BSF SENGKOL

IMPLEMENTING CIRCULAR ECONOMY BUSINESS MODELS

ACCELERATING UNITED NATIONS' SDGS

BUILDING RESILLIENT COMMUNITIES

DECEMBER 2024

ANNUAL IMPACT REPORT

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WWW.BAMBOOKSTUDIO.COM

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

ANNUAL IMPACT

Third Year of Operations 2024

24*
TONS GH EMISSIONS REDUCTION

ENVIRONMENTAL IMPACT - 25% MORE WASTE CONVERSION THAN YEAR 2023

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.

EXPIRY PRODUCTS:

KALBE

4.16 tons
EXPIRY PRODUCTS COLLECTED

1.6 tons
COMPOST PRODUCED

0.93*
TONS
GH EMISSIONS REDUCTION

107.2 tons
ORGANIC WASTE COLLECTED

42.8 tons
ORGANIC COMPOST PRODUCED

60%
WASTE VOLUME REDUCTION

10.7 tons
LIVE LARVA SOLD/DONATED

TEACHING CIRCULAR ECONOMY & WASTE MANAGEMENT:

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. We have conducted trainings for schools, local farmers, community groups, government staff, etc.

BSF LOMBOK ORGANIC WASTE CONVERSION

ANNUAL IMPACT

Third Year of Operations 2024

EMPOWERING PEOPLE

CAPABILITY TRAININGS & INCLUSIVE COLLABORATIONS

OUR MAIN 2024 TRAININGS IN NUMBERS:

1 — 80 — 80

SMP IT ANAK MATARAM SMP N 7 PUJUT POLITEKTIK PARIWISATA

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. Basic training on Circular Economy Principles and Zero Waste.

2 — 150 — 150

DINAS LHK PROVINCE 6XDESA LOMBOK TENGAH DESA WISATA L. TENGAH

Capability Building training for effective waste management system and Circular Economy Principles. Main focus on implementation of Waste Management systems within the community and waste separation methodology.

3 — 8 — 10

INTERNATIONAL STUDENTS AUSTRALIA BSF WASTE CONVERSION

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

4 — 40 — 40

ORGANIC COMPOSTING

Provide knowledge & skills on organic fertilizer vs. chemical fertiliser and how to produce organic fertilizer out of food waste or animal manure. Training on Compost Mix: BSF Residue (Frass) with the landscape waste to make the best fertiliser quality & business.

5 — 11 — 9

BIOCHAR & PLANT PROPAGATION

Capability Building Training to provide knowledge & skills on Biochar Soil Activating Techniques. Soil Mix and Plant Propagation Techniques. Part of our Regenerative Learning Center Program.

6 — 12 — 8

INTRODUCTION TO PERMACULTURE

Hands on Capability Building Training for Local Community and Expats on Permaculture Design, Soil Health Management, No Dig Raised Garden beds & Water Management. Part of our Regenerative Learning Center Program.

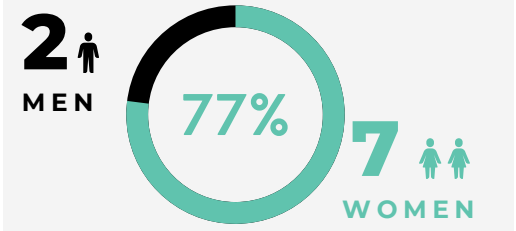
PEOPLE WORKING AT BSF SENGKOL / GENDER EQUALITY:

BSF FACILITY

WASTE COLLECTION

PERMACULTURE SITE

MANAGEMENT



APPRETIATION AWARD BY UNITED NATIONS & BAPPENAS

As part of the PAGE PROGRAM: Partnership for Action for Green Economy Indonesia, Bappenas and UN have awarded BSF Sengkol in recognition for being the **Largest Community Run Organic BSF Waste Conversion Center in all of Indonesia.**

Link: https://www.un-pageindonesia.org/en/event/read/site-visit-series-part-2-bsf-sengkol-and-bank-sampah-kekait-berseri-in-lombok-promoting-green-and-circular-economy-practices

BSF LOMBOK ORGANIC WASTE CONVERSION / KUTA MANDALIKA

RESTAURANTS' SUPPORT

Third Year of Operations 2024

LONG TERM COMMITMENT: 21 RESTAURANTS / BUSINESSES JOINED OUR PROGRAM

- SEPARATING THEIR WASTE
- PAYING FOR ORGANIC WASTE COLLECTION
- CONTRIBUTING TO A SUSTAINABLE FUTURE

The Support of several businesses in Kuta has been KEY to ensure our success and has helped the region beyond our imagination.

THEIR ENVIROMENTAL POSITIVE IMPACT IS OUTSTANDING.

mama pizza

14.81 tons ORGANIC WASTE COLLECTED

5.9 tons COMPOST PRODUCED

3.32* TONS GH EMISSIONS REDUCTION

Mana ECO RETREAT

12.12 tons ORGANIC WASTE COLLECTED

4.8 tons COMPOST PRODUCED

2.71* TONS GH EMISSIONS REDUCTION

RASCALS

15.09 tons ORGANIC WASTE COLLECTED

6.03 tons COMPOST PRODUCED

3.38* TONS GH EMISSIONS REDUCTION

Kenza

6.38 tons ORGANIC WASTE COLLECTED

2.55 tons COMPOST PRODUCED

1.42* TONS GH EMISSIONS REDUCTION

bush radio

6.91 tons
ORGANIC WASTE COLLECTED

2.76 tons
COMPOST PRODUCED

1.55 *
TONS GH EMISSIONS REDUCTION

PORTER

1.03 tons
ORGANIC WASTE COLLECTED

0.4 ton
COMPOST PRODUCED

0.23*
TONS GH EMISSIONS REDUCTION

HASIL BOEMI Lombok

Artisan Natural Nut Butters

2.76 tons
ORGANIC WASTE COLLECTED

1.1 tons
COMPOST PRODUCED

0.62*
TONS GH EMISSIONS REDUCTION

LOKA LOMBOK

STAY-TRAIN-EAT-SURF -RECOVER-

4.6 tons
ORGANIC WASTE COLLECTED

1.82 tons
COMPOST PRODUCED

1.02 *
TONS GH EMISSIONS REDUCTION

Kawan 咖啡店 KOPITIAM

8.24 tons
ORGANIC WASTE COLLECTED

3.3 tons
COMPOST PRODUCED

0.85*
TONS GH EMISSIONS REDUCTION

Knalpot

TROPICAL BISTRO - KUTA BEACH - LOMBOK

4.37 tons
ORGANIC WASTE COLLECTED

1.75 tons
COMPOST PRODUCED

0.98*
TONS GH EMISSIONS REDUCTION

BARA

3.85 tons
ORGANIC WASTE COLLECTED

1.54 tons
COMPOST PRODUCED

0.86*
TONS GH EMISSIONS REDUCTION

NOHI
RESTAURANT – FRESH FOOD & PASTRY

2.88 tons
ORGANIC WASTE COLLECTED

1.15ton
COMPOST PRODUCED

0.64*
TONS GH EMISSIONS REDUCTION

Jati

1.62 tons
ORGANIC WASTE COLLECTED

0.65 tons
COMPOST PRODUCED

0.36*
TONS GH EMISSIONS REDUCTION

TREEHOUSE RESTAURANT & BAR

1.3 tons
ORGANIC WASTE COLLECTED

0.52 tons
COMPOST PRODUCED

0.29*
TONS GH EMISSIONS REDUCTION

damonte
GELATO ITALIANO

0.78 tons
ORGANIC WASTE COLLECTED

0.31 tons
COMPOST PRODUCED

0.18*
TONS GH EMISSIONS REDUCTION

Simonetta

0.82 tons
ORGANIC WASTE COLLECTED

0.33 tons
COMPOST PRODUCED

0.18*
TONS GH EMISSIONS REDUCTION

CANTINA MEXICANA

3.38 tons
ORGANIC WASTE COLLECTED

1.35 tons
COMPOST PRODUCED

0.76*
TONS GH EMISSIONS REDUCTION

EL BAZAR

2.07 tons
ORGANIC WASTE COLLECTED

0.83 ton
COMPOST PRODUCED

0.48*
TONS GH EMISSIONS REDUCTION

MILK ESPRESSO

5.05 tons
ORGANIC WASTE COLLECTED

2.02 tons
COMPOST PRODUCED

1.13*
TONS GH EMISSIONS REDUCTION

THE MEXICAN IN TOWN

4.77 tons
ORGANIC WASTE COLLECTED

1.91 tons
COMPOST PRODUCED

1.07*
TONS GH EMISSIONS REDUCTION

*MEASURING GREEN HOUSE EMISSIONS REDUCTION FROM BSF ORGANIC WASTE CONVERSION

BSF Organic Waste Conversion uses an army of larvas as machines for decomposing food waste. A system designed by nature, without the need of any external energy, is by far the cleanest way to bio-convert biomass into compost: BSF treatment direct GHG emissions are 47 times lower than any other composting method. On top of that “the larvae can convert the carbon and nitrogen in the biomass waste, and improve the properties of the substrate to reduce the loss of gaseous carbon and nitrogen”. Besides, removing Organic Waste from Landfill if achieved globally could potentially reduce 10% of Global Methane Emissions and high potential Global Warming Potential (GWP) reduction. (Mertenat, Diener, Zurbrügg, 2018).

The conversion rate for CO2 Emission Reduction (or Green House Emissions Equivalent) used in this reports is based on 224 kg CO2-eq. / Ton from calculating the emission reduction rate from simply directly removing organic waste from landfill. All the other potential benefits in GWP reduction and others explained above have not been computed in the conversion, but must be understood as added benefits. (Yoshida, Gable, Park, 2011)

REGENERATIVE AGRICULTURE LEARNING CENTER

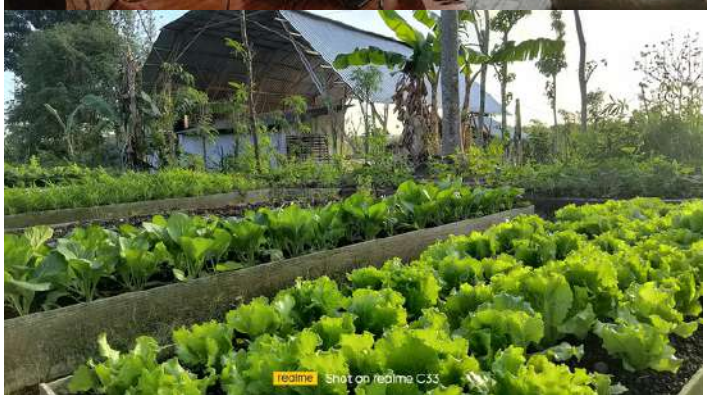
Establishing Circular Economy

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.

Long term partnership our Main Donor **Antonia Ruut Stiftung** and **Wise Steps Foundation** to help us establish a Permaculture & Regenerative Agriculture Training Center at BSF Sengkol Site. We sell Organic Veggies every Thursday in Kuta.

Our collaboration with **Wise Steps Foundation** is helping us fundraising and coordinating our next steps: **The Regenerative Agriculture Center** initiative aims to improve income generation opportunities of mostly rural farmers, reduce health risks through sustainable waste management training, and improve organic waste management infrastructure whilst positioning a community led food waste management center in Sengkol as a Center of Excellence for organic waste management. The initiative is expected to serve as a catalyst for communities and various stakeholders in Lombok and West Nusa Tenggara to learn from and adapt the concepts implemented at Sengkol Organic Waste Center.



BAMBOOK
SUSTAINABLE ARCHITECTURE & DESIGN

ANTONIA RUUT STIFTUNG

wise steps foundation

BSF SENGKOL & REGENERATIVE AGRICULTURE LEARNING CENTER

PRIVATE SUPPORT

Third Year of Operations 2024

2024 FUNDAMENTAL DONATIONS

MAIN DONOR: ANTONIA RUUT STIFTUNG
DEEP WELL DONOR: GEMELA GROUP
MEP INFRASTRUCTURE: PT. JAYA ENGINEERING

The Support of several businesses, foundations and individuals have been key in our success during year 2024.

MAIN CONTRIBUTORS TO BSF SENGKOL DURING 2024

ANTONIA RUUT STIFTUNG
wise steps foundation

MAIN DONOR / CONTRIBUTOR SINCE 2023

- ENHANCED MANAGEMENT AND OPERATIONAL EFFICIENCY
- UPGRADED INFRASTRUCTURE FOR ORGANIC WASTE TREATMENT
- STRENGTHENED COMMUNITY ENGAGEMENT
- GENERATED IMPACT-DRIVEN COMMUNITY BUSINESS

GEMELA DRILLING SERVICES

DEEP WELL DRILLING DONATION

- 80M DEEP WELL
- 6 INCH CASING
- GEOELECTRICAL SURVEY

BAMBOOK
SUSTAINABLE ARCHITECTURE & DESIGN

PERMACULTURE DESIGN FEE DONATION

- PERMACULTURE DESIGN COST FOR REGENATIVE FARM, INTEGRATING THE BSF ORGANIC WASTE CONVERSION WITH THE FARM FOR CIRCULARITY

JM ENGINEERING
MECHANICAL - ELECTRICAL - PLUMBING

MEP INFRASTRUCTURE INSTALLATION

- FULL PRO-BONO INSTALATION SERVICES FOR WATER INFRASTRUCTURE.
- DEEP WELL PUMP INSTALLATION.
- ELECTRICAL INSTALLATION.
- SITE WATER PIPING & TANKS

SUMMERSIBLE PUMP

- DEEP WELL PUMP + CABLING

PERMACULTURE DESIGN GRAPHICS

- AUTOCAD + ILLUSTRATOR

PERMACULTURE DESIGN CAPABILITY TRAININGS

- PERMACULTURE SITE DESIGN EXPERTISE
- PERMACULTURE DESIGN COURSES CONCEPT
- PERMACULTURE DESIGN COURSES IMPLEMENTATION
- TRAININGS DEVELOPMENT
- TRAININGS MANAGEMENT
- TRAININGS LOGISTICS & PROJECT MANAGEMENT
- TRAINING CLASSROOMS PROVISION
- TRAVELING EXPENSES AND FEES
- TRAINING EQUIPMENT PURCHASE

Road Map for 25-26

OPPORTUNITY TO COLLABORATE WITH BSF SENGKOL 2025

Establishing Circular Economy Center in South Lombok

DONATIONS / PHYSICAL ASSETS / INTANGIBLE ASSETS

1	***Compost House & Landscape Waste Processing Equipment***	1. Structure Building 2. Architecture Building 3. Compost House Equipment 4. Rain Water Capture 5. Nursery Equipment 6. MAIN MACHINES: a. Wood Chipper b. Coconut Shredder
2	***Improve Safety***	1. CCTV 2. Security Guard Yearly Salary
3	***Road Access***	1. Ramp Access Repair 2. Access Road Repair
4	***Permaculture Site***	1. Consumables 2. Gardening Tools 3. Seeds + Gardening Assets

BAMBOOK SUSTAINABLE ARCHITECTURE & DESIGN

ANTONIA RUUT STIFTUNG

wise steps foundation

BSF LOMBOK ORGANIC WASTE CONVERSION

NEXT STEPS - 2025

More businesses joining us!

xanadu SURF + YOGA

NIYAMA VILLAS KUTA LOMBOK

Ashtari

CURA

More Kuta - Mandalika Restaurants and businesses have joined our program and have already started to separate their Organic Waste and paying us to collect it so that we can keep making positive impact!

MORE ARE NEEDED!!!
WE KEEP GROWING OUR IMPACT!!!

OPEN FOR DONATIONS !!!!
in partnership with: REEFPROPERTY lombok

New Waste Streams:

1. Landscape Waste Conversion

The trucks to landfill are **FULL** of landscape waste including branches, leaves and all sorts of biodegradable material that should not be taken to landfill. We want to start collecting this waste and process it at site with a **WOOD CHIPPER** machine which will break down the waste into wood chips perfect for our permaculture site.

2. Coconut Waste Conversion

Unfortunately our BSF Larvae cannot eat the coconut shells and we receive hundreds of them per week. In order for us to be able to process them and make all sorts of valuable by-products from these shells we need to be able to process them. We will need a **Coconut Shredder** new machine to process this waste.

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.

BSF LOMBOK

@bsf_lombok/

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Want to know more?

STAY IN TOUCH

WWW.BAMBOOKSTUDIO.COM
JALAN RAYA KUTA, LOMBOK TENGAH, INDONESIA

This project would have not been possible with the contributions of: