

Building Resilient and sustainable Agrifood systems in Malawi

**Malawi Agricultural Productivity & Commercialization
Conference: Session 2**

Transforming Agrifood Systems to Generate Wealth for All

BICC, Lilongwe, 11-12th September, 2024.

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Leadership for Environment and Development (LEAD), P/Bag 07, Zomba

Inspiring Leadership for a Sustainable World



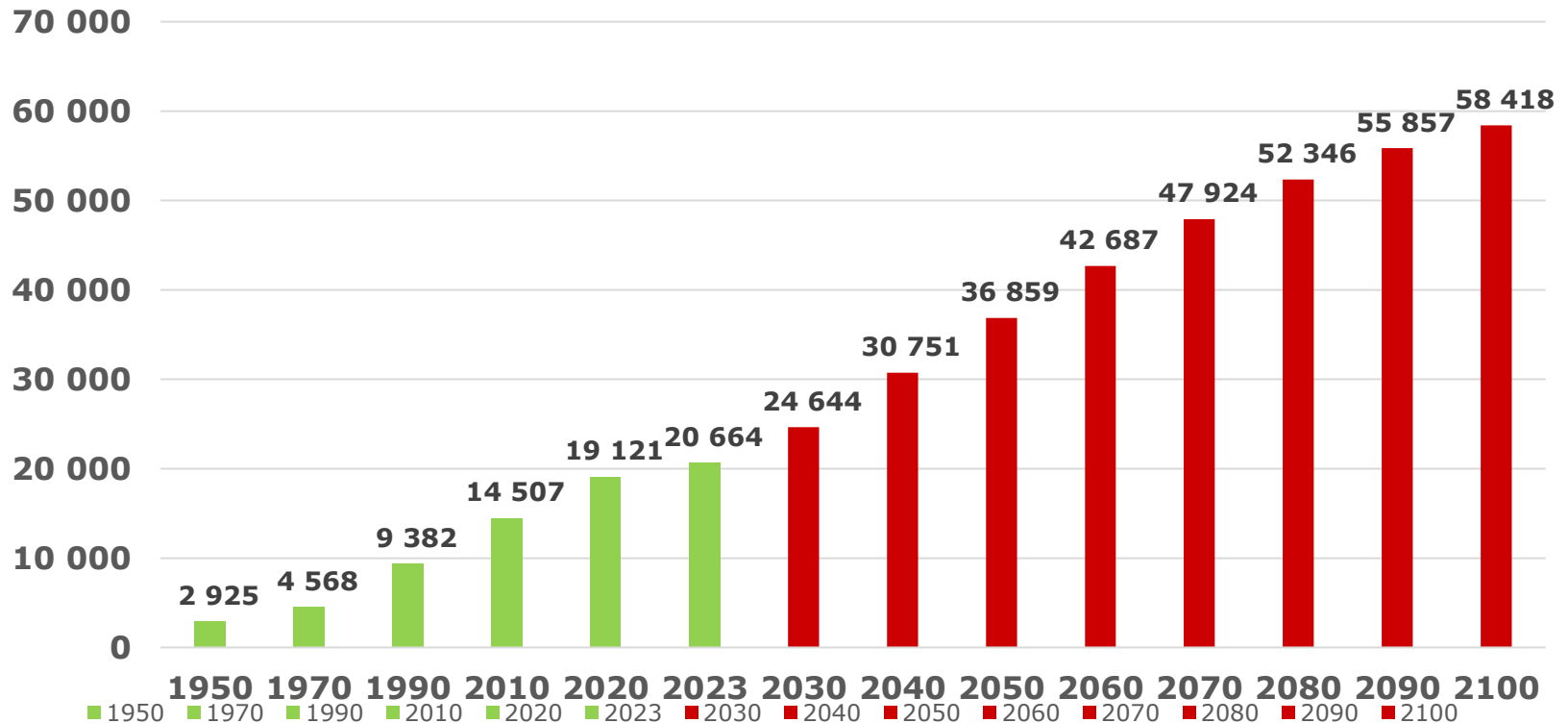
Session 2

THE PROBLEM SPACE

- **Urgent need to transform** Malawi's agrifood systems;
- to **cope with climate change challenges & economic impacts** on the agrifood systems
- Need for **concrete actions & pathways** (policy & investments) to transform, build, & develop **resilient** agrifood systems.

Why transform: A fast growing youthful population, projected to continue growing (challenge & opportunity)

Source: UN – Medium Variant for Future Projections



Diminishing land holding, production mismatch; leverage youthful population for transformation

Why transform : significance to economy (challenges & opportunities)

- contributes about **22.4%** of the Gross Domestic Revenue (**GDP**) (GoM, 2022a)
- **64%** of total employment (World Bank, 2023)
- Supplies most of manufacturing sector's raw material (GoM, 2022b)
- **88%** of total rural income (NSO, 2020)
- Contributed more than **90%** of the foreign exchange earnings (Tuni et al, 2022)
- Main rural livelihood option (**93%**) (NSO, 2020)

Also focus investment for transformation in sectors that can reduce burden on agri-food systems & reduce negative impacts

Why transform: to unlock potential of the Dual agricultural system (challenges & opportunities)

- Smallholder: 4.8 m ha of customary land, **80%** of Malawi's food, **10%** of exports;
- Estate : tobacco, tea, sugar, accounting for **80%** of all agricultural exports.
- Smallholder, mostly subsistence has **been unable to** meet national food requirements,
- significant burden needs to go to the estate subsector & mega farm initiative
- With the burden of food production eased smallholder subsector can increase contribution for export.

Contrasting land uses by small holder farmers and estates

Govala, Zomba



Issues : landholding; soil, water, crop management , human settlement patterns; hedgerows(as buffers), mechanisation

Mulanje 2004 & 2018: agriculture, human settlements, biomass energy, timber extraction

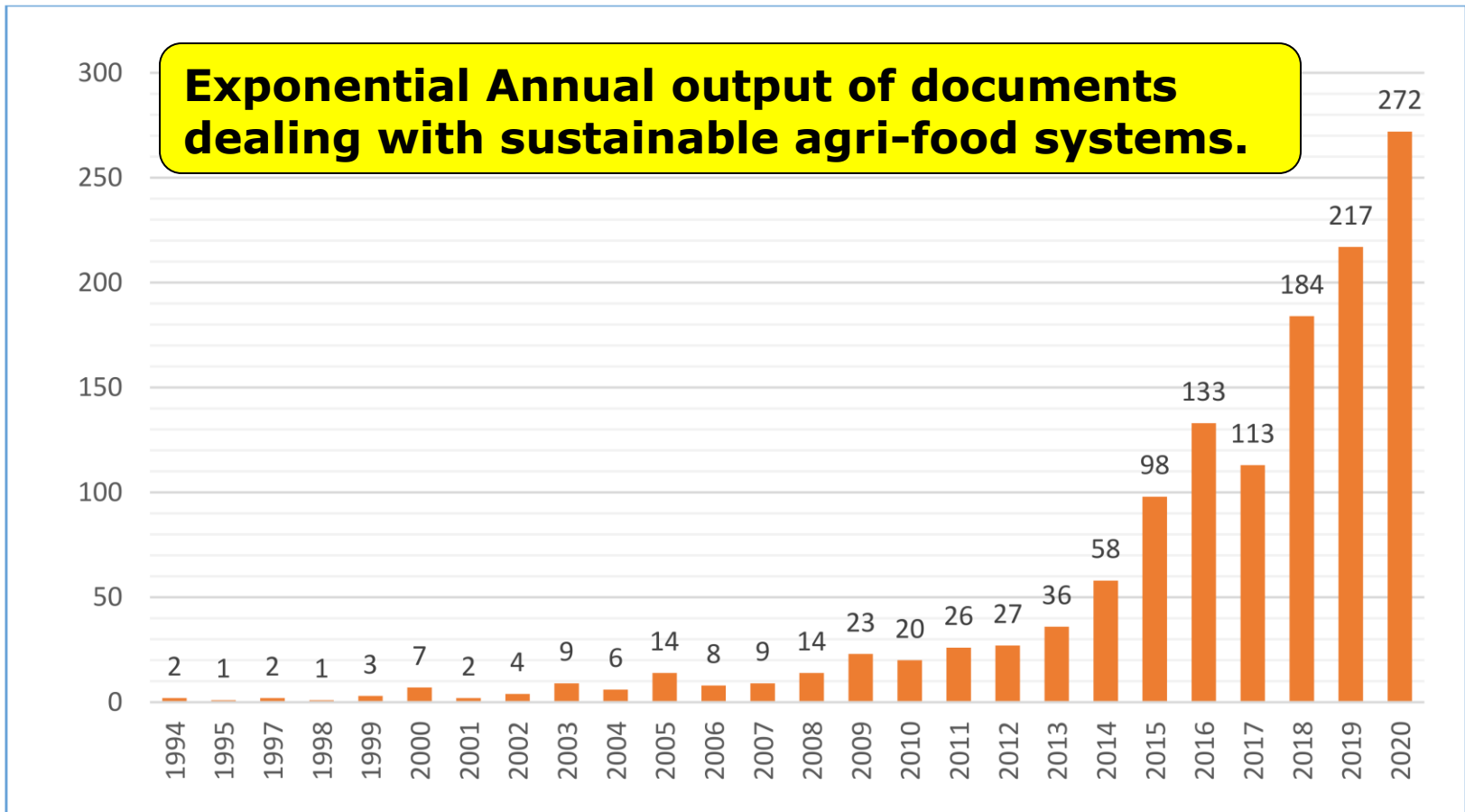


Diminishing vegetation cover reduces resilience to climate especially smallholder farms.

Why transform: Agri food system underperforming (2023 -2024)

- **Low cereal Production** (Maize, Rice, wheat, Sorghum)
- about **3.8 million tonnes**, 3% down from the previous five-year average.
- Mostly maize at **3.5 million tonnes**
- **4.4 million people risk** acute food insecurity- 10/2023 & 03/2024 (lean period),
- Characterized by limited landholding, manual labour/low tech, low-input, low-output, low-capital production practices.

Transformation & resilience building for agri-food systems should be evidence & knowledge based .



Hamid El Bilali , Carola Strassner and Tarek Ben Hassen (2021)

Resilience relies on a combination & Interaction of livelihood capitals

(IIED, November 2017)

- **Natural** : ecosystem services
- **Physical**: infrastructure
- **Human**: skills, training, health,
- **Social**: social networks, institutions
- **Financial**: income sources, assets, consumption

Avoiding Persistent linearity, assumption that actions lead to consequences in the system without recognizing that the system itself also triggers and shapes these actions (D. Dentoni, C. Cucchi, M.Roglic, R.

Lubberink, R. Bender-Salazar, T. Manyise :2022).

Resilience outcomes of systems (to guide planning & investment)

- **Absorptive**: ability to maintain original structure by absorbing infrequent and low magnitude risks
- **Adaptive** : ability to improve original structure to manage future risks and bounce back better when shocks occur,
- **Transformative** : ability to fundamentally change its structure beyond vulnerability thresholds.

Because systems have positive & negative feedback loops; application of systems thinking should inform actions

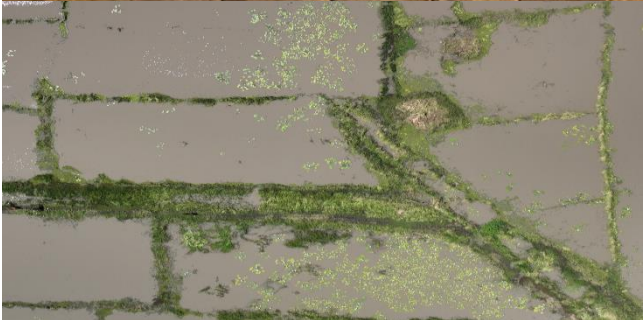
Consequences of Fixating on part not whole system

- Unintended negative results
- Short-term benefits & long term costs
- Missing out leveraging investments with multiple impact outcome

systems mapping of the configuration of problems (how multiple issues entangle with each other) & the configuration of actors (how multiple actors relate to each other & share resources) is essential.

D. Dentoni, C. Cucchi, M. Roglic, R. Lubberink, R. Bender-Salazar, T. Manyase (2022). Systems Thinking, Mapping and Change in Food and Agriculture. *Bio-based and Applied Economics* 11(4): 277-301. doi: 10.36253/bae-13930

Transformation: land & water use management during/outside rain season; climate proof against flooding/droughts; mechanization. Demand for water exceeding availability/access



Transformation: agri-food system, Need programmes for sustainable land & water use management at ecosystem /landscape / catchment



Infrastructure matters for the resilience of the agri-food systems, need to leverage on local capacity in EWS/response plans



Rice transferred from flooded Kachulu to Chisi island for safe keeping june 2023

Address maize based diet emphasis /overconsumption /wastage

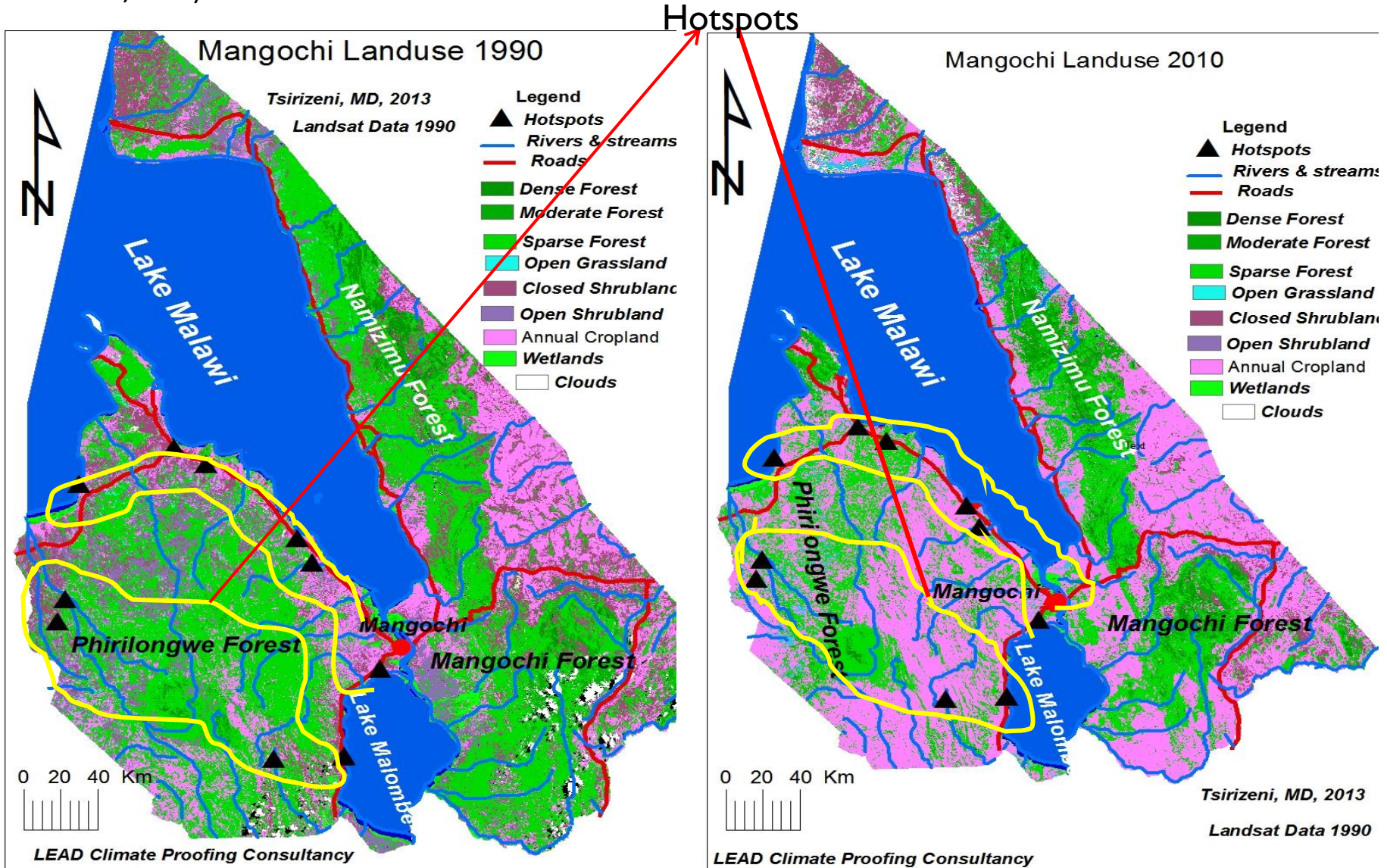


- Transform within & out of maize production
- Diet diversification
- Address market volatility

Attaining sustainable services from ecosystems through trade-off scenarios (ASSETS). Research Funded by Natural Environment Research Council (NERC), and Economic and Social Research Council (ESRC) through the Ecosystem for Poverty Alleviation (ESPA) programme in the UK. Project sites Malawi, Columbia and Peru. **S Chiotha Principal investigator in Malawi**, overall coordination by Prof Justin Sheffield University of Southampton, UK. 2011-2017.

Time series remote sensed data – Mangochi ecosystem degradation (LEAD

publications, 2013)



Tools for transformation include application of the Lilongwe principles of the CBD, NBS (Chiotha, et al, 2018; 2024)

Step A: Determining the main stakeholders, defining the ecosystem area, and developing the relationship between them.

Step B: Characterizing the structure and function of the ecosystem, and setting in place mechanisms to manage and monitor it.

Step C: Identifying the important economic issues that will affect the ecosystem and its inhabitants.

Step D: Determining the likely impact of the ecosystem on adjacent ecosystems.

Step E: Deciding on long-term goals, and flexible ways of reaching them.

Innovative Leveraging on Carbon financing for agri-food system transformation: stimulating sustainable growth, alternative energy, creating products for local/export market, wealth creation & reverse environmental degradation



**S Chiotha :Enhancing agricultural growth & diversification Keynote Presentation at the 10th Eminent Speaker Series,
BICC, Lilongwe, 25 Jan,2023:MwAPATA Institute, NPC, LUANAR**

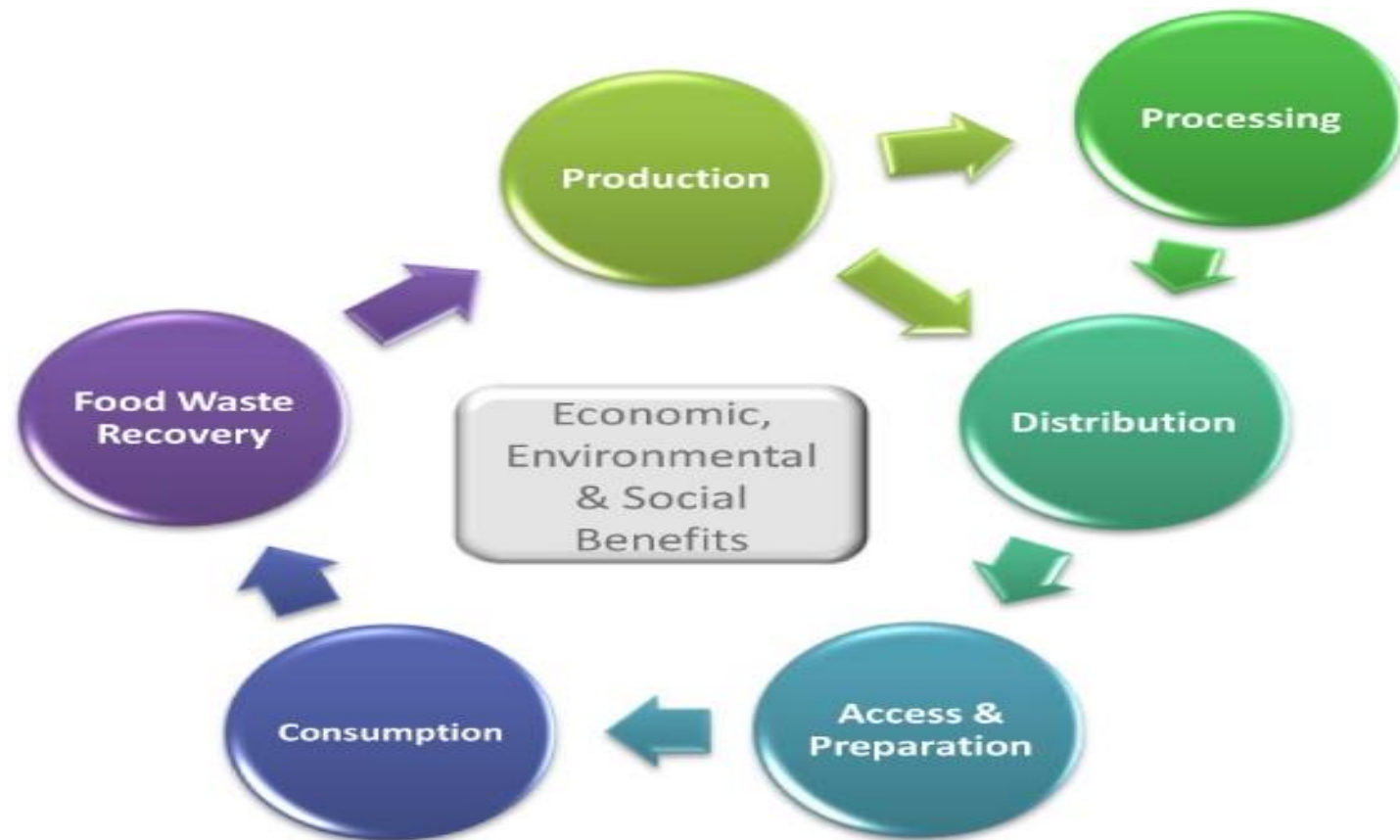
Upscale agricultural production through technology application such as IT applications to optimize water use in drip irrigation as in Salima green belt.



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S Chiotha :Enhancing agricultural growth & diversification Keynote Presentation at the 10th Eminent Speaker Series, BICC, Lilongwe, 25 Jan,2023:MwAPATA Institute, NPC, LUANAR

Conclusion :Sustainability of the Agri Food System requires coordinated & integrated systemic transformational actions at multiple points for positive resilience & wealth outcomes



<https://www.calgary.ca/major-projects/sustainable-food-system.html#:~:text=A%20sustainable%20food%20system%20is,of%20a%20community%20and%20region>



THANK YOU