# Resilience assessment tool for dairy & horti farming in the East African highlands

## Presentation for “Tuesdays with Resilience”

November 7, 2017, Jan van der Lee and Daniel Kangogo

*[KB22 Resilience Dairy East Africa, 3R Kenya and ADIAS projects]*


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# Outline of presentation

1. Context & purpose
2. Analytical framework
3. Resilience assessment tool
4. Further steps
5. Your input

*One of the key challenges for application of resilience thinking in agriculture is our ability to make resilience somewhat more measurable*

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# Context

- Intensification of agriculture in East African highlands – from grazing-based livestock to mixed crop-livestock to ...
- Commercializing dairy (/horti) farming systems – 'entrepreneurial smallholders' and 'medium/large scale'

from 'risk avoidance' to 'risk taking'

- Transition – *"moving to different basin of attraction" / "getting over the hump"* – is a risky endeavour

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# Purpose of tool

## Overarching research question:

Does increased market orientation of 'entrepreneurial smallholders' threaten the resilience of their farms?

## Specific research question:

Can we develop a tool with the following characteristics?

- meaningfully assesses the resilience of different types of farms
- allows for comparison between farms of different sizes and market orientation levels
- can be used at farm level (data-light)
- informs farmer management decisions

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# Development resilience assessment tool

**Approach:**

Score the ability of farmers to cope with the main risks that emanate from the stresses & shocks threatening the performance of their farms

**Unit of analysis:**

Farm as representative of farming system,
focus on one (commercialising) livelihood strategy

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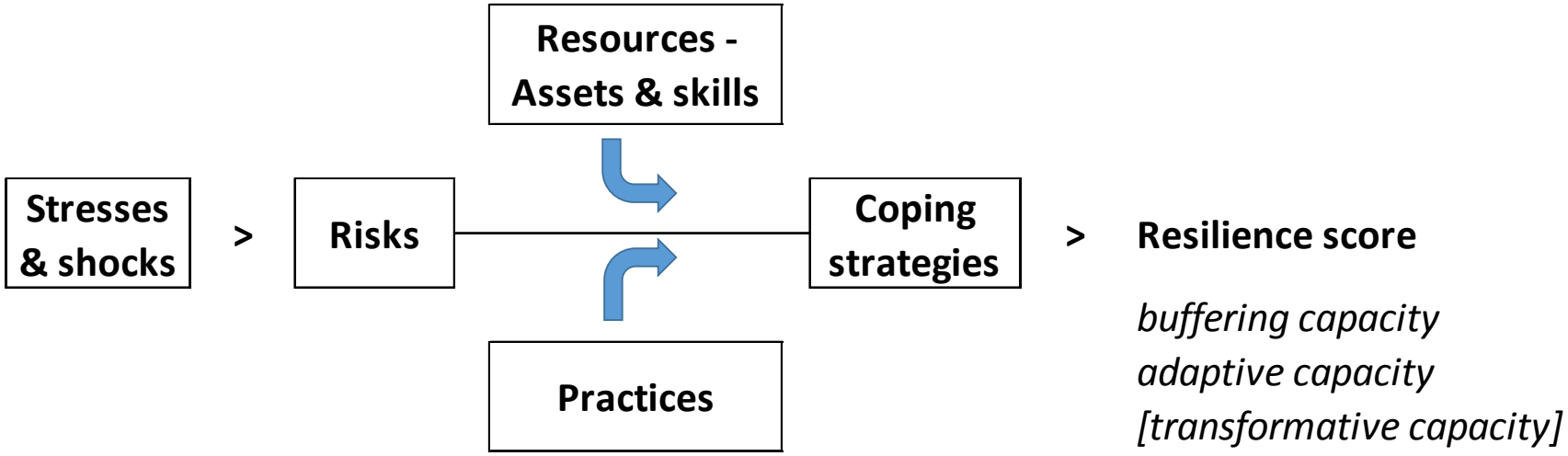
# Analytical framework / Set-up of tool



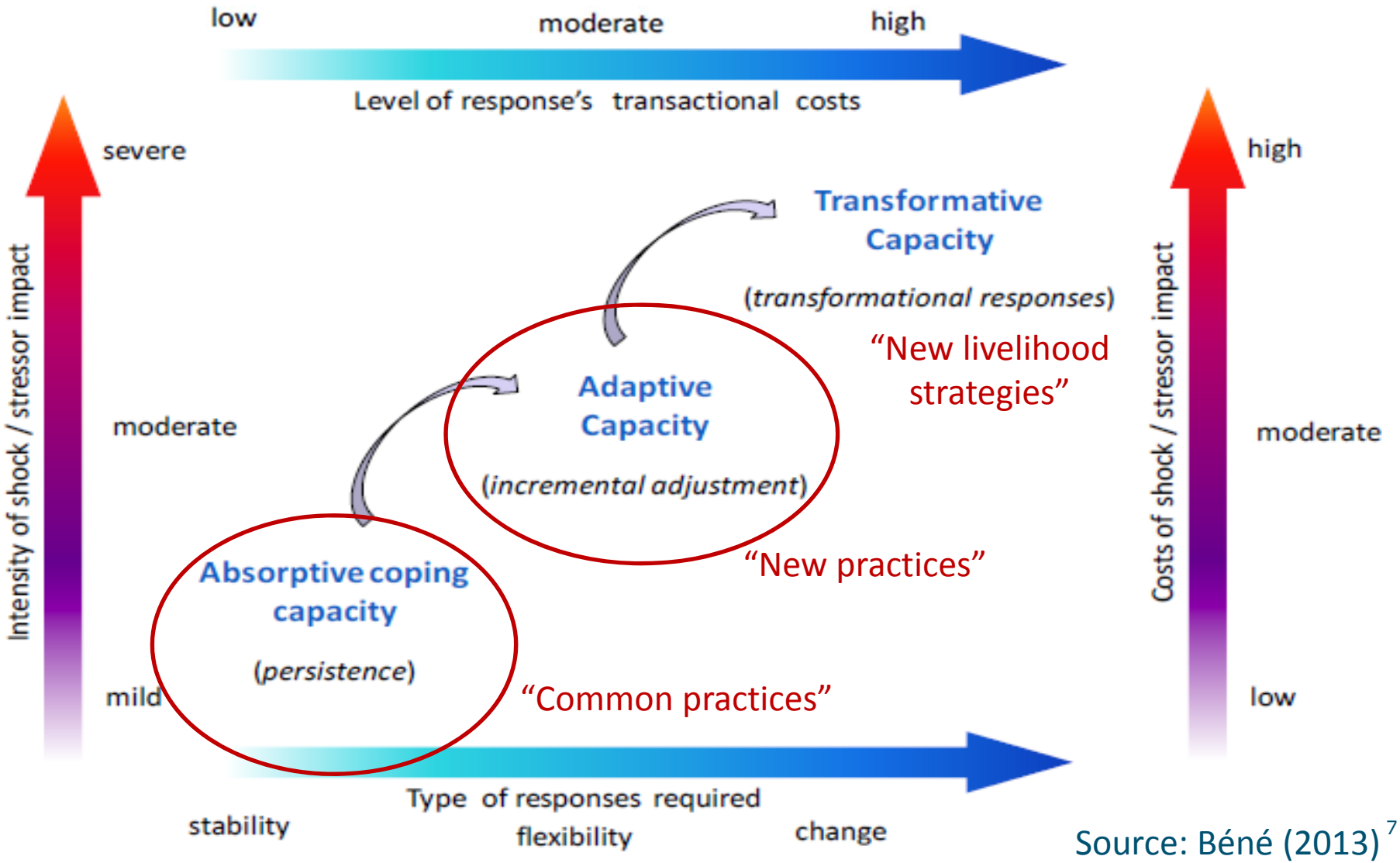

Steps

- identify main risks *(impact, likelihood)* & practices

1. farmer selects three key risks; for each:
2. assess farmer's resources and |
3. assess practices used by farmer |=> coping strategies
4. assess readiness to deal with risk |

- interpreting results

# How to differentiate between absorptive and adaptive capacity (coping strategies)?




Source: Béné (2013)

# Step 1. Risks & practice areas (illustration)

*(from interviews with farmers and chain actors)*

| Risks | Practice areas |
|---|---|
| **Diseases, parasites and pests** | ***Animal health*** |
| | *Proper use of agrochemicals* |
| Inadequate access to external inputs & services | *Organize supply of inputs& services* |
| Land limitations & feed shortage | *Feed supply* |
| | *Land base* |
| | *Soil fertility* |
| Extreme weather events | *Protection against extreme weather events* |
| Market fluctuations | *Milk marketing* |
| Insecurity & unfavourable policies | *Lobbying through farmer organizations* |
| Poor genetics & reproduction | *Genetics & reproduction* |

# Questions per practice area: - *animal health as example*

*Where possible, answers use Likert scales (1-5)*

**Step 2. Resources** *N.B. Use of VAS scale suggested during discussion*

- Over the past three years, which [RESOURCES] did you use to maintain animal health? *([RESOURCES]: select from: Physical assets, Financial assets, Labour & skills, Land & water, Assistance from network)*
- Do you have enough [RESOURCE] to maintain animal health?
- Which two or three information sources did you find most useful in maintaining animal health?
- *[additional questions for some practice areas]*

**Step 3. Practices**

- To what extent do you use the following practices to maintain animal health?
- Which of these practices have you started to use only over the past 3 years?
- *[additional questions for some practice areas]*

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# Example practices for animal health

- use of traditional medicines for disease prevention
- use of traditional medicines to cure diseases
- spraying of animals to prevent (tick-borne) diseases
- dipping of animals to prevent (tick-borne) diseases
- treatment by veterinarian
- self-administered drugs to cure diseases
- deworming with commercial drugs
- deworming with traditional medicines
- vaccination
- culling of diseased animals
- proper animal & barn hygiene
- breed for more resistant animals
- other, i.e.: ...

## Step 4. Questions on Readiness

- To what extent are you able to maintain or improve animal health?
- What else could you reasonably do to improve animal health?

## Step 5. Interpreting results

- Resilience score (based on Likert scale answers)
- Absorptive and adaptive capacity

*[Management advise to farms, service providers, etc.]*

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# Further steps in tool development

- Finalize draft tool
- Tool testing in Ethiopia and Kenya
- Review of tool and digitalization
- Dairy farm assessment
- Development of horticulture component

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# Where we especially seek your input:

1. Differentiation between absorptive and adaptive capacity (re. coping strategies)?

   *"After some time, new (adaptive) practices become common (absorptive) practices or are discarded"*

2. Ways to overcome subjective character of Likert scales, which affects meaning of *Resilience score*

3. Feedback on approach / better options to assess resilience at farm level

# Thank you!!!


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# Important resilience factors for farmers

| | | |
|---|---|---|
| 1. | Maintaining herd health | 67 |
| 2. | Steady feed supply | 49 |
| 3. | Maintaining/increasing crop and milk yields | 36 |
| 4. | Improved soil fertility | 15 |
| 5. | Steady water supply | 10 |

*(resilience: ability to cope with stresses & shocks)*

| | | KEY RISKS |
|---|---|---|
| Input & service supply – access, affordability & quality | | |
| • AI, vet services, cattle dips | 18% | * |
| • Feeds & fodder | 8% | * |
| • Extension & training | 13% | |
| • Capital | 4% | * |
| • Price, quality, #suppliers, POs | 10% | * |
| Own farm investments | | |
| • Improve feeding | 16% | * |
| • Better housing/farm infra | 11% | |
| • Herd size management | 3% | |
| Output marketing conditions | 11% | * |
| Context (weather, infra, crime) | | * |

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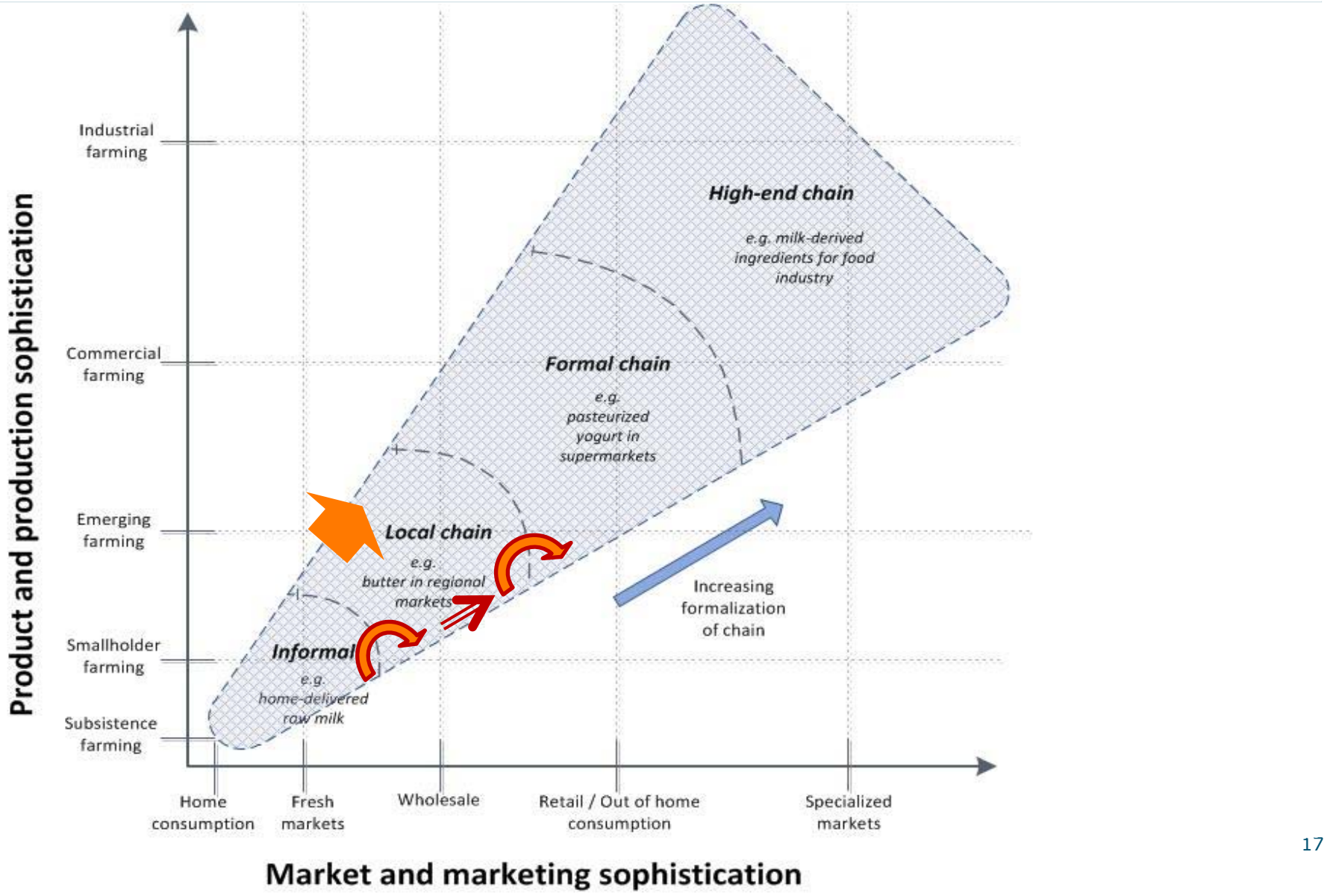
# Different levels of market orientation



# Farmer perceived risks - Nandi county