BSF LOMBOK

IMPLEMENTING CIRCULAR ECONOMY BUSINESS MODELS

ACCELERATING UNITED NATIONS' SDGS

BUILDING RESILLIENT COMMUNITIES

DECEMBER 2022

ANNUAL IMPACT REPORT

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WHAT ARE WE

BSF Sengkol (Lombok) is a pilot project of Organic Waste Conversion established in 2020 using Black Soldier Fly in the area of Mandalika, Lombok Tengah.
Developed under a public-private partnership, BSF Lombok is an inclusive circular business model that provides social, economic and environmental benefits to the community while establishing resilient businesses that are compatible with our capacity to regenerate our resources and absorb our waste.

WHAT WE DO

BSF Sengkol Facility creates value out of waste by bio-converting Organic Municipal Waste into Compost and Whole Larva Protein Feed for Chickens and Fish.
BSF treatment method uses Insects, Black Soldier Fly, a natural system of Bioconversion, to help decompose our food without the need of special machines, electricity, nor sophisticated technology which allows the engagement and empowerment of low-income communities.

BSF LOMBOK ORGANIC WASTE CONVERSION

ACCELERATING SDGS

Out of 17 SDGS, BSF Lombok contributes to 12 SDGS

"Developing a circular agriculture based on the production of **black soldier flies (BSF)** as feed and using the BSF waste stream as biofertilizer can support poverty alleviation, food security, economic integration, sustainable communities in rural areas, thus promoting participation and reintegration of former conflict actors to support peace and justice." (K.Barragan, 2020)

ECONOMIC PILLAR

SDG 1: NO POVERTY

By creating new revenue models and jobs that require no high education, allowing locals, both men and women, to easily learn the process and do the job without any minimum pre-skilled requirements.

SDG 2: ZERO HUNGER

By producing both Natural Fertiliser which is proven to increase agricultural yields of local farmers by 30% and Organic Protein Feed which is a cheaper and healthier substitute to Poultry and Aquaculture Feed.

SDG 3: GOOD HEALTH & WELLBEING

By removing Organic Waste safely from landfills which create methane and off-gassing to neighbouring communities.

SDG 8: DECENT WORK & ECONOMIC GROWTH

By providing continuous trainings and job opportunities empowering the local community and creating new business models and revenues out of a market that didn't exist before.

BSF LOMBOK ORGANIC WASTE CONVERSION

ACCELERATING SDGS

ECONOMIC PILLAR

SDG 9: INDUSTRY, INNOVATION & INFRASTRUCTURE

By investing in circular economy business models and innovation in the form of industrial insect farming and waste management systems infrastructure.

ENVIRONMENTAL PILLAR

SDG 6: CLEAN WATER & SANITATION

By removing Organic Waste from public drains and open landfills, by training on BSF treatment of animal manure to avoid Typhoid contamination and by promoting Organic Natural Fertilizer instead of chemical fertilizers which pollute underground water sources.

SDG 12: RESPONSIBLE CONSUMPTION & PRODUCTION

By establishing a production model that emits No GHG and that converts a product of zero value into two end products of great positive impact.

SDG 13: CLIMATE ACTION

By creating clean resilient industries that use Nature as an alley without emitting CO2, avoiding methane production in landfills and returning nutrients back to the soil. By creating alternative protein feed that needs significant less land and water than the traditional soy plantations.

SDG 14: LIFE BELOW WATER

By producing alternative Aquaculture Feed to fisheries which currently account for 30% of the global wild fishing.

BSF LOMBOK ORGANIC WASTE CONVERSION

ACCELERATING SDGS

ENVIRONMENTAL PILLAR

SDG 15: LIFE ON LAND

By returning nutrients back to the soil by producing Natural Organic Fertiliser that improves the soil texture allowing it to hold more water and increase its bacterial and fungal activity.

SOCIAL PILLAR

SDG 5: GENDER EQUALITY

By creating inclusive employment and empowering, which includes women and youth.

SDG 12: PEACE, JUSTICE & STRONG INSTITUTIONS

By creating new revenue models that help low income communities in food security and poverty alleviation therefore contributing to support peace and justice.

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ANNUAL IMPACT

Second Year of Operations 21-22

EMPOWERING PEOPLE

FOCUS ON GENDER, DIVERSITY AND INCLUSION

TRAININGS PROVIDED:

1 8 20

UNRAM STUDENTS

Provide skills related to Circular Economy, Waste to Value and Economical & Social Impact of Circular Business Models.

2 0 36

BSF WASTE TREATMENT

Provide skills and knowledge on how to operate a BSF Facility, establish the nursery & breeding unit, treating waste and harvesting end products.

3 8 10

ORGANIC COMPOSTING

Provide skills on composting, to combine the BSF Residue (Frass) with the landscape waste to make the best fertiliser quality & business.

4 40 40

WASTE MANAGEMENT

Capability Building training for effective waste management system and implementation incorporating the existing players and infrastructure. **(BSF Sengkol was the hired as the Waste Management Company for the MOTO GP)**

5 11 23

ORGANIC FERTILIZER

Provide knowledge & skills on organic fertilizer vs. chemical fertiliser and how to produce organic fertilizer out of food waste or animal manure.

6 0 3

POST PROCESSING BSF

Capability Building Training on post processing live BSF larvae into different end products: Protein Palates, Dried Larvae, Insect Oil, etc.

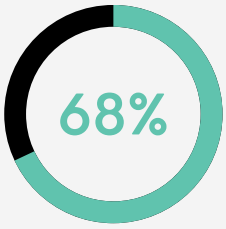
PEOPLE WORKING AT BSF SENGKOL / GENDER EQUALITY:

BSF FACILITY

WASTE COLLECTION

COMPOSTING

2 MEN



18 WOMEN

From early 2022, most man power in BSF facility is women, working voluntarily 1-2 hours per day in the facility in exchange for live larvae, that they use as feed for their chickens, ducks or fishes.

PROMOTING NEW LOCAL SUSTAINABLE BUSINESS:

Six New Organic Duck Farms have emerged in the last year in Sengkol Village.
Three pool fish farms have also been created in Sengkol in the last year.
Women /Business owners, work voluntarily in exchange for daily feed.

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ENVIRONMENTAL IMPACT

FOCUSING ON CIRCULARITY

REGENERATING LAND:

Our Compost is a mix between the Frass (Larvae Poop) and the Takakura Composting method.
This way we can assume both food waste and landscape waste.

WASTE CONVERSION:

Our Black Soldier Fly Larvas help reduce the volume of Organic Waste and convert it into Frass + Larva, which is an alternative to Protein Feed for Chickens and Fish.

4,050kg
ORGANIC COMPOST SOLD

96 tons
ORGANIC WASTE COLLECTED

13,5 tons
LIVE LARVA SOLD

57%
WASTE VOLUME REDUCTION

10%
FROM FOOD DISTRIBUTORS EXPIRY PRODUCTS

15%
FROM LOCALWEDDINGS & LOCAL MARKET IN PRAYA

75%
RESTAURANTS WASTE COLLECTED FROM SENGKOL – KUTA AREA

PROMOTING CIRCULAR ECONOMY BUSINESSES:

We believe that moving towards a circular economy is our only path to meaningful economical, environmental and social impact. Our aim is to show that organic waste can be a valuable product that can contribute to Net Positive Agriculture and to lower GHG Emissions.

CENTER OF EXCELLENCE

Better Feed, Better Future.

BSF Sengkol Mission is to help the current Food Production System to absorb its waste and become Circular: Out of a waste stream with almost no value, organic waste, we create an industrial Waste Conversion System that upcycles Organic Residue into compost and alternative protein farming feed.

THE OVERALL VISION:
To become a global center of excellence on Circular Economy, Organic Waste Conversion, Regenerative Agriculture and Farming.

With this in mind, mid of 2022, we signed an MOU with partner **NGO Invest Islands Foundation** to help us establish a Permaculture & Regenerative Agriculture Center of Excellence at BSF Sengkol Site.

Since then, a lot of work has been done, but unfortunately we are still far from the goal of having a place where we can:

1. Become a Learning Center for locals and foreigners on Permaculture & Organic Farming.
2. Sell Organic Farming Produce. There is a huge demand for organic eggs and chickens for example.
3. Become a Circular economy Visitor Center for Tourism Local and Foreigner.

In Year 2022, the Pandemic came to an end, which allowed the Waste Conversion Facility to become Economically Sustainable but the Center of Excellence still needs funding to reach its maximum potential.
Nevertheless, BSF Sengkol is recognised in Lombok as a key example for better practices and Sustainable Community Development.

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NEXT STEPS

Future Goals

Where do you go from here?

The current Facility Performance after two years of operations is at 70% of its capacity.
Currently thanks to the donation of a pick up vehicle by the Environmental Office (LHK), the contract on Waste Management & Collection for the Moto GP and Superbike events, the engagement of several restaurants in Kuta which pay for waste collection and thanks to the fact that most of the people working in the facility do it in exchange for larva, the facility is finally Economically Sustainable. However, the Center of Excellence and Organic Farm is at early stage and needs funding.
Note: The facility sold 100% of it's production of Compost and Larva to local farmers from Sengkol.

1

ACTION OR COMMITMENT

The local authorities must increase the Waste Collection Capabilities so that the facility can maximise its capacity and become economically viable.

2

ACTION OR COMMITMENT

There must be waste sourcing educational programs on local communities and markets to avoid waste contamination and improve the waste conversion capacity.

3

ACTION OR COMMITMENT

Private Sector Engagement is essential in order to continue the positive impact in the region. CSR Budgets, Philanthropic Fundraises and Donations are key in order to scale up.

4

ACTION OR COMMITMENT

Policy Development and Implementation is essential to legally develop Circular Economy Businesses around NTB Province, Indonesia.

BSF LOMBOK

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Want to know more?

STAY IN TOUCH

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