



SSRP
SUSSEX SUSTAINABILITY RESEARCH PROGRAMME

Evidence for Action

Aligning the Climate and SDG Agendas

Online International Research Symposium | 20-22 July 2021



Circular Food Systems in African Cities

Towards Climate Mitigation & Adaptation and SDG 2

Peter Desmond MA(Oxon) MA FCA MBA
African Circular Economy Network

21st of July 2021



Context

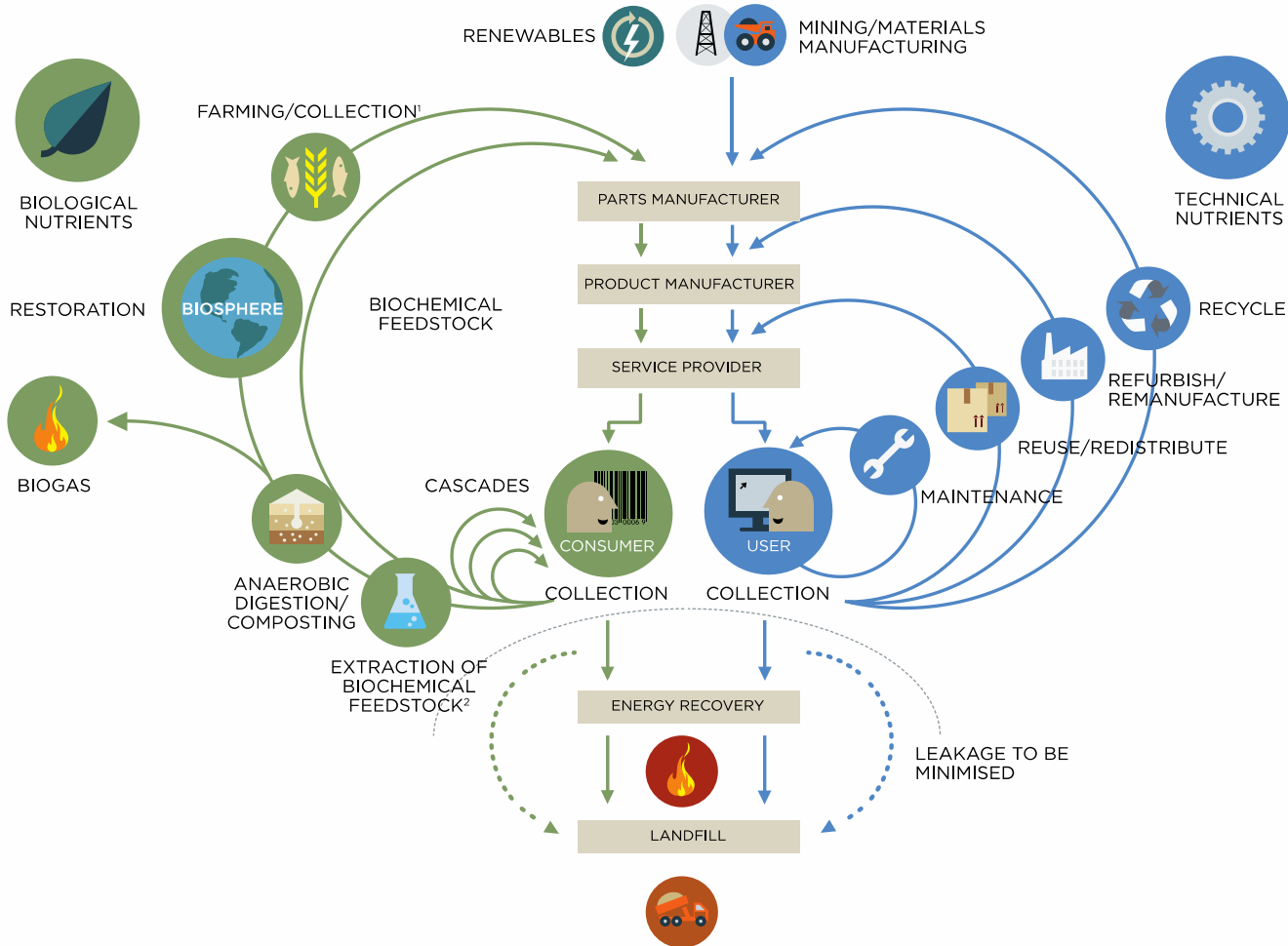
- Introductions ACEN and ICLEI Africa (and draft Discussion Paper)
- Purpose: to **inspire** people to **action** and give **direction** to future food systems in African cities - how does circularity help food systems achieve SDGs and mitigate climate change?
- Research Question: *“How to make food systems sustainable through a circular economy approach in African cities particularly at the rural-urban nexus?”*
- SDG focus - 2 (Zero Hunger), 6 (Clean Water & Sanitation), 8 (Decent Work and Economic Growth), 12 (Responsible Consumption and Production), 13 (Climate Action) and 15 (Life on Land).

Food and Climate and Ecological Breakdown

- Global food security and resilience are being challenged by climate change.
- On the one hand agriculture is affected by climate change, but on the other hand it also contributes to climate change
- Agriculture accounts for 26% of the global greenhouse gas emissions (IPCC, 2019), loss in habitat and biodiversity including soil biodiversity.
- Yet food production has to be increased between 25% and 70% to feed a world population of 9.1 billion people in 2050

Circular Economy and Relevance to Africa and Cities

- What is a circular economy? *“A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.” (Ellen MacArthur Foundation, 2013)*
- How does it differ from a linear economy? We need to move away from the current economic approach of *“Take-Make-Waste”* which is resulting in non-achievement of SDGs, increasing carbon emissions and adversely impacting the lives and livelihoods of those least able to mitigate and adapt to the consequences.
- Africa has been using circular principles for generations. As new business models and technologies emerge, the opportunities for agriculture, manufacturing and waste management can be harnessed to improve livelihoods and reduce poverty.



Butterfly Diagram

By Ellen MacArthur Foundation

Three principles for a Circular Economy:

1. Design out waste and pollution
2. Keep products and materials in use
3. Regenerate natural systems.

What is a Food System?

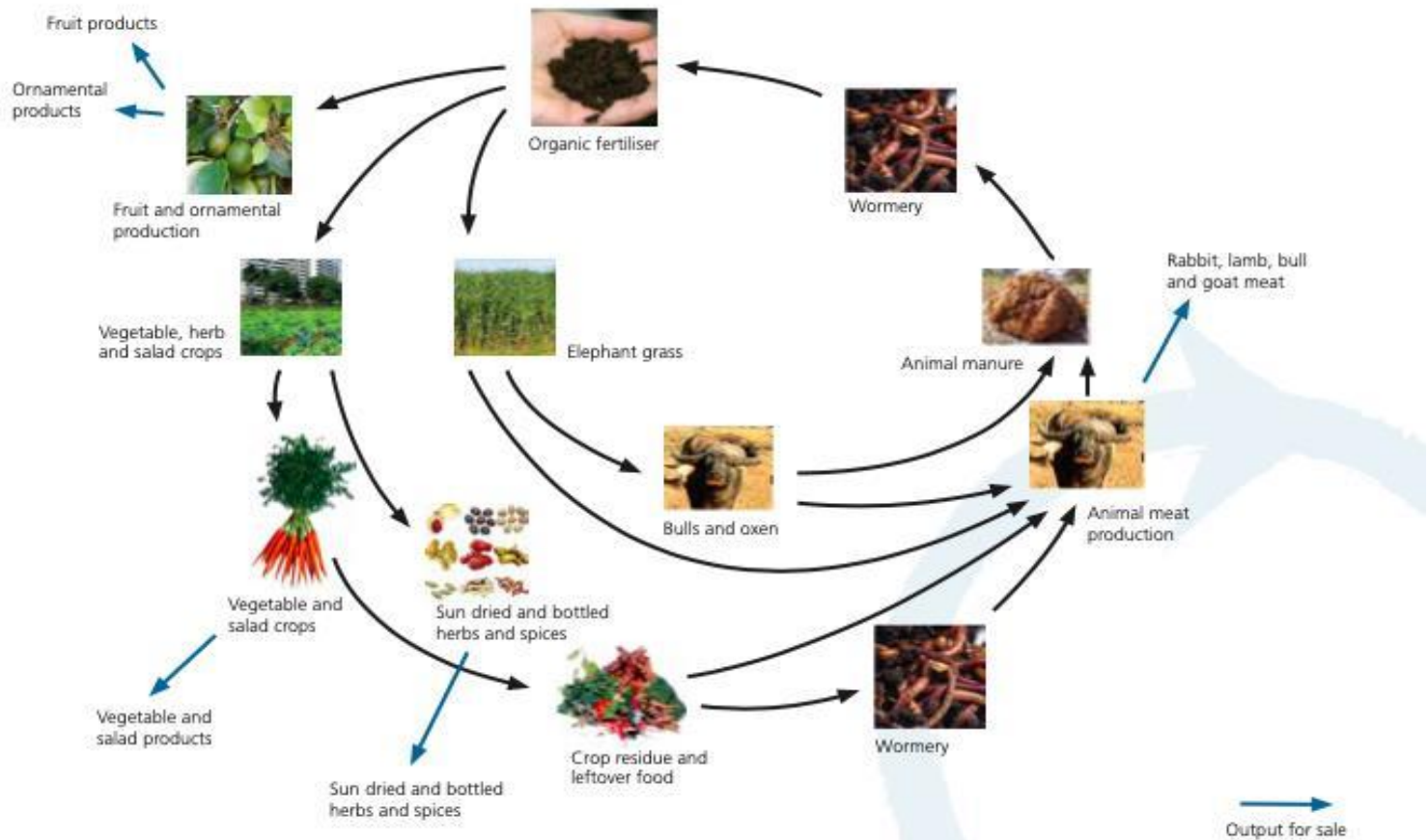
“A food system includes all processes involved in keeping us fed: growing, harvesting, processing (or transforming or changing), packaging, transporting, marketing, consuming and disposing of food and food packages. It also includes the inputs needed and outputs generated at each step. The food system operates within and is influenced by social, political, economic and natural environments. Each step is also dependent on human resources that provide labor, research and education.”

(Farmland Information Center, 2008)

Challenges for Food Systems in Africa

- Food security is an increasingly important topic on the international agenda with 20% of the African population undernourished.
- Africa generates high quantities of food losses due to poor farming and especially post-harvesting handling techniques.
- The African continent is under great pressure to solve the increasing need for food security due to an explosive increase in the population combined with additional challenges from climate change.
- Africa's urban population is expected to nearly triple by 2050, to 1.34 billion (Cartwright, 2015).
- In 2015, 226 million youth aged 15-24 lived in Africa, accounting for 19 per cent of the global youth population. By 2030, it is projected that the number of youth in Africa will have increased by 42 per cent (United Nations, 2015).

Example of a Circular Agricultural System



(Jones et al., 2011)

Case Studies

[Hello Tractor](#) – mobile app to help farm equipment owners share and earn - Nigeria

[Safi Organics](#) - decentralized fertilizer production improving smallholder farmers' yields - Kenya

[The Compost Kitchen](#) – household food waste collection to vermicompost - South Africa

[Kumwe Harvest](#) – logistical support and centralized hub for maize farmers - Rwanda

[Urban Agricultural Initiative](#) – inner city diverse farming operations - South Africa

[U Can Grow Africa](#) - regenerative farming with 4th Industrial Revolution – South Africa

[Woolworths “Farming for the Future”](#) – holistic approach to entire farming process - South Africa

Conclusions

- Opportunities for the circular economy in the food systems of African cities are closely tied to the relationship with peri-urban areas that surround the city e.g. post-harvest losses can be reduced at production, handling and consumer stages.
- Agricultural by-products and organic food waste of African cities can be made into new products e.g. conversion of waste from food production and household organic waste into soil conditioner organic fertiliser, insect-based animal feed e.g. brewers' grains and rice husks
- Regenerative farming techniques which mirror natural systems to improve soil health, protect biodiversity, reduce water run-off and increase resilience.
- Create new types of food which are healthier for people and the planet

References

Cartwright, A. (2015) “Better Growth, Better Cities: Rethinking and Redirecting Urbanisation in Africa” The New Climate Economy

Farmland Information Center (2008) “Primer on Community Food Systems: Linking Food, Nutrition and Agriculture”

IPCC (2019): “Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems” P.R. Shukla et al.

Jones, A. Pimbert, M. Jiggings and Janice, J. (2011) “Virtuous Circles: Values, Systems and Sustainability”

United Nations Population Division (2015) “Population Facts” No. 2015/1



Peter Desmond
African Circular Economy Network

www.acen.africa
peter.desmond@acen.africa