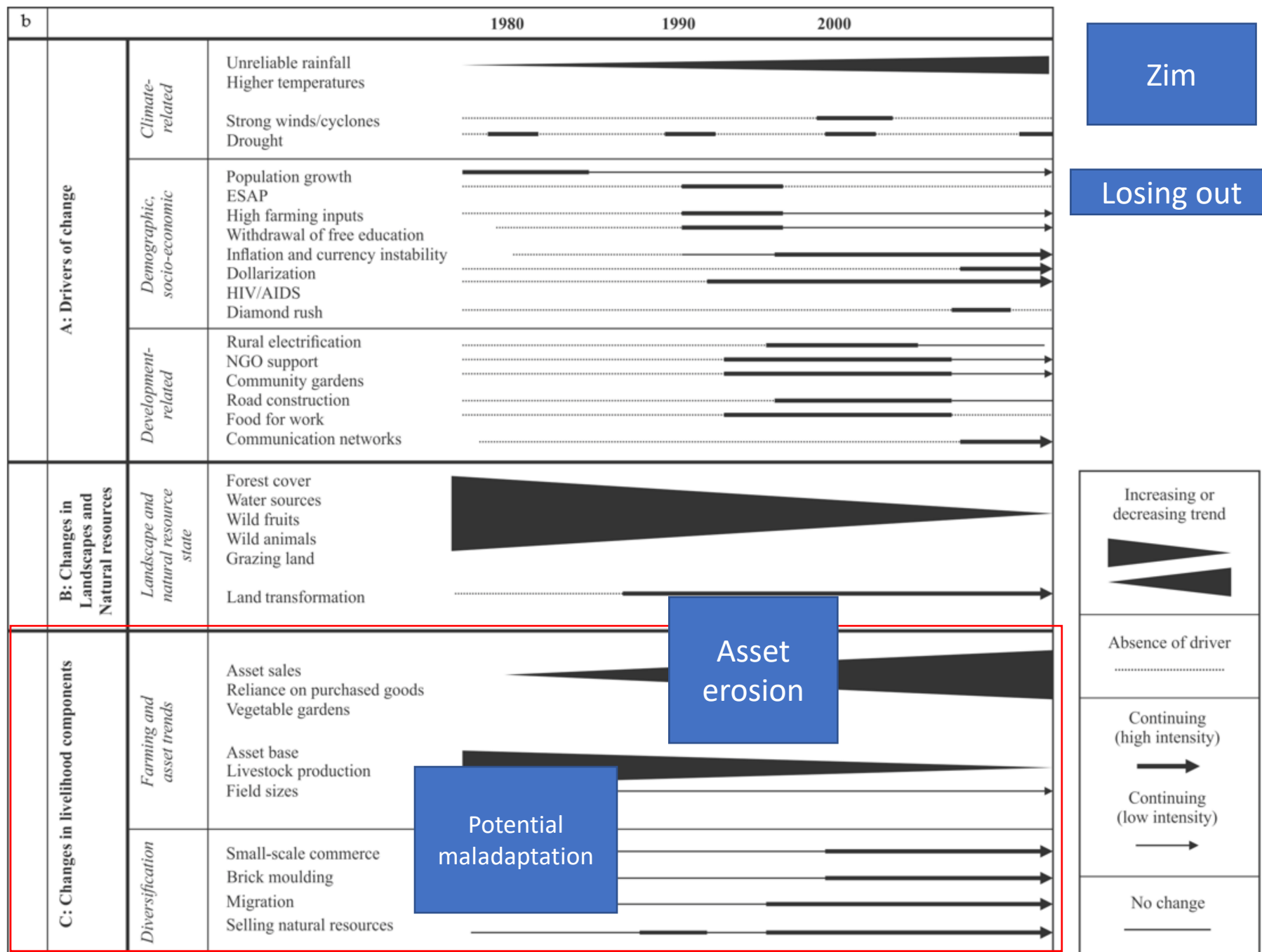
Masunungure, C & Shackleton, S.E. (2018)  
Land

Exploring Long-Term  
Livelihood and Landscape  
Change in Two Semi-Arid  
Sites in Southern Africa:  
Drivers and  
Consequences for  
Social–Ecological  
Vulnerability



SA

Hanging in



# Paper from China – Xu et al. (2019)

- 8031 hh in 226 rural villages – plains, hills and mountains

## **Livelihood assets**

- Human capital most important
- Lowest dependence on natural capital

## **Livelihood activities**

- Off farm income most important strategy
- On farm work

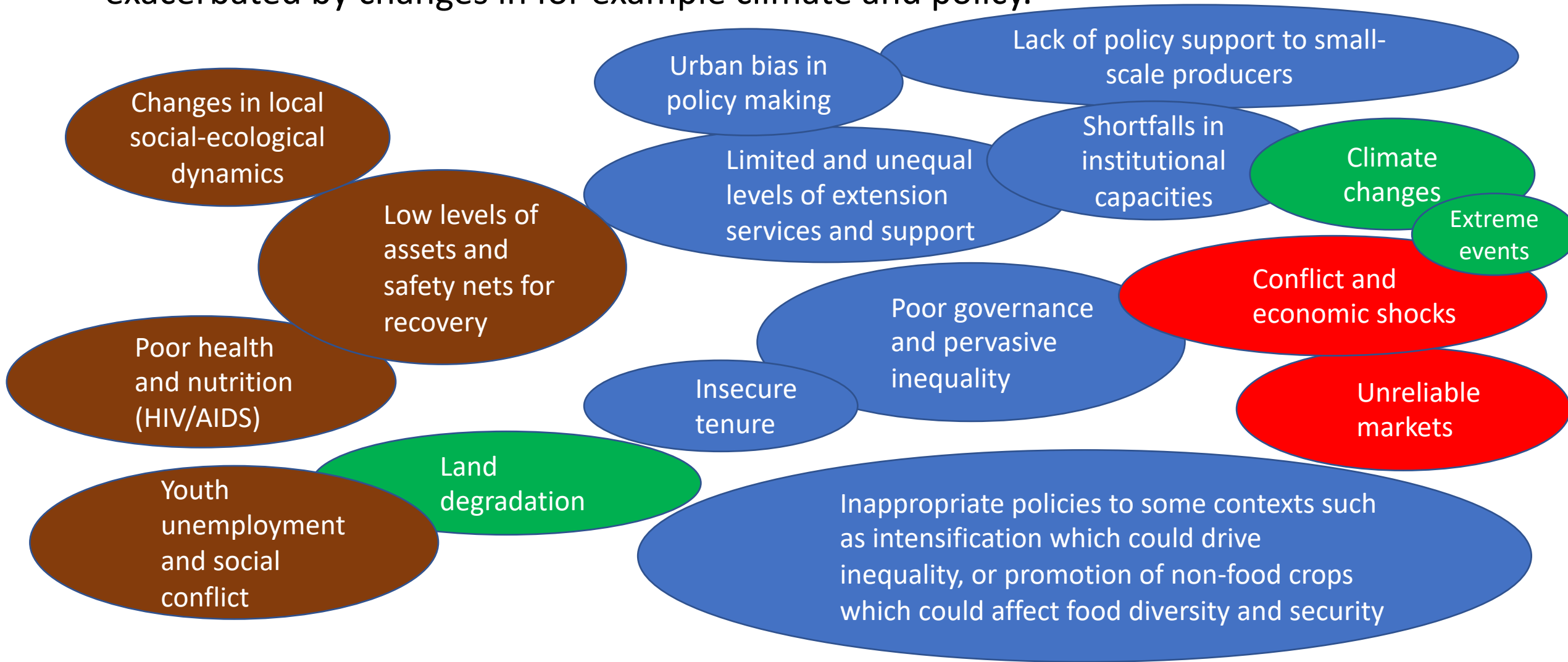


WHAT ARE THE RISKS TO RURAL  
LIVELIHOODS AND  
VULNERABILITY AND HOW DO  
THEY WORK TOGETHER  
CREATING COMPLEXITY?



Vulnerabilities (that drive some of the changes highlighted and that some of the changes also drive)

- Some of these are on-going in rural livelihood, some are 'new' and some are exacerbated by changes in for example climate and policy.

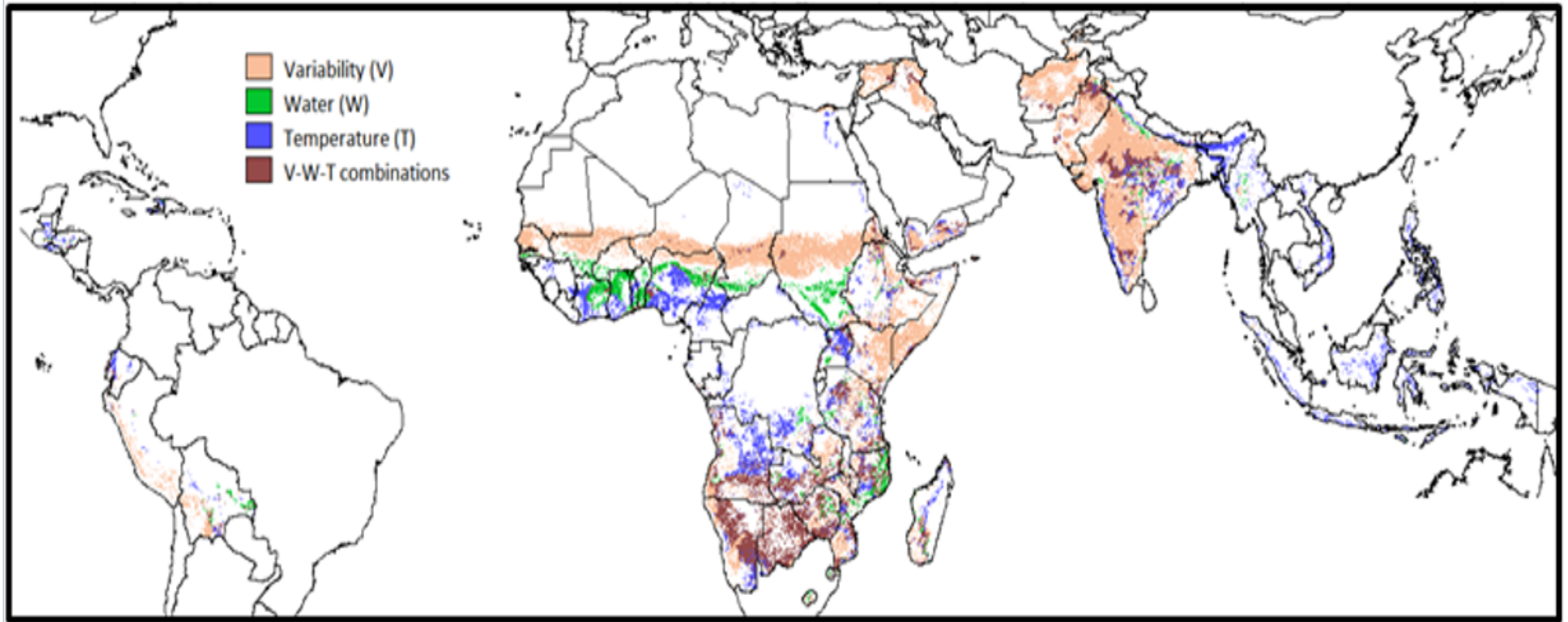


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- Climate shocks come in many forms: changes in seasonality, heavy storms and excessive rainfall, storm surges and salinization, flooding, droughts and extreme heat events.
- Other risks, some made worse by climate variability, include plant and animal pests and diseases, and
- Price fluctuations of agricultural inputs and products.
- Water insecurity.
- Increased land degradation and ES loss.

There are many risks facing specific individuals, households and regions, such as political economy risks that might have negative impacts on local people, political instability, social conflicts (civil war), elite capture, corruption, and poorly designed and poorly enforced laws.

We need to fully understand these complexities if we are to transform rural livelihood



**Figure 4. Areas of extreme vulnerability, with vulnerability mapped as those places with high exposure to climate change hazards (e.g. related to water), high sensitivity owing to the importance of agriculture in the region, and low coping capacity (i.e. areas where child under-nutrition is already challenging).**

## Some examples of these risks and impacts

- In parts of SSA there has been [rising land consolidation](#), to the benefit of traditional authorities, decision makers and non-rural actors and to the detriment of small-scale producers (Knapman et al., 2017).
- Similarly, pastoralism has been put under increasing pressure as a result of [sedentarisation policies](#), usually to the detriment of pastoral livelihoods (Thornton et al., 2019)
- Households deal with climate shocks through risk aversion behaviour. [Risk aversion](#) reduces the chances of breaking out of poverty, as households in risky environments are [unwilling to invest](#) in improved production practices and technologies.
- With severe climate shocks, vulnerable households employ a range of [strategies to cope](#), [further increasing vulnerability](#), e.g. defaulting on loans, selling productive assets (e.g. livestock), removing children from school, reducing food intake, and exploiting natural resources.
- The [on-going changes](#) we have seen in previous slides could also make households more vulnerable and at further risk.

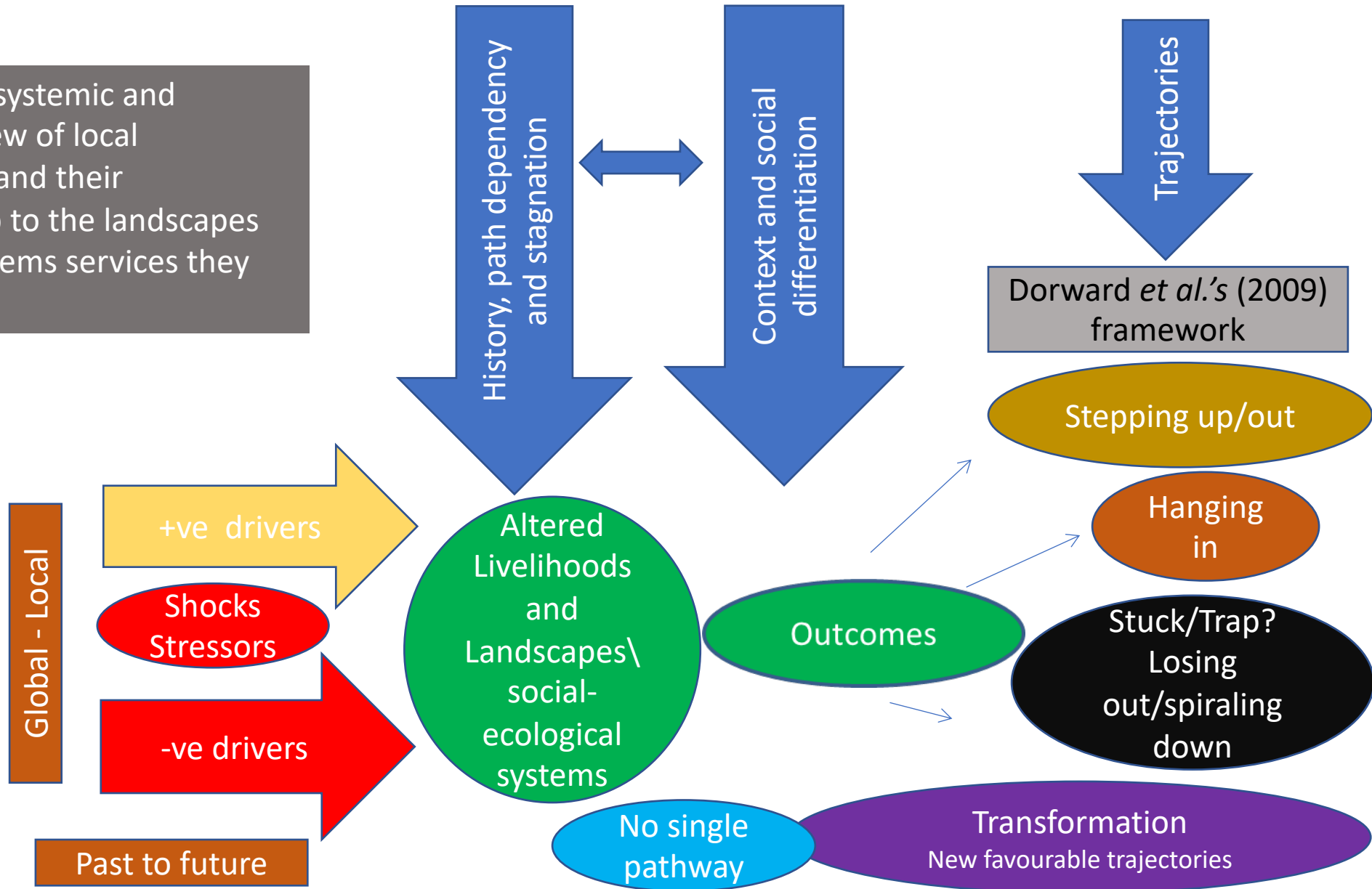
# WHERE ARE WE WITH ADAPTATION AND TRANSFORMATION?



- Adaptation to climate change is not easy to assess. Much is small scale and specific. There are also few studies and data.
- CCAFS carried out a large survey of 6300 small-holder HH.
- They categorised these according to Dorward's trajectories outlined earlier.

# Thinking systemically about livelihood and landscape change, outcomes and trajectories

We need a systemic and dynamic view of local livelihoods and their relationship to the landscapes and ecosystems services they draw on.



# What did they find?

**Table 2. Percentage of surveyed households assigned to four household types in 45 sites in five regions (6,300 households in total): regional means (Thornton et al., 2018).**

Region	No. of sites	Proportion of households of each type			
		Food insecure	Hanging in	Stepping up	Stepping out
East Africa	8	32.0	42.5	13.6	12.1
West Africa	5	13.8	69.6	11.0	5.6
Latin America	7	5.7	60.0	20.8	14.1
South Asia	22	9.2	57.7	16.5	16.7
South-East Asia	3	10.2	63.4	11.9	14.5
All	45	13.3	57.1	15.7	14.1

Small-holder farming and livelihoods are not changing at the pace and scale needed for CC. To foster the changes at the scale required, will require a much stronger focus on localised enabling environments working across sectors and hh preferences. To date most changes have been minor such as planting dates and varieties.

Poverty, vulnerability and food security remain entrenched.



# WHAT MORE IS NEEDED FOR TRANSFORMATION?



# WHAT MORE IS NEEDED FOR TRANSFORMATION?

- Several elements/transformations will be needed in synergy, with less or more emphasis on particular elements depending on context.
- Actions to achieve this change will also vary according to household heterogeneity.
- It is extremely unlikely that silver bullets exist.

Transformation here refers to a significant redistribution (at least a third) in the primary factors of production (land, labour, capital) or the outputs and outcomes of production, within a period of 10 years (modified from Vermeulen et al., 2018).

This includes significant changes to the structure of landholdings, technologies and the use of them, capabilities of women and men, and the distribution and dynamics of the population and labour force.

Such a transformation needs to generate multiple benefits, including education, nutrition, health, water and sanitation, and empowerment of women and youth, translating into transformed and thriving rural livelihoods and communities.



**Actions to transform rural livelihoods, agriculture and food systems under a changing climate (modified from Dinesh et al., 2018).**



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**ICTS (Information and communication technologies):** early warnings, linking producers and food system actors, farming and extension information – e.g. planting dates, Shamba Shape Up – reality TV series, Plantix

**Actions to transform rural livelihoods, agriculture and food systems under a changing climate (modified from Dinesh et al., 2018).**

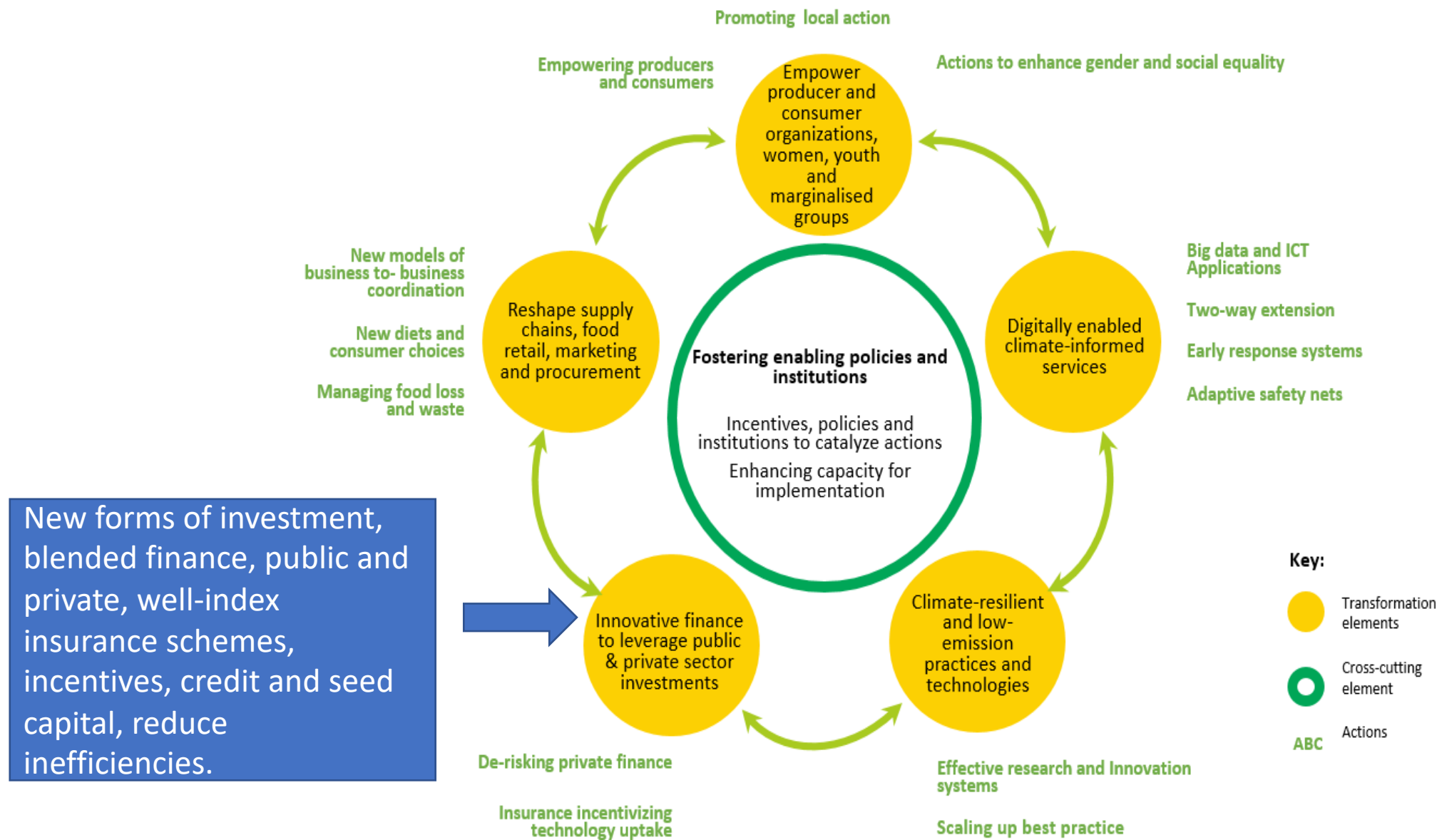


**Scale up existing and new climate resilient practices and technologies:** orphan crops; crop diversity; landscape management and governance, water conservation (EbA); new technologies – solar micro-irrigation; post harvest storage; Investment; more research.

**Key:**

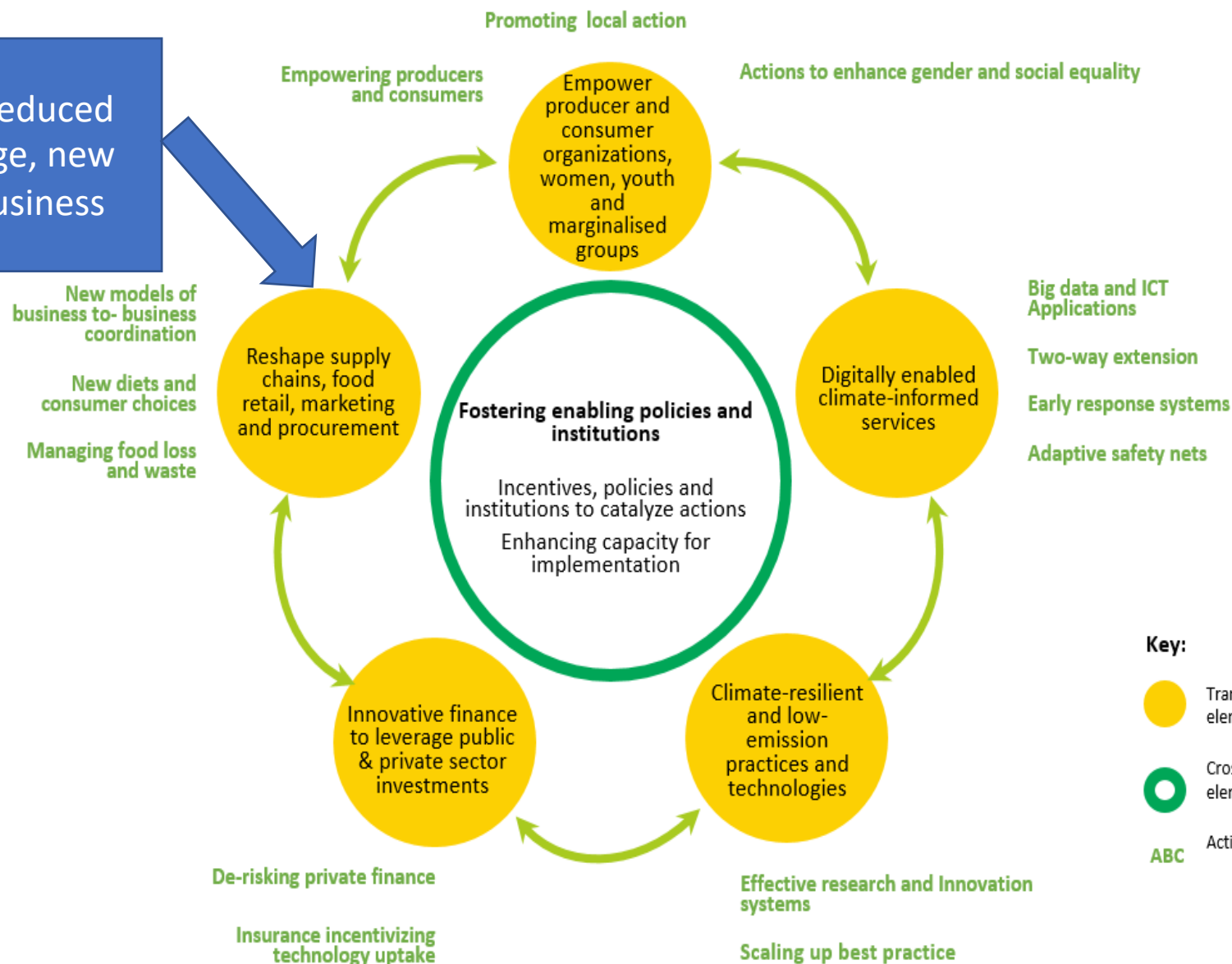
- Transformation elements
- Cross-cutting element
- ABC** Actions

**Actions to transform rural livelihoods, agriculture and food systems under a changing climate (modified from Dinesh et al., 2018).**

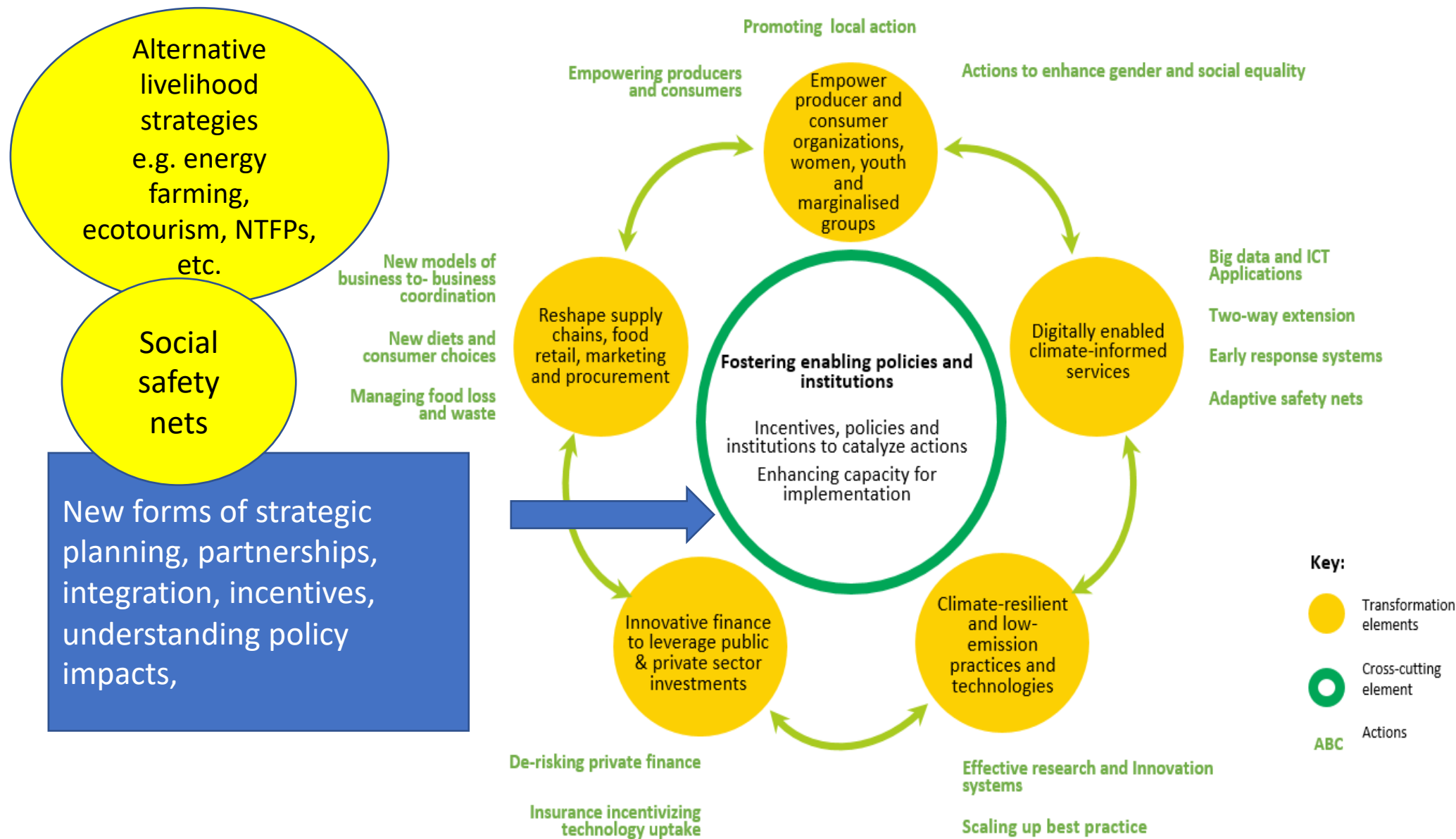


**Actions to transform rural livelihoods, agriculture and food systems under a changing climate (modified from Dinesh et al., 2018).**

SMME's, storage, reduced postharvest wastage, new preferences, agribusiness



**Actions to transform rural livelihoods, agriculture and food systems under a changing climate (modified from Dinesh et al., 2018).**



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# WHAT IS THE VISION FOR THE FUTURE?



# Multiple Pathways (see Melissa's Leach's work)

- Critical to appreciate that there are **differentiated pathways** for rural livelihood adaptation and transformation, and these need to be tailored to **geography, socio-economic and cultural conditions, agro-ecology, power dynamics and social justice and the needs and aspirations of different social groups**.
- None of the 5 proposed pathways are exclusive and one HH may be involved in several through different members, or there may be overlaps between them. Need to also be careful of winners and losers within pathways.
- Livelihoods are likely to be very **diverse**, unless the support is provided to specialise in intensive, commercial agriculture.



Increasing market integration and/or consolidated land so as to step up

Climate informed shifts in livelihoods to step up

From landlessness (or disinterest in farming) to small-scale entrepreneurship

Climate informed productive social safety nets and nature based solutions for those least integrated into markets

Exiting/reducing agriculture in the livelihood portfolio



**Actions to transform rural livelihoods, agriculture and food systems under a changing climate (modified from Dinesh et al., 2018).**

## #1. Increasing market integration and/or consolidating land so as to step up

- Increased access to credit, technology, and infrastructure F, T, D, P, E
- Promote risk reducing options D, S, T, P
- Implement tenure reforms, enhance land rental markets P, F, E, T
- Strengthen farming organizations, cooperatives and similar forms of collective action E, F, P
- Farmers' to organize, network and improve access to information to negotiate with industry and have their voices heard in decision-making processes E, D, P

## #2. Climate-informed shifts in the farming system so as to step up

- Development of new technologies that deal with multiple and interacting stresses T
- Training and information about new options E
- Strong policy support and investments to shift farming systems P, F, E
- Access to credit, technology, and infrastructure F, T, D, E
- Promote risk reducing options D, S, T

# Some last words

- Rural transformation is already happening, but at different rates in different places, and in different directions. Understanding this complexity is critical, as different “directions of travel” imply different interventions in any given contexts. [Understanding this is critical.](#)
- There is some progress in rural adaptation, but [insufficient for the challenges](#) that lie ahead. [Greater emphasis is needed to understand and put in place the context specific enabling environment](#) within which rural livelihoods can thrive.
- Adaptation actions need to address [poverty, food and nutrition, social justice and employment challenges](#) and [recognise differing needs and aspirations](#). Underlines both the importance and value of understanding transformation processes at different scales and the necessity of wide stakeholder participation and social inclusion.
- Requires a [range of changes and interventions operating in synergy](#), with less or more emphasis on particular elements depending on context.
- Several examples of positive transformations have been described but more are needed and should be researched so that the [lessons can be synthesized and replicated elsewhere](#).

## BACKGROUND PAPER



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



# RURAL LIVELIHOODS, FOOD SECURITY AND RURAL TRANSFORMATION UNDER CLIMATE CHANGE

PK Thornton, AM Loboguerrero, BM Campbell, KS Kavikumar, L Mercado and S Shackleton

## About this paper

This paper is part of a series of background papers commissioned by the Global Commission on Adaptation to inform its 2019 flagship report. This paper reflects the views of the authors, and not necessarily those of the Global Commission on Adaptation.

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# THANK YOU

# Special issue of Land on livelihood and landscape change in Africa under a changing climate, 2018

- "Livelihood and Landscape Change in Africa: Future Trajectories for Improved Well-Being under a Changing Climate"
- [http://www.mdpi.com/journal/land/special\\_issues/africalivelihoods](http://www.mdpi.com/journal/land/special_issues/africalivelihoods)
- Prof. Dr. Sheona Shackleton  
Dr. Paul Hebinck  
Prof. Dr. Chinwe Ifejika Speranza  
Dr. Vanessa Masterson  
Dr. Dian Spear  
Dr. Maria Tengö  
Guest Editors
- Published Papers (10 papers)

### #3. From landless to smallscale entrepreneurship

- Strong policy support and investments to incentivize new farming systems and innovative methods of production, such as urban farming and floating agriculture P, S, T, E
- Provide training, microcredit, and appropriate bundles of choices of technologies E, F, T

### #4. Climate-informed productive social safety nets and nature-based solutions for those least integrated into markets

- Strong policy support for social safety nets, for schemes for payments for environmental services and for ecosystems conservation P, F
- Implement cash transfer income tools F
- Capacity building for implementing ecosystem and community based adaptation approaches E
- Development of business cases for conservation D, P, F
- Strengthen farming organizations, cooperatives and similar forms of collective action E, F, P
- Farmers' to organize, network and improve access to information to negotiate with industry and have their voices heard in decision-making processes E, D, P

## #5. Exiting/reducing agriculture in the livelihood portfolio

- Develop policy measures to support future livelihoods of migrants P
- Implement policies to develop secondary and tertiary industries in rural areas P, F
- Develop policies and investments in education and specific skills for non-farm activities P, E
- Use of media for education and establishment of technology information centres to identify promising off-farm opportunities E, D