THE JOURNEY OF FOOD

Entry Points & Opportunities for a Food System Transformation
80% of nitrogen used is wasted today = 200 million tonnes of reactive nitrogen are lost to the environment every year at a cost of USD 200 B.

2020

- 41% potash-based fertilizers provided by Belarus
- 14% globally traded nitrogenous fertilizers provided by Russia
- 11% phosphorous-based fertilizers provided by Russia

CASE STUDY: Plant-powering a Green Economy
Mariama Mamane | JACIGREEN | Burkina Faso

Mariama Mamane’s innovation is a 4-in-1 solution converting water hyacinth into organic fertilizer and electricity, simultaneously enhancing river health and clean water access.
Mariama’s ‘Jacigreen’ is taking on invasive water hyacinth choking the Niger river. The project generates organic fertiliser and compost while offering local communities clean energy through biogas. It not only supports water and food security, but also empowers farmers, provides training opportunities for women, and contributes to the reduction of poverty.

“We must find nature-based solutions to meet the challenges of the planet. I decided to spend my time and energy on this project because the transformation of the water hyacinth brings an elegant solution to the problem of the proliferation of this plant.”
Food production is responsible for:

- 60% of global biodiversity loss
- 75% of freshwater use
- 25% of anthropogenic GHG generation

FROM 1980 TO 2000

42 million hectares
- tropical forest lost to cattle ranching in Latin America

6 million hectares
- lost to palm oil in Southeast Asia

CASE STUDY:
Top young chef future-proofing the Philippines

Louise Mabulo | THE CACAO PROJECT | Philippines

Through The Cacao Project, Louise Mabulo aims to combat deforestation by restoring barren lands, promoting fair trade, reforestation, and empowering smallholder farmers with higher incomes.
Innovator: Louise Mabulo  
Business: The Cacao Project  
Location: Philippines

The Cacao project is leading reforestation in the Philippines, supporting farmers affected by natural disasters and deforestation. By restoring degraded landscapes, planting high-value trees, promoting fair trade, and creating economic development, this project empowers farmers with higher incomes, promoting regenerative farming methods and building resilience to the impacts of climate change. To date over 200 farmers have been supported, planting over 70,000 trees through 70 hectares of land.

There is great potential in harnessing the power of our forests in rethinking Philippine food systems. We hope to educate farmers so that they can live a better quality of life.
470 million smallholder farmers experience post-harvest food loss with up to 15% reduced income. Developing countries are hit the hardest.

37% of food produced in Sub-Saharan Africa is lost post-harvest (estimated by FAO since 2011).

CASE STUDY: Turning post-harvest crop waste into energy in India

Vidyut Mohan | TAKACHAR | India

Vidyut Mohan tackles India’s post-harvest waste challenge by converting crop waste into marketable products using Takachar, a portable and affordable biomass upgrading equipment that benefits rural farmers.
Takachar aims to increase the transformation of waste biomass into marketable products globally, reducing pollution from open-air biomass burning. Through affordable and portable biomass upgrading equipment, rural farmers can convert crop residues into fuels, fertilizers, and value-added chemicals on-site, earning 40% more income. By 2030, Takachar plans to impact 300 million farmers, generating $4 billion per year in additional rural income and jobs, and mitigating one gigaton per year of CO2 equivalent emissions.

"We’d like to scale the amount of activated carbon that can be produced from biomass, starting with making the coconut shell value-chain less polluting than what it is right now and bringing the value more towards farmers."
**FOOD PROCESSING**

**CASE STUDY:** Low-tech dehydrator supporting small scale female farmers

Nidhi Pant | S4S (SCIENCE FOR SOCIETY) TECHNOLOGIES | India

S4S Technologies, led by Nidhi Pant, offers solar-powered dryers that process vegetables, reducing spoilage, providing preservative-free nutrition, and ensuring farmers a guaranteed source-to-market for solar-processed goods.

**Agriculture**

Employs **65–70%** of African workforce

Supports **90%** of livelihoods of Africa’s population

Accounts for approx **25%** of continent’s GDP

**Global Fruit & Vegetable Processing market**

- **2021 – 2022** valued at **USD 204 million**
- **2030** Expected to expand by **11.46%** to **USD 391 million**
Innovator: Nidhi Pant  
Company: S4S (Science for Society) Technologies  
Place: India

Nidhi Pant, inspired by a severe drought in her hometown, co-founded S4S Technologies which focuses on producing quality solar-dehydrated products, assisting women without land as well as farmers to become entrepreneurs by providing micro food processing units that help them generate an average additional income of $1,000 - $1,500 annually. S4S currently operates in eight countries and allows entrepreneurs to generate additional income and eventually own their equipment.

S4S model transforms landless women farmers to become micro-entrepreneurs, climate warriors and changemakers. S4S believes bringing government authorities and grassroots women together is critical to affecting sustainable change.
**5**

**Food Distribution**

4% of global GHG emission is caused by the food cold chain. This includes cold chain technologies as well as food loss and waste due to lack of refrigeration.

37% of the estimated food loss waste in sub-Saharan Africa is 120-170kg per year per capita.

**Case Study: Sustainable Distribution through Renewable Cold-Chain.**
Dyssu Kisilu | SOLAR FREEZE | Kenya

Dyssu Kisilu is founder of Solar Freeze, a Kenya-based enterprise that has pioneered mobile cold storage units powered by renewable energy to help rural smallholder farmers reduce post-harvest losses.
Innovator: Dysmus Kisilu
Business: Solar Freeze
Location: Kenya

Dysmus has tackled postharvest losses and lack of cold storage in Eastern Kenya. Through a "pay-as-you-store" system, smallholder farmers can store produce in portable solar cold rooms for as little as 0.1 cents. He also launched the 'Everyone, teaches, trains and wins' project, training young people in renewable energy and smart agriculture, providing them with regular income and developing the next generation of leaders in climate-friendly practices. Through his technology, smallholder farmers have seen over 150% increase in agricultural yields since 2016.

"The idea is not only to increase yields, but also to make new generations aware of renewable energies."
**FOOD MARKETS**

90% of the world’s marine fish stocks are fully exploited, overexploited or depleted. (UNCTAD, 2017)

97% of the world’s fishermen live in developing countries.

60 million people are involved in fisheries and aquaculture.

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**CASE STUDY: Traceable seafood supporting sustainable fishers**

Serge Raemaekers | ABALOBI | South Africa

Serge Raemaekers’ ABALOBI, is facilitating the achievement of equitable, transparent and traceable seafood value chains through the ABALOBI MARKETPLACE app.
The ABALOBI Fisher App records fishers’ catches, activities, expenses, and income, providing basic analytics and allowing direct sales to consumers. Abalobi shortens the value chain, improves profits, and stimulates community entrepreneurship. By analyzing the logged information, the app supports fishers in making informed decisions while filling data gaps in the sector. This digital platform empowers fishers with proof of their livelihood and enables consumers to track the entire value chain through QR codes.

Our central goal of supporting fishers through tech to be owners and users of their data, coupled with the development of equitable and transparent markets for traceable, locally sourced seafood, aims to shift fishers to a more equitable position in the value chain.
FOOD CONSUMPTION

9 BILLION IN 2050
Predicted world population

70% estimated increase of food calories required
70% more dependence on the productivity of our landscapes and oceans.

670 MILLION PEOPLE
Estimated to still be undernourished in 2030
8% of the world population
The same percentage as in 2015 when 2030 Agenda was launched.

CASE STUDY: A Fitbit for sustainable shopping
Hugh Weldon | Evocco | Ireland
By taking a picture of your shopping receipt, Hugh Weldon’s Evocco app gives a climate breakdown of products bought, helping consumers get the most nutritious food for the lowest climate impact.
Innovator: Hugh Weldon  
Company: Evocco  
Place: Ireland

Launched in Ireland in 2020 and the UK in 2021, Evocco is a mobile app that enables users to track and improve their carbon footprint through food purchasing choices. By taking photos of food receipts, users can see their score, which combines the climate impact and nutritional value of their purchases, encouraging more sustainable choices, and driving system-wide change.

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Evocco uses the power of innovative tech to shift consumer-behaviour towards more sustainable lifestyle choices.

Evocco is empowering consumers to take individual action and make more informed food purchases.

Evocco helps to build a ‘collective consciousness’ to encourage consumers to work together to achieve the reduction of emissions through food purchasing power.

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"Consumers are struggling to align their beliefs with their purchases. This is predominantly due to the lack of easily accessible, understandable and relatable information on the issue, resulting in widespread public confusion and frustration."
8 BILLION PEOPLE

FOOD LOSS & WASTE

1 BILLION PEOPLE could be fed with the amount of food lost and wasted per annum

3 BILLION PEOPLE worldwide cannot afford a healthy diet

811 MILLION PEOPLE are hungry

60% of daily municipal food waste is redirected to animal feed in Japan and South Korea - leaders in recycling food waste into animal feed

CASE STUDY:
Upcycling indigenous food waste into jams and sauces

Bonolo Mokhe | Maungo Craft | Botswana

Maungo Craft has formed a unique value chain from food waste, using discarded fruit from indigenous oil manufacturers while empowering smallholder farmers, particularly women in rural communities.
Innovator: Bonolo Monthe
Company: Maungo Craft
Place: Botswana

Maungo Craft in Botswana turns processed fruit waste into low-sugar ‘superfood’ jams and gourmet preserves. Maungo reduces food waste and supports job creation, working with female harvesters and using indigenous ingredients, while contributing to the growth of the food and cosmetic sectors. This purpose-driven company expanded to the USA and became the first Botswana based food company to sell on Amazon, showcasing that waste can bring benefits to livelihoods, farmers, and the environment.

“...It takes roughly 300 tons of marula fruit pulp to get 12 tons of marula cosmetic oil. The rest of the fruit typically goes under-utilized. So, we thought to ourselves, we know what happens with the oil, but what happens to all that fruit?”